

Master Thesis in Development Management

Faculty of Economics and Social Sciences
Agder University College - Spring 2007

*Natural Resource Exploitation,
Environment and Poverty:*

Linkages and Impact on Rural Households in Asutifi in Ghana

Harpa Sif Jarlsdottir Aubell
Henry Kofi Mensah

Harpa Sif Jarlsdottir Aubell and Henry Kofi Mensah

**Natural Resource Exploitation, Environment and Poverty;
Linkages and Impact on Rural Households
in Asutifi District in Ghana**

Master's Thesis in Development Management

Agder University College
Faculty of Economics and Social Sciences
in collaboration with United Nations University

2007

Abstract

The controversial negative relationship between the abundance of natural resources and economic growth and development has been at the centre of several development research discourses. It is often explained that, natural resources when exploited can be used to generate economic growth and development. However, this assertion is often rebuffed by other explanations that, natural resource abundance rather create more difficulties than benefits. The abundance of oil, coal, gold and even trees have been the route cause of problems such as riots, wars, corruption, inflation, environmental degradation and reduced economic growth in many resource rich nations especially within Sub-Sahara Africa.

Governments in developing countries with large amounts of resource have pursued policies that seek to expand the exploitation of existing natural resources to generate income for economic development. Over the years not much attention has been paid to the negative effects of policies that centre on the exploitation of natural as the main tool for economic growth and development. Natural resource exploitation has proven of potentially causing irreparable distortion on the environment and the livelihood of the people in the affected communities.

This research attempts to make an investigation into the linkages between natural resource exploitation, environmental degradation and poverty, and the impact that natural resource exploitation has on the livelihood of rural households. Using Ghana's gold mining sector as a case study, this research brings new evidence more precisely the area of Asutifi, on the linkages between mining, environmental degradation and poverty. Employing the Sustainable Livelihood Approach as an analytical tool, this demonstrates the negative relationship that exists between the abundance of natural resources and economic growth and development. This is done by assessing the impacts of natural resource exploitation on the rural households with help of the Sustainable Livelihood Framework showing examples of how the exploitation can lead to poverty.

The first chapter of this paper is devoted for a general introduction to the phenomenon of natural resource exploitation and its linkages with environmental degradation and poverty. It also set out the problem to be investigated and outlines the objectives of the study. This is followed by the literature review chapter which reviews literature from the national and international mainstreams on themes such as; natural resource abundance and economic growth/development, resource exploitation, environmental degradation and poverty; natural resources and sustainable livelihood among other related mainstreams and theories.

The third chapter of this study gives an overview of the extractive sector of Ghana's economy and a brief description of the study area. It reviews the growth and expansion in Ghana's mining industry and its contributions to the growth of the economy in general. The regulatory environment in the mining sector and the impact it has on the social and physical environment is also discussed here.

The theoretical basis of this study is introduced in the fourth chapter. The chapter tries to explain the sustainable livelihood approach which was conceptualized by the UK Department for International Development (DFID). This Approach is widely used in development research and thus was considered the most appropriate for analyzing the interface between natural resource exploitation and the creation of new poverty or poverty exacerbation

The fifth chapter explains the methodological approach for this study. It also reviews some existing methodological approaches and discusses the choice of research methods for this study. It also explains the analysis procedures used and the process by which the data collection was conducted.

This study's findings are presented and discussed in the sixth chapter. In this chapter the study uses the sustainable livelihood framework, to assess to what extent mining has distorted the livelihood systems in the study area. It also uses some aspects of Mining-Induced Displacement and Resettlement Model.

In the end, this all sums up to conclude, that the impacts of mineral resources exploitation on rural households in mining communities in the Asutifi District of Ghana have so far been negative, socially, economically, health-wise and environmentally. It recommends that government and all stakeholders in the mining sector should come together to device strategies on how to make mining operations contribute positively to community development rather than negatively. As the situation is today, evident support that natural resource exploitation is much more a case of poverty exacerbation than sustainable development.

Acknowledgements

We wish to acknowledge Professor Jonathan Baker for being our supervisor, and his encouragement and thorough assistance as well as patience and quick responses. Also we would like to thank Professor Oddvar Hollup, our previous coach, for his rich advices and encouragement in our starting phase. In addition, we acknowledge Professor Emmanuel Frempong for facilitating our research by granting us the necessary research permit, introduction and authenticity letters as well as infrastructure to enable our work. Mr. Solomon Yeboah is yet another person that we want to thank, for his assistance of introducing us to the study site and thereby granting us contacts within the area of study. Also we would like to thank all our colloquies students, tutors, staff and Professors on the study of M.Sc. in Development Management for fruitful discussions and insightful contributions throughout the course, enabling us to carry through our thesis. Last but most importantly we would like to thank all of our respondents for granting us with their experience, generosity and fruitful insights.

Declaration

“We hereby declare that the thesis: **“Natural Resource Exploitation, Environment and Poverty; Linkages and Impact on Rural Households in Asutifi District in Ghana”** has not been submitted to any other universities than Agder University College for any type of academic degree.”

Kristiansand-Norway
Harpa Sif Jarlsdóttir Aubell

.....
(07 – 06 – 07)

Kristiansand-Norway
Henry Kofi Mensah

.....
(07 – 06 – 07)

Table of Content

Abstract.....	ii
Acknowledgements.....	iv
Declaration.....	v
Table of Content	vi
Tables/Figures.....	x
Abbreviations/Acronyms	xi
1. GENERAL INTRODUCTION.....	1
1.0 Background.....	1
1.1 Problem Statement.....	1
1.2 Research Objectives.....	3
1.2.1 General Objective	3
1.2.2 Specific Objectives	3
1.3 Research Questions.....	3
1.4 Motivation.....	3
1.5 Research Model	4
1.7 Significance of the study.....	4
1.8 Structure of the Thesis	5
2. LITERATURE REVIEW	7
2.0 Introduction.....	7
2.1 Natural Resource Abundance and Economic Growth/Development.....	8
2.1.1 History/International mainstreams.....	8
2.1.2 The Natural Resource Curse	8
2.1.3 The African Context	10
2.1.4 World Bank Group’s opposing view	12
2.1.5 The cost of Natural Resources	13
2.2 Resource Exploitation, Environmental Degradation and Poverty	14
2.2.1 Resource Exploitation.....	14
2.2.2 Gold Mining.....	14
2.2.3 The Environmental Costs.....	16
2.2.4 Environmental Degradation and Poverty.....	17
2.3 Natural Resources and Sustainable Livelihood	18
2.3.1 Natural Resource Exploitation and Impoverishment.....	18
2.3.2 Conceptualization of Poverty.....	20
2.3.3 Mining: A tool for Poverty reduction or Poverty exacerbation?	21
2.3.4 Natural Resource Exploitation and Displacement/Resettlement	22
2.3.5 The Sustainable Livelihood Approach.....	24
2.4 Literature Review Summary/conclusion.....	25
3. AN OVERVIEW OF THE EXTRACTIVE SECTOR OF GHANA’S ECONOMY... 27	
3.0. Extractive Sector of Ghana’s Economy and the Study Area	27
3.1 Geological setting	27
3.2 Natural Resources in Ghana.....	28
3.2.1 Ghana’s extractive sector.....	28
3.2.2 Ghana’s mining in retrospect.....	29
3.3 Economic importance of Mining in Ghana.....	30

3.4 Regulatory Environment for Corporate Mining in Ghana.....	32
3.5 Environmental Impacts of Mining in Ghana	34
3.6 Social impact of Mining in Ghana.....	35
3.6.1 Displacement and Resettlement.....	35
3.7 Description of Study the Area.....	37
3.7.1 General Background to Asutifi District.....	37
3.7.2 Geographic Location.....	38
3.7.3 Topography	38
3.7.4 Climate/Vegetation	38
3.7.5 Demographic Characteristics.....	38
3.7.6 Justification for the selection of study area.....	39
4. THEORETICAL FRAMEWORK.....	40
4.0 Introduction.....	40
4.1 The Mining Induced Displacement and Resettlement Approach	40
4.2 The Sustainable Livelihood Approach.....	41
4.2.1 Vulnerability Context.....	42
4.2.2 Livelihood Assets.....	43
4.2.3 Transforming Structures and Processes	44
4.2.4 Livelihood Strategies	44
4.2.5 Livelihood Outcomes.....	45
4.3 The Practical Aspect of the Theoretical Approach	45
4.4 Summary/Conclusion.....	45
5. METHODOLOGY	47
5.0 Introduction.....	47
5.1 Methodology Mainstreams	47
5.1.1 Methodology ‘Sub-Groups’	47
5.2 Methodological choices	48
5.3 Data collection	48
5.3.1 Interviews.....	49
5.3.2 Medium of communication in interview.....	52
5.4 Sampling	52
5.5 Data Analysis.....	53
5.5.1 Categorizing Procedure.....	54
5.5.2 Electronic interview format	54
5.5.3 Data Converted into Excel.....	54
5.5.4 Presentation of data.....	54
5.6 Challenges/limitations of the study.....	55
5.6.1 Access to Information	55
5.6.2 Language Problem	56
5.6.3 Attitudinal problems	56
5.6.4 Personal Idiosyncrasies.....	56
5.6.5 Size of the Study Area	57
5.7 Summary/Conclusion.....	57
6. FINDINGS AND DISCUSSION.....	58
6.0 Introduction.....	58
6.1 Demographic Characteristics of the Sample Population	58

6.1.1 Geographic Division	58
6.1.2 Gender and Age Structure.....	59
6.1.3 Educational Level	60
6.1.4 Occupation and Source of Income.....	61
6.1.5 Family Size	62
6.1.6 Summary/conclusion.....	63
6.2 Contextual Analysis of Vulnerability Issues.....	63
6.2.1 Trends as a Vulnerability Issue.....	64
6.2.2 Shocks as a Vulnerability Issue	66
6.2.3 Seasonality as a Vulnerability issue.....	67
6.2.4 Summary/conclusion.....	68
6.3 Livelihood Platforms	68
6.3.1 Natural Capital	69
6.3.2 Financial Capital	71
6.3.3 Human Capital	73
6.3.4 Social Capital	75
6.3.5 Access to Physical Capital.....	76
6.3.6 Summary/Conclusion.....	78
6.4 Contextual Analysis of Structural and Institutional Influences	78
6.4.1 Government Policies.....	79
6.4.2 Regulatory and Legal Environment.....	80
6.4.3 Institutional and Cultural Influences.....	84
6.4.4 Land Tenure System	85
6.4.5 Social Relations	87
6.4.6 Summary/Conclusion.....	88
6.5 Livelihood Strategies	89
6.5.1 Crop Farming.....	89
6.5.2 Services	90
6.5.3 Scholarships and bonuses	91
6.5.4 Credit.....	91
6.5.5 Social Networks.....	92
6.5.6 Summary/Conclusion.....	92
6.6 Livelihood Outcomes.....	92
6.6.1 Income.....	92
6.6.2 Well-being.....	93
6.6.3 Vulnerability	93
6.6.4 Food Security.....	94
6.6.5 Sustainable use of Natural Resources	95
6.7 Implications of Displacement and Resettlement.....	96
6.7.1 Landlessness	97
6.7.2 Joblessness	97
6.7.3 Homelessness.....	98
6.7.4 Health Risks.....	98
6.7.5 Social Disarticulation.....	99
6.7.6 Summary/Conclusion.....	99
7. CONCLUSION AND RECOMMENDATIONS	100

7.1 CONCLUSION.....	100
7.2 RECOMMENDATIONS.....	103
7.2.1 Short-term.....	104
7.2.2 Long-term.....	105
7. REFERENCES.....	107

Tables/Figures

Tables

Table 1: Major Mineral Production in Ghana (1998-2000).....	29
Table 2: World Bank resettlement projects, 1993	35
Table 3: Distribution of displacees by cause of displacement in World Bank projects (active in 1993) with resettlement.....	36
Table 4: Breakdown of people displaced in Tarkwa and the companies responsible	36
Table 5: Project impact on people, land and structures in the Newmont Ghana Gold project in Ahafo South	37
Table 6: Age and sex structure of Population of Asutifi District	39
Table 7: Top ten causes of morbidity – 2003-2006.....	68
Table 8: Major legislation that regulate the mining sector.....	82
Table 9: Some of the major fiscal regimes in the mining sector	83
Table 10: Structure of Household Expenditure in the Asutifi District (as a % of total expenditure)	95

Figures

Figure 1: Research Model.....	4
Figure 2: Sustainable Livelihood Framework.....	42
Figure 3: Model showing process of Research Methodology	55
Figure 4: The age structure of the non-key informant sample.....	60
Figure 5: Educational attainment by number.....	61
Figure 6: Occupations of heads of households and the income sources of the households	62
Figure 7: Family size	63
Figure 8: Main Health Problems after the Introduction of Mining.....	75
Figure 9: Type of losses due to mining.....	96

Abbreviations/Acronyms

ADA	Asutifi District Assembly
AILAP	Agriculture Improvement and land access program
ADB	Africa Development Bank
AGF	Anglo-Ashanti Gold Fields
BGL	Bogosu Goldfields Limited
CMB	Cocoa Marketing Board
DFID	Department for International Development
DIDR	Development Induced Displacement and Resettlement
EIA	Environmental Impact Assessment
ERP	Economic Recovery Programme
FDIs	Foreign Direct Investments
FIAN	Foodfirst Information and Action Network
FoEI	Friends of the Earth International
FPP	Food People Programme
GAG	Ghana Australian Goldfields
GDP	Gross Domestic Product
GFG	Goldfields Ghana
GGL	Ghana Goldfield Limited
GNP	Gross National Product
GPRS	Ghana Poverty Reduction Strategy
HDI	Human Development Index
IRS	Internal Revenue Service
ISSER	Institute of Statistical Social and Economic Research
JSS	Junior Secondary School
LI	Legislative Instrument
MDAs	Ministries Departments and Agencies
MIDR	Mining-Induced Displacement and Resettlement
MMSD	Mining, Mineral and Sustainable Development
MOFA	Ministry Of Food and Agriculture
MRF	Mineral Resource Forum

MSLC	Middle School Leaving Certificate
NGGL	Newmont Ghana Gold Limited
NGOs	Non Governmental Organisations
OICI	Opportunity Industrialization Centre International
OPD	Out-Patient Department
PNDC	Provisional National Defense Council
SAP	Structural Adjustment Programme
SLA	Sustainable Livelihood Approach
SLF	Sustainable Livelihood Framework
SOEs	State-Owned Entreprises
SSS	Senior Secondary School
TWN	Third World Network
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
UNSD	United Nations Statistics Division
USAID	United States Agency for International Development
VALCO	Volta Aluminium Company
WACAM	Wassa Association of Communities Affected by Mining
WBED	World Bank Environment Department
WBG	World Bank Group
WCD	World Commission on Dam

1. GENERAL INTRODUCTION

1.0 Background

Natural resources exist in excessive amounts in several countries. Often these natural resources, when exploited, can generate economic growth and a somewhat better situation for the populations of these countries. For instance in Norway, the interest generated from the oil income, is used to pay for retirement pensions and fill gaps in the state budget. While in Alaska every citizen gets a yearly cheque receiving their share of their oil incomes (Hannesson, 2002: 40-44). Sadly enough, this is not always the case; rather natural resource abundance can create more difficulties than benefits. Among the literature which supports that is a study by Sachs and Warner (1997a: 2), showing how resource rich countries often experience, in various ways, more difficulties than those with less resources. Oil, coal, gold and even trees have been known to create problems for the inhabitants in specific areas by creating side effects like riots, wars, corruption, inflation, environmental degradation and reduced economic growth. Ownership twists occur and the management of the exploitation is sometimes inefficient and often not sustainable, whether in economic, social or environmental terms. And as Sachs and Warner (1997: 2) mention this is not a new phenomenon but has been occurring throughout history. Thus, for decades not much thought has been given to the negative effects of the exploitation, but rather to the possible economic and social gains.

This is precisely what is happening within Africa, in relation to the current mining boom, as stated by Abugre and Akabzaa (1997). However those issues forgotten, namely the social impact including increased riots, corruption and poverty among others, as well as the environmental effects can easily undermine any future economic and/or developmental gains. This is due to the fact that the social and natural environment themselves are highly sensitive towards changes induced by mining. The mining project must not lead to increased riots or destroy any survival mechanisms in the existing society, but this is sometimes the case (Abugre and Akabzaa 1997). The fact remains that our environment is being degraded due to all different sorts of activities, including mining. Environmental degradation is destroying human survival grounds by leading to factors such as acid rain, aerosphere changes and the melting of the ice in the North Pole. Some measures have been met to reduce such effects (UNEP, 2002: 196), but it seems likely that those are not nearly enough to decrease further devastating effects in the future. "There is a growing gap between rapid rates of environmental degradation and the slow pace of social response" (UNEP, 2002: 314). This gap increases even further the difficulty of survival for our future generations.

1.1 Problem Statement

Ghana falls within the few resource rich countries in Sub-Saharan Africa. A country blessed with abundance of timber, cocoa and especially gold, still wallows in poverty after half a century of independence. Natural resource exploitation started far back in the

colonial period and mining is no exception. The first Portuguese traders who reached the coast of Ghana in 1482 named the area they touched “Elmina” (The mine). The colonial powers saw no reason but to call the country “Gold Coast” due to the abundance of gold. In the last couple of decades mining of all types has attracted an upsurge in foreign direct investment (FDI). The P.N.D.C government in 1985 accented to government support for mining as a tool for revamping the ailing economy at the time by signing the Mining and Mineral Law in 1986 (Mineral Commission, 1986). After two and a half decades, the economy of Ghana still grapples with depression despite the increasing establishment of mining companies in Ghana.

Contrary to pre-colonial and colonial mining which was mostly underground, 21st century mining is predominantly surface mining. Surface mining calls for vast majority of farmlands ceded to mining companies and the destruction of livelihood sources in form of, among others natural resources. Since sixty percent of Ghana’s labor population is in Agriculture, and household livelihoods in most districts are dependent on farming, the farmland ceding is to the detriment of livelihood. And also environmental degradation contributes further to destroying the livelihood inputs for the rural household and the farming activity. Therefore most mining communities in Ghana have not seen the rosy picture of development that mining was purported to bring. Several publications, official complaints and demonstrations have highlighted damaging effects of mining on environment and livelihood in Ghana. The most current among the issues about mining projects is the Newmont Ahafo-South mining project where about 2,992 hectares of land has been ceded to Newmont Ghana Goldfields Limited (NGGL).

According to a FIAN (2005) report 1,701 households (9575 persons) stand to be economically or physically displaced. The report indicated that serious livelihood issues are still hanging undressed, human right to food and water are trampled upon, resettlement and compensation plans were inadequately executed, and generally the plight of the people continues to worsen. Land and water bodies are almost degraded and polluted to the detriment of the health and general livelihood of the people. In the face of these purported crises in the Ahafo-South area of Ghana, the mining company refutes of all these reports and tender in evidence of effective plans and sustainable development projects put in place for the communities affected. Newmont Officials contend to be making huge commitment in terms of local community development. The relationship between the affected communities and Newmont Ghana Goldfields Limited (NGGL) is nothing cordial currently. This has resulted in trading of accusations between the two sides and the local NGOs.

It seems thus somewhat clear that addressing the issue of access to livelihood contributing factors such as natural resources and land is necessary (as well as viewing it in the context of the Mining-Economic Growth/Development justification in the case of Newmont Ahafo-South mining project area). These are among the concerns raised by the local people, the media, concern groups and the international development discourse. The question; ‘does natural resource exploitation really have positive implications on the livelihood of the people or is it the opposite?’ is among those, that this study will seek to cast light upon.

1.2 Research Objectives

The research objectives are divided into a general objective to be viewed as the paramount objective, and specific objectives where the former is narrowed down in relation to more specific areas.

1.2.1 General Objective

The objective of this study is to identify some of the linkages that may exist between the presence of excessive amounts of natural resources that are utilised, environmental degradation and its impacts on the rural households. The goal is to show the impacts that the exploitation of the resources has had on the rural communities through economical, livelihood, environmental and poverty issues.

1.2.2 Specific Objectives

The specific objectives of this thesis study are as follows:

Illustrating the impact of natural resource exploitation on the livelihood of the rural households

Assessing how mining has tempered with the livelihood of the rural communities

Identifying in what ways, if any, the exploitation of natural resources can lead to creation of poverty

1.3 Research Questions

The research questions that have elaborated from the objectives are as follows:

1. What are the impacts of natural resource exploitation on the rural households?
2. How does natural resources exploitation impact on the livelihood of the rural households?
3. In what ways can the exploitation lead to poverty?
4. What are the displacement and resettlement implications on the livelihood of the rural households?

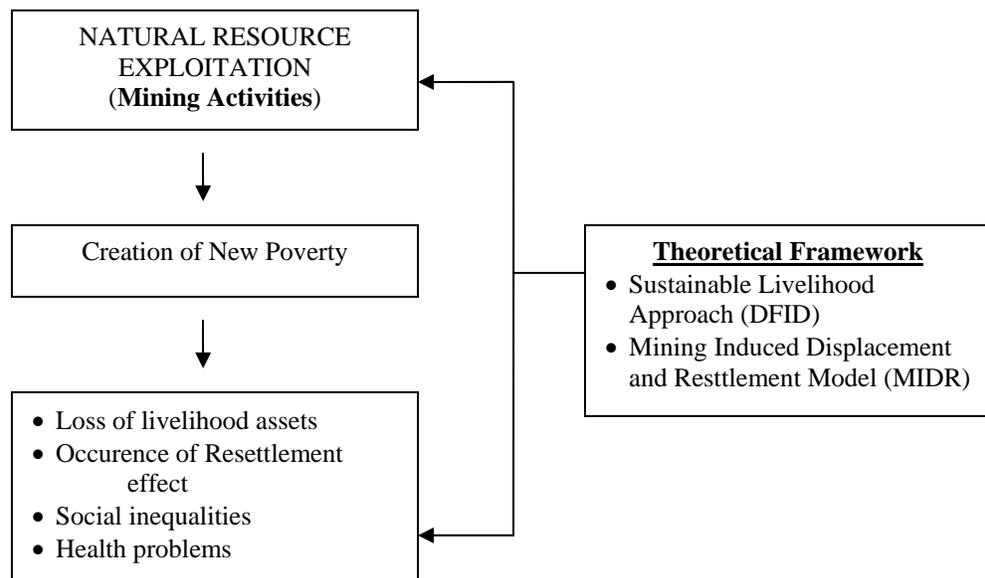
1.4 Motivation

This study was chosen after a discussion, where it revealed itself that gold mining was a mutual topic of interest. For Harpa it is the very nature of natural resources that she finds interesting and has been fascinating her for several years now, with its complex relationship to economic development. For Henry it is mainly the interest of how the social and environmental circumstances cope with the mining activity. For both students, sustainable development is the foundation of the motivation, as gold mining is increasing

and thereby becoming a larger issue where continuous research and insights must be provided in order to achieve sustainable development, internationally, nationally and locally. We view this topic as of utter importance for the society involved, as well as the mining company and the government. Certainly this topic will also give us an interesting insight into how certain projects may alter its surroundings, both in relation to economical, environmental and social issues.

1.5 Research Model

Figure 1: Research Model



1.6 Scope of the Study

The study is limited to Newmont Ahafo-South mining community comprising of two communities namely Ntrotroso and Kenyasi 2. The study will examine perspectives on the Sustainable Livelihood Approach, with some emphasis on the environmental impacts, the Mining Induced Displacement and Resettlement Narrative and the linkages between mining and new poverty.

1.7 Significance of the study

The last three decades have seen sustainable development high on the agenda of governments, donors and civil society groups in general. From the Brundtland report (UN, 1987), to the Rio conference (1992), one important factor which must be overcome is environmental degradation. The sustainable development agenda clearly advocates for a path of human progress which meets the needs of the present generation without compromising the ability of the future generations to meet their needs. To ensure this, all

economic, social and environmental processes must be taken into account in all the actions we take for the survival of humanity and in all process of satisfying our material and immaterial needs. Therefore any attempt to disregard the interplay between the three dimensions of economic, environment and society will constitute an affront to the sustainable development paradigm.

During the last two decades there has been significant expansion in the natural resources exploitation, especially in the extractive sector. Issues about mining of all kinds have received increasingly serious criticisms in spite of the rosy economic impacts which mining is purported to bring. The negative impacts of mining with regards to loss of livelihoods, degradation of most components of the environment and with it increasing incidence of violence and rift between mining companies and mining affected communities, has been highlighted in most sustainable development conferences, workshops and local media landscapes.

Ghana's mining sector is not an exception. Studies by Third World Network, WACAM, FIAN, and other researchers have reported of an increasing life threatening operations in the mining sector of Ghana. Livelihood strategies of mining affected communities are truncated and new poverty is created. Earlier researches however have concentrated particularly on the pollution aspects of mining activities. Areas such as mining activities and the resultant new poverty it creates, and the livelihoods it truncates either through environmental degradation or through involuntary displacement, has not been sufficiently researched. The current situation demands a scientific investigation such as this, most importantly to unravel the extent to which mining impacts on the environment and the livelihood of the indigenous people. If an action at present cannot sustainably ensure progress for the present generation, how can it guarantee a sustainable livelihood for the future generations?

The findings and suggestions of this study will not only offer government and policy makers the opportunity to develop programs and legislations to promote a harmless and livelihood friendly mining operations in Ghana, but it will also put forward steps and recommendation on how to revamp the precarious livelihood situations characterized by many mining affected communities in Ghana. Perhaps most importantly it will contribute to casting light upon and drawing attention to the cruel controversies of mining activities in Africa.

1.8 Structure of the Thesis

This thesis is organized into seven chapters. Chapter one focuses on the general introduction to the study emphasizing on the phenomenon of natural resource exploitation and its linkages with environment and poverty, the problem statement, the objectives and the justification for the study among others. The second chapter is devoted to review of literature from the national and international mainstreams on themes that are detailed in the research topic. Chapter three of this study details an overview of Ghana's extractive sector and a brief description of the study area while chapter four focuses on the theoretical frameworks to be used in the study.

Further chapter five explains the methodological approach used to execute the study while the sixth chapter presents findings and discusses the data collected during the fieldwork. The final chapter – chapter seven contains conclusion on the extent to which the main themes raised in the topic for this research have occurred in the study area. This followed with some recommendations on the way forward for mining for sustainable community development and how the stakeholders in the mining communities of Asutifi can help to resuscitate the endangered livelihoods systems in the community.

2. LITERATURE REVIEW

2.0 Introduction

Natural resources can be defined as “Any property of the physical environment, such as minerals, or natural vegetation, which humans can use to satisfy their needs. Technically speaking, a property only becomes a resource when it is exploited by humans. By this definition, climate may be considered as a natural resource, especially for countries dependent on tourism. Natural resources may be classified as “renewable and non-renewable” (Mayhew, 2004). Non-renewable resources are resources that vanish in their original form when exploited, and do not reproduce themselves, neither by nature or artificially. In this paper several aspects of non-renewable natural resources will be discussed, in a particular relation to Africa, gold mining and sustainable development. The complexity and the dynamics around the issue of natural resources and its exploitation are magnificent. There are linkages between the exploitation, the environment, and the economical and the social context they exist in.

The main point of departure is the research theme stated in the previous chapter as well as the general research objective; to identify linkages that may exist between economical, livelihood and poverty issues relating to natural resource exploitation, more specifically gold mining, with an emphasis on environmental aspects and sustainability. More narrowly defined it is the attempt to identify the impacts that the exploitation of the resources has had on the rural communities through economical, livelihood, environmental and poverty issues. This chapter will serve as the literature review for the thesis.

In the first section of this chapter, the linkages between natural resource exploitation and economic growth/development are discussed. There is also some attention devoted to possible explanations of such a linkage, as well as looking more concretely at the African context. The less visible costs and the more long-term costs are then reviewed. Those are environmental effects and impacts. Some discussions upon these are provided, as well as an assessment on who bears the largest burden of costs, inevitably leading to the discussion of the poverty-environmental nexus.

The linkages between natural resources and sustainable livelihoods are explored in the following section, addressing the issues of natural resources and impoverishment, mining as a tool for poverty reduction or poverty exacerbation and lastly the conceptualization of poverty as such. Narrowing down on these themes, natural resource exploitation in relation to displacement and resettlement is reviewed upon leading to the theoretical approach to be explored.

2.1 Natural Resource Abundance and Economic Growth/Development

2.1.1 History/International mainstreams

Current research mainstreams on the relationship between natural resource exploitation and economic growth is quite a controversial issue. Much research states, ironically enough, that countries which utilise and exploit their natural resources gain less economic growth than those that don't. This may seem at a first glance quite strange, but this is explained by certain side-effects that occur along with this exploitation. This controversial negative relationship between natural resources and economic growth, sometimes referred to as the natural resource curse, has been manifesting itself from the 1970's and 1980's with the work of researchers such as Gelb (1986) and Auty (1990), until recently with remarkable work by Sachs and Warner (1997a and b), as well as Pegg (2003).

The history of natural resource utilisation, in order to gain economic benefits and growth, goes way back a long time. In some cases in the past, countries have been able to utilise their natural resources in order to gain an economic advantage. This actually happened in the case of Britain, Germany and the U.S. during the late Nineteenth Century, which can be explained by the importance of the physical availability of the resources (Sachs and Warner, 1997a: 3). In modern society, however, the conditions are different; transportation costs are decreasing and with globalisation the physical availability of a certain resource in order to establish a competitive industry, is no precondition (Sachs and Warner, 1997a: 3), perhaps best illustrated by the Asian 'miracle' (Glick, 1997).

The Netherlands provide an opposite example from the history, since the country after receiving incomes from large gas fields, ended in a persistent economic crisis during the 1960's and 1970's. This was perhaps the cause of the current research mainstream, leading to a popular and widely used explanation of this negative linkage by the so-called 'Dutch disease' (Isachsen, 2002: 21). Both before and after the model of 'Dutch disease', other possible explanations have been focussed upon, but few have managed to become as central as that one. These include among others social explanations of sloth and political economy with increased rent seeking (Sachs and Warner, 1997a: 4-5 and Torvik, 2002: 456), as well as the linkage approach or the learning-by-doing approach (Matsuyama, 1992).

2.1.2 The Natural Resource Curse

“An increased amount of natural resources decreases total income and welfare” (Torvik, 2002: 461). Put in another way, the resource curse is a phrase for the observed negative linkage between natural resources and economic growth. This linkage can occur for several reasons alone, or several working collectively, but since it has often been persistent and perhaps because of the fact that there are different causes to be identified, this phrase seems appropriate. Whether there is indeed such a phenomenon as the 'curse' of natural resources is disputed, although mostly by political instances and the World Bank, which currently provides capital to mining industries. The division seems clear:

researchers tend to support the negative association, while the World Bank and others try anxiously to promote positive effects of the exploitation of natural resources. This is discussed further later in this chapter under World Banks Opposing View.

The causes, briefly mentioned in the previous section, have also been an issue of dispute, mostly among researchers. Dutch disease, the most commonly cited cause, is explained as the incidence of natural resources ultimately leading to the shrinking of competitive sectors in the specific country, through factors like increased expectations from the public sector, leading to increased expenditure, reduction of total working hours and the hampering of the modernisation of the public sector (Isachsen, 2002: 21). In addition, a large inflow of foreign exchange causes real exchange rates to rise, to the disadvantage for the competitive sectors (Pegg, 2003: 9).

Although this explanation may be useful in many cases, it is insufficient to explain all incidents, in particular in the light of globalisation processes and the developing countries that are facing by far more difficult situations than the developed countries. Several extended versions of the 'Dutch disease' have been created afterwards, notably the dynamic 'Dutch disease' model by Sachs and Warner (1997a). What they did was to incorporate the linkage approach by Matsuyama (1992) of learning-by-doing model of sectors into the 'Dutch disease' model. This is approach based on a sector division, assuming that the manufacturing sector is the learning-by-doing sector, while the natural resource sector is not. But the basis of the 'Dutch disease' model is still the same and mostly concerned with the sector's composition and the division of labour and thus productivity.

The results of the cross-national study conducted by Sachs and Warner (1997a: 22) supports endogenous growth ideas considering the sector division, as well as a dynamic 'Dutch disease' model, the importance of trade policies for growth and neoclassical ideas about conditional convergence. Conditional convergence stands for the narrowing of the variation of productivity among countries (Bannock et al, 1998: 78). Other approaches and theories have also been developed, like social explanations of sloth and political economy with increased rent seeking (Sachs and Warner, 1997a: 4-5 and Torvik, 2001: 456). Lane and Tornell (1996) provide the rationale for this model by illustrating how powerful groups with unlimited access to the production, may influence the national politics to become oriented towards individual gains of getting the largest piece of the natural resource cake. Thus higher productivity may generate higher investment rates and thus, lower growth.

Gylfason (2001: 850) proposes a linkage between natural resource utilisation and low investment in human capital. This approach is explained by the fact that governments often fail to look ahead and see the long-term profit/advantage of education, since the profit from the extractive industry is much larger, and thus become reluctant to increase their stake in human capital investment. Also, since extractive industries are capital dependent and not labour intensive, people tend to get stuck in low skill (and often low income) occupations and thus are unable to educate their children. Gylfason (2001: 858) finds in his article linkages supporting his theory.

The issue of commodity price decline and volatility on the one hand and weak linkages to the broader economy on the other hand (Pegg, 2003: 11-12) are yet more approaches. It is seemingly obvious that countries relying to a large degree on one single natural resource will be sensitive to the international commodity market, where deflation and price volatility can have a devastating effect for the countries balance, within a relatively short period of time. “The insurmountable debt overhang of more than a few African countries can be tied to the boom-and-bust cycles of commodity prices” (Reed, 2001: 36).

The weak linkages to the rest of the economy seem, as well, somewhat obvious, due to the nature of natural resource industries as in the case of mining, which use little labour and often specialised labour. Further, the products are seldom used as inputs in other sectors of the economy but mostly exported abroad, thus not contributing to any value increase in that sector (Reed, 2001: 12). In general it is clear that different processes do contribute to the resource curse, either alone or collectively.

2.1.3 The African Context

The development agenda for the developing nations in the past three decades or more has been propelled by the neo-liberal model of economic development, promoted by the World Bank, the World Trade Organization (WTO) and other international financial institutions. This model advocates increasing Foreign Direct Investment (FDI) into poor nations with the premise that, revenues accruing from exports of natural resources will “trickle down” to the poor, thereby alleviating their poverty situation. According to Banik (2006: 96) the poor do actually benefit from economic growth, through their own participation in the economic growth. But again, this is not unconditional and universal, because it depends on the processes leading to the growth. The growth must be categorized by a pro-poor growth strategy.

Accordingly Banik (2006: 99) also states that growth strategies of intensive use of natural resources and/or high skill technologies are not likely to benefit the poor. Conversely labour-intensive technologies promote, as well as more education, rural focus, good governance and technologies for pro-poor consumption goods (Banik, 2006: 99-100).

It has been argued that the African context is quite different from other contexts, and that may very well be true. But looking at possible reasons for slow growth in Africa the conclusion is mainly geophysical factors including natural resource abundance (Sachs and Warner, 1997b: 26). Despite this it must be noted here that several other factors are seen to influence African economic growth, most notably basic economic policies. Given the model of political economy, described above, with increased rent seeking, it can indicate that natural resource abundance may play a large role in depressing African economic growth rates.

The issue of trade policies is also mentioned as important. For instance, the African economies of Mauritius, Botswana, Morocco and Tunisia, have all adapted open-trade policies and have somewhat out-performed the rest of Africa (Sachs and Warner, 1997b:

26). Perhaps not surprisingly, Mauritius, (and possibly Botswana), was also one of only two countries that were in the top quartile of resource abundant developing economies and sustained growth rates equal to or above two percent per annum in the period of 1970-1989 (Sachs and Warner, 1997a: 16). This indicates that trade policies are important for the economy and may have positive or negative effects on the actual economic growth achieved by the natural resource abundance. It must however, be underlined here that in this research (Sachs and Warner, 1997a) not all of the African economies were taken into consideration due to several reasons such as lack of data. In addition the countries were divided into quartiles in relation to their growth and resource abundance.

Elbadawi (1999) as well as Blomberg and Hess (2006) have provided quite different views from those mentioned in the previous sections; namely regarding how conflicts can affect growth negatively, the former in a particular relation to displacement (which is discussed later in this paper) and the latter as a cause of a lack of African economic growth/development. These are interesting aspects given that in relation to natural resource projects such as the one studied in this paper, displacement and resettlement are often an inevitable part of the projects, possibly increasing the conflict level and thus hampering growth and development even further, which again can cause conflicts and result in less growth. It can actually work like a vicious spiral or a circle. Thus in general, it seems that Africa is not an exception from the resource curse and perhaps even more the case, due to its particular conditions.

Now, it may be argued that geographical and/or climate variables in Africa may effect the growth. This is however unproved by Sachs and Warner (2001), where they examine the 'natural resource curse' and answer the question of why it occurs. Again, the results are plain; stagnation of economic growth with high prices and the incapability of gaining export-led growth (Sachs and Warner, 2001: 837).

In fact, many studies of natural resource industries in the developing countries in relation to their growth and/or development, somewhat conclude with stating a negative linkage, whether that linkage arises as a direct result or an indirect result. Sachs and Warner (1997a) illustrate clearly in their cross-national research of 97 developing countries that resource abundance affects economic growth negatively, as well as addressing the factors that have been claimed to cause the negative linkages. They submit in their research a cross-country study of comparison of the economic growth in the twenty years period of 1970-1989, making their study the first of a kind. It should be mentioned here, that their study deals with the exports of natural resources in relation to the GDP, as an empirical starting point, and thus should perhaps only account for negative linkages between the *exports* of natural resources and economic growth.

The study documents "a statistically significant, inverse, and robust association between natural resource intensity and growth..." (Sachs and Warner, 1997a: 21). This occurs despite the fact that this quantitative study controls for several variables claimed as important by other studies, including initial GDP, trade policy, investment rates, terms of trade volatility, inequality and bureaucratic effectiveness (Sachs and Warner, 1997a: 22).

In addition several special cases, which would have made the negative linkage even stronger, are distracted from the sample modifying the results (Sachs and Warner, 1997a: 22).

When looking at Ghana specifically, the Structural Adjustment Programme (SAP) was what triggered large-scale gold mining. Accordingly Ghana has experienced some growth since the introduction of the SAP and thus foreign investment (Hilson and Potter, 2005: 106). However experts agree that the foreign investment has made it more difficult for some sectors to compete such as artisanal gold mining, as well as small-scale farmers, entrepreneurs among others, and thus perhaps not to the benefit of economic *development* as such (Hilson and Potter, 2005: 106).

2.1.4 World Bank Group's opposing view

Despite earlier theories, certain actors are arguing that the exploitation of minerals may contribute to economic growth. In 2002 the World Bank Group's Mining Department concluded in their paper that mining can contribute to economic growth in the right economic and institutional setting. They even go so far as to state that "... in more cases than not, mining countries outperform their own region in terms of GDP/capita growth" (World Bank Group, 2002: 14). But even though the authors ambitiously try to avoid the resource curse in this paper, the department admits that mining has shown evidence to rather hamper economies than the opposite (World Bank Group, 2002: 7), but explains this away with regional endowments. They conclude that mining is an important tool for eliminating poverty and boosting economic development in the developing countries, given certain preconditions such as sensible managing of mining sectors and its revenues, competent institutions and sound economic policies (World Bank Group, 2002: 14).

This paper has been widely criticised, perhaps understandably in the light of previous literature and research. The organisation Friends of the Earth (n.d.) review the World Bank Group document as merely a trial to justify the World Bank's highly controversial involvement in the mining sector (Friends of the Earth, n.d.: 1). Professor Ross (2002) states in his critique that the article is misleading in its three main arguments and seriously understates the problem of mining and the needed reforms (Ross, 2002: 2). Ross also states in his article that all the studies viewed have concluded on the same thing showing that oil and mineral reliance tend to harm economic performance (Ross, 2002: 5).

In fact, all studies hitherto agree on the issue of the curse while they may disagree on the cause. Accordingly the report has both hampered with the methodological and the literature review processes in order to enthusiastically misrepresent the current situation (Ross, 2002: 5).

In another article by Ross (2003) he addresses the issue of how mineral wealth affects the poor, concluding that oil abundance has a crowding out effect and democracy insufficiency while the causal-effects for the non-fuel mineral abundance is slow growth (Ross, 2002:2).

It seems appropriate to quote Torvik (2001: 455) in the final and concluding phrase for this section: “More natural resources thus lead to lower welfare.”

2.1.5 The cost of Natural Resources

Natural resources are more often than not unrenovable resources, meaning that when using up a given amount of them, this amount is lost for ever and will not grow or reproduce itself again. Gold is that kind of a resource. There has been, and still is, debate regarding the costs of the utilisation and who bears these costs, as well as how they can be estimated. The most obvious form of cost estimation is perhaps using the market price per amount, although that includes some difficulties as well. When estimating projects or production value and/or possible profit, however, rarely all the costs are calculated, particularly in relation to the environmental and social costs. Often the costs do not appear until after the utilisation has been occurring for a while, like in the case of pollution. And how does one value the pollution? What are the short term *and* the long term effects, and thus cost of the utilization? And who bears the costs?

In the System of National Accounts, natural resources are not given the same weight as other tangible resources (Repetto, 1992: 14). By that, the whole capital national accounting system underestimates the value of those resources, which most likely will affect the way that these resources are valued by policy makers, mining-companies, international corporations, local officials, even NGO's and the population as a whole. According to Repetto (1992: 43), the past failures of economists and policymakers to properly address the costs and value of natural resources, has undermined efforts to fight poverty and gain economic development.

In 1993, a new national accounting system was developed, and revised in 2003, which tried to integrate the shortcomings of the previous System of National Accounts (UNSD, 2006). This system accounts for: Flow accounts for pollution, energy and materials - Environmental protection and resource management expenditure accounts - Natural resource asset accounts - Valuation of non-market flow and environmentally adjusted aggregates (UNSD, 2006). However, testing has shown that the difficulties of data collection and estimates are a hinder.

Despite these difficulties of measuring the data on all possible effects of natural resource utilisation, it is clear that the calculation of all of the costs induced to the environment and the people are absolutely necessary and perhaps even vital.

Sadly enough, those who bear and feel the costs and the effects of the utilization are those who have the least chance of protecting themselves and thus often those who are the most vulnerable. Bury (2003: 78) argues that access to resources has been altered by gold mining projects, in this case in Cajamarca, Peru, and that the rural households access to environmental and social capital is reduced. For instance, poor people are often replaced in relation to new utilization problems, sometimes costing them huge social and/or economical/environmental disadvantages. The same occurs in a situation where the poor people have to drink the water from the river to survive despite possible dangerous

mineral toxic pollution, which may cause them to get sick or even die. These aspects are among those that will be discussed in the following sections.

2.2 Resource Exploitation, Environmental Degradation and Poverty

2.2.1 Resource Exploitation

Exploiting the resources on mother earth is not without costs. More than often these resources are non-renewable, and the cost of exploiting them is underestimated by far from the actors' side. And even more sadly the costs are often borne by others than those who enjoy the fruits of the exploitation. One aspect of this is displacement of people; see section 2.3.4, while yet another aspect is environmental displacement.

Environmental displacement can imply everything from the destruction of whole mountains to the contamination of fish in a lake. Gellert and Lynch (2003: 15-25) provide a good article upon how mega projects in the form of dams, roads, ports, mines etc. destroy natural and social contexts. Through their research they view 'mega-projects' in a general collective form and argue a strong intrinsic linkage between mega projects and displacement. Displacement as they describe it includes environmental displacement as well as human displacement. Perhaps their strongest and most descriptive claim is that: "... mega-projects entail "creative destruction" in a material sense: they transform landscapes rapidly and radically, displacing mountaintops, rivers, flora and fauna, as well as humans and their communities" (Gellert and Lynch, 2003: 15). Further they claim that some forms of displacement are rationalised while others are disguised by modern ideologies and practises, such as colonialism, development in the form of capitalism and state socialism, and recently globalisation (Gellert and Lynch, 2003: 23).

And this might be true, given that no one would ask people to return to a state of colonialism again, but instead, sadly enough, often these same forces may hide behind the issue of development, or even sustainable development. According to Pegg (2003: 14): "Large-scale resource extraction projects can have disastrous local and regional impacts, including toxic contamination of ground and surface water, air pollution, soil degradation, and loss of critical natural ecosystems and biodiversity". In this section, on treating environmental degradation issues, the focus will first be on the environmental degradation and dangers in relation to gold mining and review some of the related studies. Then the issue of who bears the cost is treated followed by a discussion of poverty and environmental issues.

2.2.2 Gold Mining

Gold mining has been ongoing in several parts of the world for a very long period of time, perhaps even back to the ancients. For sure gold mining is one of those exploitations that do contribute to environmental degradation. This is mostly through its processes and use of toxic chemicals, and thus the disposal of toxic waste generated. Fortunately, recent modern mining operations are increasingly finding new techniques to

decrease and assess the environmental damage in a continuous process (MMSD, 2002: xx). This is a good development, however far from sufficient since this only regards the largest companies that may afford such actions.

Environmental degradation can happen in several ways and be caused by different methods. One of them is cyanide-caused pollution, which can occur either by transportation spillages or spills at the mining sites. The former has occurred in Kyrgyzstan, Papua New Guinea and China, whereas the latter has occurred in USA, Philippines, Ghana, Tasmania, Romania and Australia (MRF, 2002). And according to Greer (1993: 93): “Cyanide is extremely poisonous and can be harmful or lethal to people.” With increasing restrictions in the developed countries, the large-scale gold mining companies have been increasingly moving their operations to the developing countries where the environmental regulations are not as strict (Mineral Policy Center, cited by Muezzinoglu, 2003: 47). Further, these companies have incidents of causing several environmental degradation processes, such as deforestation, forced migration and the release of toxic industrial waste into surrounding waterways (Muezzinoglu, 2003: 47).

Large-scale gold mining is known to use the chemical cyanide for extracting the gold. Since cyanide reacts with many elements in the solution, several cyanide-related compounds will be generated, consisting of free cyanide, metal cyanide complexes of zinc, nickel, cadmium, copper, and oxidized products of ammonia, cyanate and thiocyanate (Muezzinoglu, 2003: 54). All these chemicals are thus a part of the toxic waste generated in the cyanide process. According to Muezzinoglu (2003: 57) 35.6 Billion tons of vein rock wastes have been generated since the Bronze Age, out of which 70% is likely to have occurred during the 20th century. These wastes have all gone through pyrometallurgy (old waste) or chemical technology like most of the waste during the last 30 years (Muezzinoglu, 2003: 57). This can give some illustration of the huge amounts of waste that have been and are being generated. And like Muezzinoglu (2003: 57) states: “Such gigantic quantities of wastes are not easily manageable even with contemporary technologies.”

In Ghana a direct result from gold mining are the cyanide spills, whether accidental or not. These are causing massive destruction of fish and amphibians while aquatic insects and vegetation are also destroyed as a result of spills of sodium cyanide and potassium cyanide (Towill et al, 1978, cited in Amegbey and Adimado, 2003: 126). Although terrible enough, that is not the only incident of environmental degradation in Ghana, since arsenic occurring in the ores as pyrites or arsenopyrites has led to devastating effects as well. For instance, the vegetation around the Obuasi gold mine has been destroyed by aerial arsenic pollution. In addition vast volumes of gold tailings are continuously washed into streams and rivers (Ahmad and Carboo, 2000 cited by Muezzinoglu, 2003: 57).

Mercury is yet another threat resulting from gold mining, particularly to the marine ecosystem, as small-scale mining is known to have caused mercury pollution in several countries, among others the Brazilian Amazon, Philippines and the USA (Greer, 1993:

92). The use of mercury is most common within small-scale mining, where the miners themselves are often not aware of the risks of its use to them and/or their families (Stevens and Owens, 1998: 14-15), or do not have other options to sustain their living (Greer, 1993: 92).

Greer (1993: 91-96) addresses gold mining directly in his article, discussing the environmental impacts of 'the new gold rush' and surface gold mining, using toxics like cyanide and mercury. His claim is that long-term ecological degradation, risking human health, will be the effects of open-cast mining and its discharge of toxic waste. It is likely, however, in real terms, that human health is not the only thing being risked, for animals that drink from infected water bodies will for sure get sick or even die, and the fish within the lakes die – again generating other effects such as reducing the basis for food provision for the local population. In fact, the whole ecosystem may get disturbed and/or displaced in some way or another, and the proof of that, though yet to fully occur have begun to bear its marks.

2.2.3 The Environmental Costs

The costs, as mentioned in the previous sections are not always equally distributed. This is perhaps best illustrated by the fact that mining companies from developed countries move to the developing countries, imposing the burden on the poor people in the world. Ironically, often these companies move their operations due to the fact that their own governments have realised the destructive nature of their operations, and thus introduced strict regulations. These regulations are often not existent in the developing countries where the governments are blinded by the hope and perhaps the illusion that attracting this kind of foreign capital will help them gain faster development.

The economical and the social costs are but only parts of the total cost, whereas the environmental cost is the part that is often underestimated, and also can lead directly to increased poverty. Among others, the UNICEF Policy Review addresses how environmental threats add to the environment of ill health, malnutrition and ignorance to maintain the vicious cycle of poverty (UNICEF, 1989). An example can be taken from the people of Buayt Bay Beach in Indonesia, where sicknesses such as skin rashes, dizziness, strange lumps and other ailments have been occurring (Perlez, 2005). These sicknesses are a direct result of Newmont's gold mining operation, and thus a cost imposed on innocent people, in particular the poor. Those poor people may not have resources to even seek help, and ultimately a father may die leading his family into further poverty. The workers get sick and that will affect their working abilities, impose more poverty and in the end decrease the economical production as well.

In Ghana incidents of the same type of sicknesses have been recorded nearby gold mines, incidents of people suffering from heavy metal poisoning (Perlez, 2005). As stated by the MMSD projects report (MMSD, 2002: xxi), today's population still bears the marks of the previous mining operations, illustrating how important it is to assess the *real* effects of such projects.

2.2.4 Environmental Degradation and Poverty

Linkages between poverty and environmental degradation have been explored by many. Some first approaches, representing a somewhat general view, was that the poor cause environmental degradation. The World Development Report (World Bank, 1992) is among documents stating that poverty leads to environmental degradation, as it is explicitly stated that alleviating poverty is crucial to gain environmental sustainability (World Bank, 1992: 25), i.e. the poor cannot sustain the environment. According to Duraiappah, even the Brundtland Commission report concludes on this matter by stating that poverty is a major cause to environmental degradation (Duraiappah, 1998: 2169).

Led by Broad (1994), a new mainstream suggesting that the cause of environmental degradation is rooted in weak institutional and policy arrangements has occurred. Through his research on poor people in the Philippines, Broad is able to contradict the past mainstream on the issue of poor people and the environment. Prakash (1997: 23) supports this new view and argues that the relationship between environment and poverty is mediated by institutional, socio-economic and cultural factors.

In a seeming extension of this view, Leach et al (1997) captures the environmental entitlement approach which explains that the link between environmental change and impoverishment are not direct. They are mediated by poor people's interaction with the environment, which is itself structured by macro-level processes. The focus here is access to resources and control over the use of those resources. The approach highlights the role of institutions such as government legislation, markets, customary rights land tenure, common property resource management arrangements, gender roles and others.

It can also be argued here that these macro-level processes include the natural resource exploitation itself, in this case gold mining. This is due to the fact that the poor are displaced and resettled, losing access to previous resources. Support for this view can be found in Bury's research (2003) where he examines the alteration on access to resources for the rural in Cajamarca, Peru, directly caused by gold mining projects. Perhaps not surprisingly the access to environmental resources was reduced.

Duraiappah (1998: 2170-2171) sums all these argument up into four different but related hypothetical situations which states: 'Exogenous Poverty is the cause of environmental degradation', 'Power, Wealth, and Greed is the cause of environmental degradation', 'Institutional/Market Failure is the cause of environmental degradation' and 'Environmental Degradation is the cause of Poverty.' Through his literature review analysis with these hypotheses as a measure, he is able to state that the analysis provides enough evidence to deny any hypothesis that the poor lead to environmental degradation, while the powerful and wealthy degrade the environment (Duraiappah, 1998: 2177).

Note however, that the latter only stands true when and if there is an institutional and/or market failure. Thus his main arguments are that the poor do not cause environmental degradation, while the rich and wealthy may, and the existence of institutional and/or market failure will do so. Also, he states that in a majority of the studies he reviewed, the

primary contribution to poverty was activities by the rich and powerful (Duraiappah, 1998: 2177). Relating this to gold mining, it is the rich and powerful that run large-scale gold mining and receive its benefits, while the poor lose some of their previous accesses and are forced into further poverty.

Gallopín et al (1989: 376) supports that view in his conceptual approach stating that: “There is no paradox in the observation that this mode of resource development creates wealth and poverty simultaneously.” His view though, differs from Duraiappah, as he finds that environmental degradation can be partly said to be caused by the poor, as the poverty itself forces poor people to exhaustingly utilize whatever the few resources they have access to, in order to survive (Gallopín et al, 1989: 376). Lufumpa (2005: 369) is yet another researcher demonstrating the linkages between poverty and environmental degradation. His arguments support the former that the increasing degradation, among other, has caused a vicious cycle of poverty and environmental degradation (Lufumpa, 2005: 369).

2.3 Natural Resources and Sustainable Livelihood

2.3.1 Natural Resource Exploitation and Impoverishment

Empowerment and Impoverishment are phenomena that have gained increasing attention lately. Empowerment “refers to the expansion in people’s ability to make strategic life choices in a context where this ability was previously denied to them” (Kabeer, 2002: 19). Impoverishment is somewhat the opposite, reflecting a situation where people’s ability to make strategic choices for their life concerning issues is reduced.

According to dictionaries the term impoverish is to make poor, whether persons or an area (Soanes and Stevenson, 2005). However that does not mean that it is strictly meant in monetary terms. According to Banik (2006: 206) the non-material aspects of poverty are gaining more attention. His focus is on empowerment as an aspect of the non-material side of poverty. Thus empowerment can be strictly having the possibility to influence one’s life and choosing a role in life (Banik, 2006:207). Banik refers to Amartya Sen’s capability approach in extending the view that poverty results from the absence of basic capabilities, to allow a person the individual freedom to lead the life he or she chooses (Banik, 2006: 207). Thus, if the natural resource exploitation reduces the choice of people, it is impoverishing these people and their areas. For the purpose of this paper, and grounded in both Banik’s (2005) and Kabeer’s (2002) discussion, as well as Nussbaum’s (2000) capability approach, (reviewed in next paragraph), the term impoverishment stands for reduction of choices and/or the ability to make such choices.

Martha Nussbaum (2000: 78-80), in her book on women and human development, goes further with Amartya Sen’s capability approach and lists up ten human functional capabilities which she views as central to development. These are, in her view, the minimum of which humans can claim in order to have real quality of life and should, if absent, be corrected by those in power (Nussbaum, 2000: 71). The ten ‘central human functional capabilities’ are as follows: 1.Life 2.Bodily Health 3.Bodily Integrity 4.Senses,

Imagination and Thought 5. Emotions 6. Practical Reason 7. Affiliation 8. Other Species 9. Play and 10. Control over one's environment. These will not be discussed in further detail here except for the last condition, control over one's environment, which includes political and material control (Nussbaum, 2000: 80), with a special emphasis on the latter.

There has been increasing concern over the link between exploitation and management of natural resources and impoverishment over the last few decades. Many poor people, especially in the rural areas of the developing countries, depend largely on natural resources for their livelihood. In fact, for Africa, natural resources; land, minerals, forest, wildlife and water, are vital to the livelihood of about 70% of the population and therefore are vital for rural development and sustainable livelihoods (USAID, 2002). Exploitation of these resources or any deterioration of these resources largely causes vulnerability among the people. Rural people, especially women and children, in the view of FoEI (2005), have a long standing symbiotic relationship with the local environment and natural resources.

The concern that rural communities have, is often not about money or material possessions but access to control over the natural resources, and involvement in decision-making processes about the resource, on which they depend for livelihood (FoEI, 2005). Thus these poor people are made vulnerable at the moment their dependence on the natural environment is hampered through privatization of the management of these resources, over-exploitation and others, by transnational corporation or by government machineries. By the action of taking away political and/or material control from the poor, in the form of influence, environmental and/or social resources, and perhaps in particular land access, the people are impoverished and made even poorer. This is clearly supported in Nussbaum's last condition of proper life quality, or the political and material control (Nussbaum, 2000: 80).

In recent times, growing concern for eradication of poverty and economic development has resulted in the government of developing nations ceding management of these natural resources to transnational corporations backed by international financial institutions such as the World Bank. According to the FoEI (2005) these corporations and institutions promote inappropriate policies and technologies, which come in the form of large-scale dams, logging for export, oil, mining and gas operations, thereby putting pressure on the environment and natural resources. The expropriation of natural resources by these transnational corporations only results in degradation of the environment and renders the rural communities vulnerable to flood, famine and other environmental hazards making them much more impoverished than before. In MMSD (2003: 17), the impact of natural resource exploitation, with special emphasis on mining, on indigenous wealth is felt throughout all the stages of exploitation from planning and consultation, exploration and exploitation, to final decomposition. All these activities in their view have negative implications for accumulation and intergenerational transfer of indigenous wealth.

In the view of the neo-liberal model of economic growth, it must be expected that the increases in exports should have a corresponding increase in export revenues which will trickle down to the poor. The UNCTAD Report (2004) has however shown that the

opposite of this phenomenon has occurred. Conspicuously, Sub-Saharan Africa in Ross' (2003: 7) view has suffered rising poverty and impoverishment in the face of this increasing exploitation of their mineral resources by transnational corporations.

More specifically, the extractive sector of the developing economies has received increasing amounts of Foreign Direct Investments (FDIs). In the 1990's it accounted for over 50% of Africa's exports and 65% of the FDI went into the extractive sector (Pegg, 2003: 376), but this has not resulted in any corresponding improvement in the standard of living. In mining, vast areas of arable land which forms a source of livelihood for local people are ceded to transnational corporation for mineral extraction. Mineral extraction can, however, provide opportunities for people in affected communities to better their lot only when, it is able to alleviate poverty by creating training for employable skills and increase local communities share in the benefits of mineral exports (MMSD, 2003: 31).

2.3.2 Conceptualization of Poverty

The concept of "Poverty" has been in the limelight of international development circles as a major phenomenon that needs a global attention for decades. Poverty has been conceptualized in different ways by various development circles. Poverty has been defined essentially on the basis of economic and social conditions. In Bradshaw's (2005: 4) view poverty is a general lack of necessities - where necessities are measured as food, shelter, medical care and safety which is generally necessary based on shared values of human dignity. One of the most common definitions to the concept has been those that use income and consumption as the measuring rod.

According to Coudouel and Hentschel (2000), a person is poor when his personal income and consumption is below a specified "Poverty line" which is widely quoted as \$1 per day. However these definitions have been rejected on the basis of relativity of what could be considered necessities with regards to the earlier definition (Sen, 1999). According to Sen (1999), what is considered needs (necessities) is subject to social definitions and past experience. With regards to income the definition has been cloaked with problems since it is related to the concept of family, cash income, and treatment of taxes, special work related expenses or regional differences in cost of living (Blank, 1997 and Quigley, 2003).

More recently, qualitative definitions have also been advocated. It has come to be accepted that the concept of poverty is not about numbers or a quantified measure expressed by a single or multiple indicators (Reed, 2002). With the coming of the United Nations Development Programme's (UNDP's) Human Development Index (HDI), a more multi-dimensional view is given to the concept of poverty. In the UNDP (1997) poverty has been defined as the deprivation in the most essential capabilities of life including leading a long and healthy life, being knowledgeable, having adequate economic provisioning and participating fully in the life of the community.

The concept of poverty has actually been transformed in definition over the last few decades, the World Bank for instance accepts poverty as a pronounced deprivation of

wellbeing. In a further illumination on the concept of poverty, the World Bank's World Development Report (2001), "Attacking Poverty", has broadly categorized poverty into four conceptions: deprivation, low levels of education and health, vulnerability and exposure to risk, voicelessness and powerlessness.

General poverty trends indicate a dramatic rise in regional poverty (World Bank, 2006), despite the fact that the Bank reports of a fall in the proportion of the developing world's population living in extreme economic poverty from 28% to 21% from 1990 to 2001 respectively. Regional disparities in poverty trends, on the other hand, show an increase in poverty from 41% to 46% from 1981 to 2001 respectively for sub-Saharan Africa. The World Development Indicators (2004), estimates that 150 million people have been added to the number of people living in extreme poverty for the same period (The World Bank, 2000).

Various explanations have been sought to explain the causes of poverty. Reed and Sheng (1998) explain that poverty is more than only a status of deprivation but includes a social relationship which has individuals, social groups and the state in competition for wealth and political power. From this context, they admit that poverty is a product of competitive relationship in which a significant number of people are unable to access life-supporting assets. Yunus (2005) also explains that poverty has been created by the economic systems and institutions designed for the world. The interest of this study is how these economic systems and institutional arrangements create the condition for poverty to thrive.

With natural resource exploitation in general, and specifically mining as the focus, this study anticipates a positive relation between poverty and mining activities. The World Bank as a major player in the support for extractive sector development of developing nations has undertaken, through its World Bank Group, a series of reports that tests the linkages between mining and poverty. These, more than often, state seemingly positive linkages, discussed further in the next section.

2.3.3 Mining: A tool for Poverty reduction or Poverty exacerbation?

The rising interest in expanding and liberalizing the extractive sector of developing nations by government and its trading partners is driven by the World Bank's strong conviction and advocacy that extraction of natural resources (oil, gas and mining) for export has the high propensity to generate revenue that government can use to reduce poverty (Pegg, 2003: 6). With a central focus on poverty reduction, and as Pegg (2003: 6) puts it, a self proclaimed catalyst for investment in the markets of Sub Saharan Africa, the World Bank have supported the extraction of natural resource for the development of developing countries. The Bank argues that natural resource extraction can increase economic growth, and government revenues to finance poverty alleviation programs, create jobs, provide public infrastructure and services, facilitate technology transfer and serve as catalyst for growth in lateral or downstream industries (Pegg, 2003: 17). In Pegg's view however this argument often runs opposite to the empirical evidence available, since the empirical evidence shows the worst case of poverty exacerbation

(Pegg, 2003: 17). He thus poses the question whether natural resource exploitation is a tool for poverty reduction or poverty exacerbation.

The Bank's policy of Economic Recovery Programme (ERP), Structural Adjustment Programmes (SAP) and technical assistance towards developing countries have centered on liberalization and privatization of the extractive sectors for an increasing FDI (Pegg, 2003: 6). However, the question still lingers, "has the natural resource - poverty reduction thesis actually materialized? In an article, "treasure or trash?", FoEI (2005), refuted the Bank's case for mining's contribution to poverty reduction. Using the Bank's own study "treasure or trouble" FoEI (2005: 6) pointed out how the Bank has shifted from its core mission of poverty reduction. They concluded that while the benefits of mineral exploitation are elusive at best, the negative impact of its exploitation on the environment, human health and welfare in general are enormous and sometimes irreversible.

In another study, Pegg (2006) further analyzes the linkages of mining and poverty reduction. In this article titled "mining and poverty reduction: transforming rhetoric into reality" Pegg critically evaluated the Mining-Poverty Reduction thesis and illustrated the positive relationship that exists between mining and the World Bank's conceptualization of poverty which is featured in the World Development Report (2001). Pegg (2006: 377-379) demonstrates that mining positively relates to material deprivation, deteriorating health and education, vulnerability, risks, exposure, voicelessness and powerlessness.

In their serial evaluation of the extractive industries the World Bank (the chief financier of extraction industries including mining industries) have highlighted the sham of the positive nexus between mining and poverty reduction, as their publications on mining have identified corruption, poor macro economic management, environmental damages, health problems, deteriorating socio-cultural interaction among indigenous people, loss of jobs and negative impact on non-mining sectors as main factors militating against poverty reduction (Ross, 2001). The global upsurge in poverty especially in regions such as West Africa, Latin America and Southeast Asia has mining antecedents. With a rapid growth and expansion in mining activity and investment, one would have expected a corresponding reduction in poverty, should the poverty reduction conviction of the World Bank hold. But evidence on the ground has proved otherwise.

The mining boom in these areas has imposed a high environmental and social cost on the affected communities, sometimes to the detriment of local subsistent economies. The phenomenal increase in poverty among mineral rich countries even in the period of increasing expansion in their extractive sectors has precipitated Michael Ross' (2001) study, which discusses the strong link between mineral dependence and both lower standard of living and poverty exacerbation (Ross, 2001).

2.3.4 Natural Resource Exploitation and Displacement/Resettlement

Recent modes of resource exploitation demand the construction of large-scale development projects which have serious implications for human settlement and

locations. The large-scale gold mining industry inevitably induces some displacement and/or resettlement to occur. Concern for involuntary displacement and resettlement caused by development projects in general has assumed increasing attention.

Decades of struggles in economic development has brought to the limelight this phenomenon of Displacement of indigenous people and rural households in general as a result of such mega development projects. Kaviraj (1996: 116) explains that due to conspicuously poor economic development, planners and policy makers tend to concentrate on economic development defined in terms of growth of GNP which is manifested in new factories, dams, mega development projects, mining and others. It is worth noting that these types of development, measured in terms of physical projects, create both winners and loser (Scrudder, 1991). The agitations that development projects impoverishes people may appear contradictory especially to benefactors of these projects (Downing, 2002: 5), but it is undeniably conspicuous that these project cause severe localized effects.

Large-scale projects demand a substantial number of settlers to be moved to make space for the project and, as Adams (2001: 235-237) states, the impact of resettlement lingers even after final resettlement. More than 10 million people are forcefully displaced by development projects each and every year (Cernea, 2000). Downing (2002) argues that even though the proportion of mining-induced displacement is undetermined, it is likely that mining-related displacement and resettlement will be substantial and will increase factors such as demand for vast areas of land with low acquisition cost and characterized by high population with weak political powers and poorly-defined land tenure systems. This is likely to occur since populations with those characteristics will be easy to remove and have poor rights. Mineral exploitation requires the large scale open pit/surface mining which demands the use of vast areas of land resulting in the need for relocation and resettlement of affected communities.

Downing (2002: 6) for instance, estimates that close to 2.55 million people were displaced by mining between 1950 and 1990 worldwide. In Ghana, Akabzaa (2000), estimates that a total of 30,000 people in 14 communities in Tarkwa alone, were relocated between 1990 and 1998. In addition, the number is expected to grow with the recent upsurge in the liberalization of mining policies accompanied by increasing preference for open-cast mining and increasing rural population (FIAN, 2001). The issue of displacement and resettlement does not only come with costs to the government and transnational corporations, but also a high cost is placed on the affected people. Care should however be taken so that, in such projects, the affected people are not made to bear a disproportionate amount of the cost (Gosling, 1979). Studies have shown that very often resettlement projects begin with high hopes of re-establishing affected people in conditions better than before (Adam, 2001: 236), but it is rare to realize these hopes. Often the capability was overestimated, or the costs were too high relating to the resettlement program. As Lightfoot (1978: 63) explains that, most resettlement programs have been badly planned or inadequately financed thereby leaving the displaced temporarily or permanently worse off in what Downing (2002: 8) calls “New Poverty”.

According to displacement experts, all mining-related displacement comes with what they call the “resettlement effect” (Downing, 2002: 8). It is this effect that creates what Downing calls “new poverty”, as a result of loss of productive lands, income generating assets and resources, homes, and destruction of social structure and networks of the displaced among other (ADB, 1998). Sometimes the displaced are not only cut off from their livelihood sources but they are settled without adequate resources and left near the mine to suffer the brunt of pollution, contamination and all the defects that comes with mining (FPP et al, 2000). Literature on Development Induced Displacement and Resettlement (DIDR) focuses on physical forms of development that require the exercise of decree to displace people to allow development in sustainable terms to go on.

Displacement according to Ted Downing (2002: 5), however, involves not only the physical eviction from dwelling places, but also the expropriation of productive land and other assets to make possible an alternative use (cited in Cernea, 2000). Supporting that view are specialists in involuntary displacement and resettlement, like, Cernea (1998), and McDowell (1998) among others, which have confirmed other equally severe risks such as risk of joblessness, homelessness, marginalization, food insecurity, health risks, social disarticulation and most recently loss of civil and human rights, disruption of formal educational activities and loss of access to basic public services.

2.3.5 The Sustainable Livelihood Approach

The sustainable livelihood approach is perhaps one of the greatest contributions to research, providing a tool to explore the inevitable role played by natural resources in the livelihood of rural households. The conception of sustainable development in the Brundtland Commission report (1987) marked the evolution of the concept now known as the “Sustainable Livelihood Approach (SLA)”. The sustainable livelihood approach is grounded on the premise that effectiveness of development can only be improved through systemic and manageable analyses of poverty and its causes. It provides a wider and better informed view of the opportunities for development activity, their impacts and suitability for the livelihood priorities of the poor. Placing people and their livelihood priorities at the center of analysis (Ashley and Carney, 1999), is at the core of this approach.

Livelihood is defined by Chambers and Conway (1992: 9) as comprising of the capitals or assets (material and non materials), and activities required to make a living. They argue that the sustainability of a livelihood is grounded in its ability to cope and recover from stresses and shocks, as well as to maintain and at least enhance its capabilities and assets now and in the future while not undermining the natural resource base. From another perspective, closely related, Singh and Gilman (1999) see sustainable livelihoods as managing one’s own capacity to exercise choice, access opportunities and resources and utilize them in a manner that does not undermine other people’s ability to make a living either now or in the future.

The core of the sustainable livelihood approach serves as a tool for investigating the livelihood of the poor and the factors that affect them. Also, the issue of empowering

people is strongly related to this approach, since it maintains a focus on the non-material aspects of poverty. Through a series of research and empirical works found in Singh and Kalala, (1995), Leach et al (1999), Pretty et al (1995) and others, the concept of Sustainable Livelihood Approach has culminated into a framework constructed by the British Department for International Development (DFID). This framework is called the Sustainable Livelihood Framework (SLF), and builds on the same assumptions as the Sustainable Livelihood Approach. The SLA framework mainly consists of analysis of elements such as vulnerability context, livelihood assets, transforming structures and processes, and livelihood strategies (DFID, 2000).

The discourses on the application of the Sustainable Livelihood Approach (SLA) have appeared in many development researches. Its flexibility and openness allows it to be applied in varying situations associated with development (Kollmair and Gamper, 2002: 9).

Applying the SLA in a pacific rural setting, Cahn (2002: 5), emphasized the importance of incorporating local realities as part of the framework. For instance, Cahn incorporated culture and tradition in formulating a sustainable livelihood model for rural pacific.

The flexibility of the SLA is also showcased by Tofte (2004: 14) where in his study of livelihood strategies and perception about wealth and poverty in war-ravaged Sudan, Tofte justifies the incorporation of political assets as part of livelihood assets. Tofte explains that policies, institutions and processes demands the incorporation of political economy analysis in the livelihood analysis of chronic conflict situation and political instability, since that will enable a better understanding of the interaction of political and economic processes and the dynamics of power and powerlessness between different groups and institutions (Tofte, 2004: 14). Exploring how rural livelihood affects and is affected by natural resource management in Kenya and Namibia, Ashley (2000) emphasized the ability of SLA to reshape and enhance the initiative to fit the livelihoods of the local communities. In the case of mining, SLA will offer a checklist of, and significant ideas to use in the livelihood analysis of mining affected communities.

This will be approached in the theoretical framework for this paper, by using some environmental and economical approaches and mostly relying upon the Sustainable Livelihood Framework (SLF) and the Mining Induced Displacement and Resettlement approach.

2.4 Literature Review Summary/conclusion

The issue of natural resources and their utilization is extensive and stretches across several disciplines. The way that this issue has been angled in this paper is through looking at economical, environmental and social impacts of the utilization. This has been done with one goal, namely viewing the effects that the utilization has for the rural households and the linkages that occur between those three main disciplines. It must be noted here that in order to be able to get an idea of linkages that may exist, it is important to review all of the aspects properly. By first discussing how natural resource exploitation benefits or doesn't benefit the nation in question, according to different theories, one can

elaborate on the justification of the utilization and the real benefits that it implies in an economical sense. Then environmental issues are raised followed by a discussion of who bears the cost of the exploitation that occurs. This has been done so that one can elaborate further on the justification of the exploitation, but with the precise goal of sustainable development. The issue of sustainable development for all people equally is at the core of this research, as social effects are discussed, narrowing down to the individual level as such, of the rural households, and the effects it has for them.

There are indeed linkages among those three main issues. For instance, the natural resource exploitation is often justified by the very goal of economic development. According to a large majority of theories, natural resource production does not lead to economic development/growth, at least not alone. This again scrutinizes the very purpose of such a production. Given that, combined with the environmental degradation effect, one can justify an examination of social impacts. The very economical nature of resource production, i.e. the fact that it is capital intensive and requires low amounts of labour, can possibly be linked to the fact why rural households do not gain more of the profit cake.

Environmental degradation is yet another aspect, possibly contributing to the deprivation of the rural households through depriving them of access to natural resources. Also, environmental degradation tends to make a nation poorer on the whole, as often does the economical mechanisms that follow, and accompanied by social injustices, linkages are seemingly strong and the very grounds and reasoning is deprived.

The discussion and the theoretical review raise some important issues regarding the intentions that lay behind the utilization of natural resources. Is it justifiable? Does it provide more disadvantage than benefits? Who benefits? This is among issues that will be sought to answer through this research, by the help of the Sustainable Livelihood Framework (SLF), as well as the reviewed theory in this chapter with weight on the MIDR narrative. This will be discussed further in the chapter on Theoretical Framework.

Through the review of the literature some light has hopefully been cast upon the theme for this research, as well as the intention and goal for it. The literature review illustrated some important and interesting views upon economical intention with natural resource exploitation, while also showing some of its negative sides, and illustrating the importance of appropriate policies. The environmental related review illustrated further how fragile the production of natural resources can be and its devastating effects if appropriate measures and responsibility are not taken. Thus, while the discussion about sustainable livelihoods reviewed the undisputable social sensitivity towards these kinds of productions, it also states the contexts in which these actions are taken.

3. AN OVERVIEW OF THE EXTRACTIVE SECTOR OF GHANA'S ECONOMY

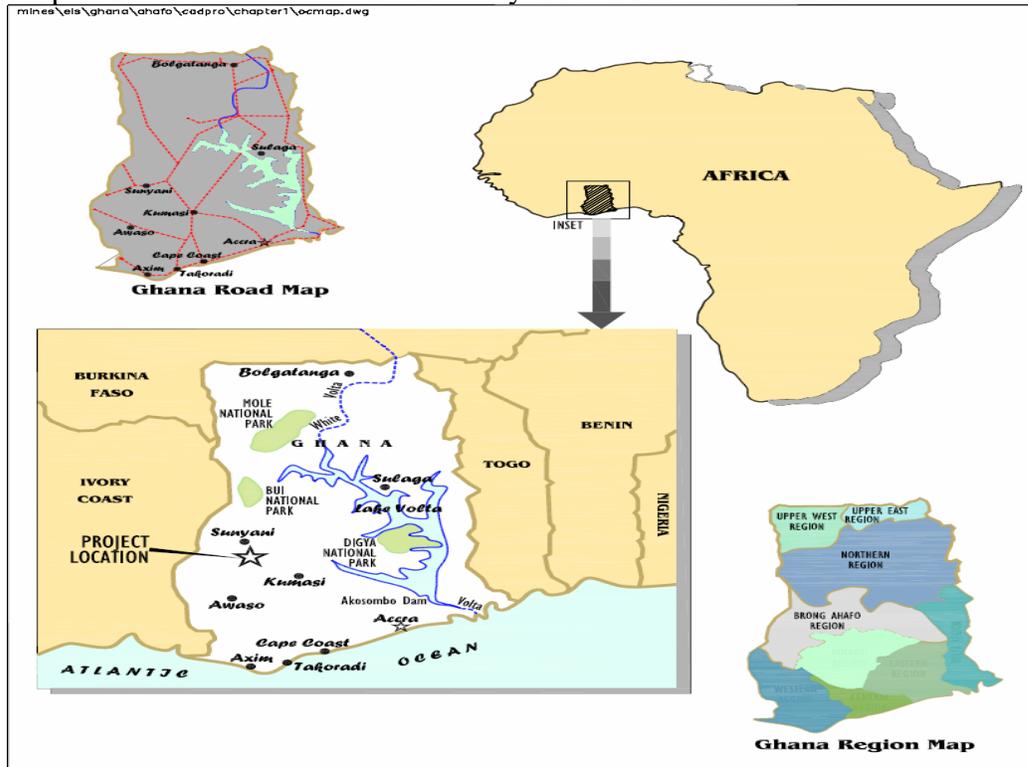
3.0. Extractive Sector of Ghana's Economy and the Study Area

This chapter will illustrate different facts of Ghana relating to the issue of this thesis. Particular emphasis has been put on illustrating as objectively as possible facts on the national, sub-national and local levels. Generally it reviews the extractive sector of Ghana's economy and provides some information on the characteristics of the study area. However, it should be noted here that access to information is often difficult and quite restricted, or data simply does not exist. This has been the case of the sub-national as well as the local level.

3.1 Geological setting

As a West African country located along the coast of the Gulf of Guinea, Ghana lies between latitude 4° and 11° north of the equator and covers an area of approximately 238,535 square kilometers (Minerals Commission, n.d). Map 1 below shows the general location of Ghana on the African continent and the project site of this study.

Map 1: Location of Ghana and the study area on African continent



Adopted from NGGL (2005: 4)

Dickson and Benneh (1992) explains that Ghana lies within the Precambrian Guinea Shield of West Africa, the main rock units being the metamorphosed and folded Birimian, Tarkwaian and Dahomean systems, the Togo series and the Buem Formation. The Precambrian rocks are overlain by later Proterozoic to Paleozoic epicontinental sandstones, shales and mudstones termed the Voltaian System. The Birimian, about 2000 million years old, is the host rocks for deposits of precious minerals such as gold and diamonds, and other minerals like bauxite, manganese and iron (Grubaugh, 2002, cited in Yelapaala, 2004: 9). Ghana is not only a rich country in precious mineral but also endowed with timber, cocoa, coffee and bananas, among other agrarian commodities.

3.2 Natural Resources in Ghana

Dependence and extraction of natural resources in Ghana have had a long standing history. In fact, communities actually depended on natural resources as their basic source of livelihood. Natural resources form the source of food, shelter, income and the foundation of household subsistence. The recent past has however witnessed transformations in the extraction of and dependence on natural resources. Perhaps the increasing takeover of ownership and control over land and natural resources in general by the government may be blamed for the recent trends in natural resource extraction.

Basically, extraction of natural resource as commissioned by the government was perceived as a catalyst for economic growth and development. In fact, with a population of 19 million as at 1998, and a per capita GDP of \$378, Ghana's economic growth rate 4.6%, was propelled by gold, cocoa and timber utilization/production. In the year 2000 alone mining contributed to 38.96% of the total export, with cocoa and timber contributing 22.51% and 9.03% respectively (ISSER, 2001). This shows the important role that natural resources play in the economic development of the nation and this is further discussed below.

3.2.1 Ghana's extractive sector

Ross (2001) defines the extractive sector to include the oil and mining industries. Ghana's extractive sector comprises gold, diamond, bauxite, manganese and salt. The mining sector has expanded over the last two decades with gold production experiencing the most rapid growth. According to the Mineral Commission (2000), large-scale gold mining alone accounted for close to 2.5 million ounces of gold in 1999 and the gold mining sector attracted approximately \$4 billion. The Table 1 below shows the production of mineral in Ghana for the period 1988-2000:

Table 1: Major Mineral Production in Ghana (1998-2000)

Year	Gold (in ounces)	Diamond (in carats)	Bauxite (in tonnes)	Manganese (in tonnes)
1988	373,937	256,358	299,939	284,911
1989	429,476	285,636	374,646	273,993
1990	541,408	636,503	368,659	246,869
1991	845,908	687,736	324,313	311,824
1992	998,195	656,421	399,155	276,019
1993	1,262,424	590,842	364,641	295,296
1994	1,430,845	757,991	451,802	238,429
1995	1,708,531	631,707	530,389	186,901
1996	1,606,880	614,737	383,370	267,000
1997	1,758,005	829,524	536,728	332,443
1998	2,382,339	822,619	341,118	384,400
1999	2,620,121	684,033	355,263	611,500
2000	2,460,192	989,851	503,824	895,339

Source: Akabzaa & Draimani (2001)

3.2.2 Ghana's mining in retrospect

Mining, the selective recovery of minerals and materials, other than recently formed organic materials, from the crust of the Earth, is one of the oldest activities of mankind. Akabzaa and Darimani (2001) confirm that Ghana's mining activities date back to the fifteenth century when the European began their exploration of the west African coast. In their view, mining then was developed to respond to economic and political developments in Britain and Europe in general rather than to market conditions. Ghana produced about 8,153,426 fine ounces between 1493 and 1600 which accounted for 36 % of total world gold output then (Akabzaa and Darimani, 2001). And Owusu-Koranteng, (2004), estimates that about 14 million ounces of gold was produced in Gold Coast was mined from Ghana between the 14th and 19th century

The principal minerals exported by Ghana are gold, diamonds, manganese and bauxite. Gold has been mined and exported for well over 2000 years (Gavin, 2001). Coakley (1999) also identified Ghana as Africa's second largest producer of gold after South Africa, the third largest producer of manganese and bauxite, as well as a producer of significant amounts of diamonds. It is also endowed with some iron, limestone, kaolin, salt and other industrial mineral resources which are not exploited on a large scale. Basically indigenous method were used in the extraction of gold in the early centuries but now the main method is modern mining technology involving the use of machinery (Dickson & Benneh, 1988: 65-69).

By the 1890s there was gold mining everywhere in the Tarkwa Hills. The ore was head loaded to Tamentu where it was transferred into barges or stream launches to be taken down the Ankobra River to the port of Axim. In 1898, modern mining was extended to Obuasi where the gold deposits were even richer than at Tarkwa. After 1914, the newly-formed geological survey department discovered a lot. Currently, the principal gold fields include the Ankobra and Ofin rivers, and land areas around Prestea, Tarkwa, Obuasi, Konongo and most recently Newmont Ahafo South project.

Diamonds were first discovered in Ghana in 1919 in Abomosu River in the eastern region and further discoveries were made in the Birim river terraces in 1920 and later in the Bonsa river valley. The mineral is wide-spread in the country but it is found mainly in Birrimian rocks. Manganese occurs in birrimian rocks. The largest and perhaps the richest deposits of the mineral are at Nsuta where they are found in two parallel ridges. The deposits of bauxite occur on the flat tops of many hills in the country. Among the largest deposits to be discovered early were those on the tops of Mount Ejuanema in Kwahu and at Nyinahin in the Ashanti. It was first discovered at Awaso in 1921 however production started in 1941. Production of bauxite in Ghana will no doubt increase when facilities become available locally for processing bauxite into alumina to feed the Volta Aluminium company (VALCO) smelter at Tema which currently imports all its alumina.

3.3 Economic importance of Mining in Ghana

The quest for development has been a major concern for many developing countries such as Ghana. Moreover, the current global economic drive is virtually dictating the dependence on mineral extraction by many mineral-endowed countries of the South as a panacea for rapid economic and social development. As admitted by Akabzaa and Darimani, (2001), access to information in Ghana in general and the mining sector in particular is extremely difficult. Therefore most studies rely on the perceived benefits of mining investment on local communities, in order to discuss the costs and benefits of mining on local communities. This part of the chapter will dwell on the discussion by Akabzaa and Darimani, (2001)- the economic impact of mining in Ghana, specifically relating to the economic importance of mining.

The package of benefits that countries could derive from the extractive sector has resulted in many African countries depending on mineral extraction. Between 1975 and 1985, the economic decline that deviled Ghana's development drive necessitated the launch of the Economic Recovery Programme (ERP) by the then Provisional National Defence Council (PNDC) government, which provided generous fiscal concessions in mining through the passing of the Minerals and Mining Law (PNDCL 153, 1986) (Gavin, 2001). Instigated by the World Bank, the government of Ghana rolled out ERP, to achieve short-term economic stabilization which included improvement in government finances, and currency stabilization and long-term economic structural adjustment which also included improvements in the domestic production of goods and services, and strengthening of the social and economic infrastructure of the country (Nyanteng, 1997; Lynn and Legge, 1996; Sawyer, 1990).

The mining sector has gradually become one of the pillars of Ghana's economy contributing approximately 6% of the GDP per annum (Owusu-Koranteng, 2004). The economic importance of mining has been due to the fact that it has become the leading source of foreign exchange for Ghana and an important source of government revenue. In addition to this, it also provides capital and social infrastructure to the public and generates direct and indirect employment (Akabzaa and Darimani, 2001).

Mining accounts for 40% of the Government's foreign exchange earning. According to the Mineral Commission the sector has expanded its contributions to the gross foreign exchange since 1986. It contributed 15.60% in 1986 and increased to 45.5% and to 46% in 1995 and 1998 respectively. However in reality, the net foreign exchange contribution from mining has been declining. Against the backdrop of tax breaks and other very enticing incentive given to mining companies, a whopping 75% of their export earnings are kept in off-shore accounts for various purposes (Akabzaa and Darimani, 2001). Thus, the contribution in terms of foreign exchange is questioned by many development advocates. However, mining generates revenue to the government in diverse ways. This includes export earnings, corporate income taxes, royalties, concession rents, income taxes from mining employees among others (Akabzaa and Darimani, 2001).

The Ghanaian newspaper, *The Chronicle*, (April 13, 2005) reports that Ms Joyce Aryee (Chief Executive of The Ghana Chamber of Mines) estimated that the mining industry contributed over one billion dollars to the economy of Ghana in 2004 which she said represented 9.03% of the total collection of the Internal Revenue Service (IRS) in the year. Coakley (1999) also estimated that gold export earnings increased to \$687.8 million compared with \$646.7 million in 1997, accounting for 37.6% of total exports of \$1.83 billion in 1998.

In addition, it is reported that the mining sector provides a substantial number of jobs for the people living in and round mining areas. By 1995 mining accounted for about 20% of formal sector employment, with large-scale mining companies employing about 20,000 people (Akabzaa and Darimani, 2001). Apart from the jobs created by mining companies, other subsidiary companies and service providers around mining communities also provide employment indirectly. Mining areas have become sources of large markets for traders who sell all kinds of wares to miners. It is however important to note that the employment generation component of mining's contribution is conditioned by the stages of the operation. At the construction phase of mining, more employment is created perhaps because more unskilled hands are needed at this stage. Since the operations stage is more capital intensive, there are more often cases of retrenchment and lay-off adding to the unemployment situation in the country.

Some researchers argue that the net impact on employment may in fact be negative if one factored in the massive displacement of small miners to marginal sites. Also important is the abandonment of agriculture as a source of livelihood in favour of small-scale mining (Abugre and Akabzaa, 1997). Mining companies also honour some social responsibilities such as the granting of scholarships to students in their catchments areas. Apart from building roads and some infrastructure such as schools and hospitals, they also finance

community projects like building boreholes for the provision of water, toilet facilities, and social centers, among others. However, infrastructure sometimes comes late, and is not always according to the needs of the rural community but rather tailored to the needs of the mining company, such as roads.

3.4 Regulatory Environment for Corporate Mining in Ghana

Under the directive principles of state policy of the constitution, in particular article 36 (9), the state is obligated to take appropriate measures, including the enactment of law to safeguard the national environment for posterity and to cooperate with other states and bodies to safeguard the international environment for the purpose of protecting the wider international environment for mankind. Thus the Constitution of Ghana explicitly recognizes or incorporates two broader principles and these are the principle of inter-generational equity or sustainable development and the international law principle of 'Pacta Sunt servanda'. In other words, the government has an obligation not to make policies that are tantamount to depriving future generations of Ghanaians, of their ability to rely on the natural environment for their livelihood. Furthermore government must comply with its international obligations towards the protection of the global, including the national, environment.

In view of the above, chapter 21 of the 1992 Constitution of the Republic of Ghana contains comprehensive provisions dealing with the subject of lands and natural resources including mineral resources. Article 257 Clause 6 thereof states that: "every mineral in its natural state in, under or upon any land in Ghana, river streams water courses throughout Ghana, the exclusive economic zone and any area covered by the territorial sea or continental shelf is the property of the Republic of Ghana and shall be vested in the president on behalf of and in trust for the people of Ghana" (Ghana's Constitution, 1992). The constitution also emphasizes that the protection of natural resources such as minerals and water bodies, grant of mineral rights and concessions must be approved by the parliament of Ghana. Also provision has been made in the Constitution for the establishment of the Minerals Commission to regulate and manage the utilization of mineral resources and oversee the policies regarding natural resources in the country.

Until 1985, the extractive sector of Ghana was basically unregulated. Up until this date, no new mine was opened in Ghana perhaps due to the problems that deviled the sector investment which Aryee (2001) attributes to the economic, financial, institutional and legal framework within which the mining sector operated. Hitherto, several attempts have been made at promulgating mining related laws and regulations that will help to promote and regulate the extraction and marketing of various minerals in the country. Below is the summary of the principal ones (Akabzaa & Draimani, 2001):

The Additional Profile Tax Law (PNDCL 122; 1985);
The Minerals and Mining Law (PNDCL 153; 1986);
The Minerals (Royalties) Regulations (LI 1349; 1985,1987);
The Small Scale Mining Law (PNDCL 218; 1989); and
The Precious Marketing Corporation Law (PNDCL 219; 1989)

The Mineral and Mining Amendment Act (1999)

The Minerals and Mining Law 1986 (PNDC 153), lays down the basic legal requirements for engaging in minerals extraction. In law, the state has been entrusted with the power to grant concessionary and mineral rights in the form of licenses and leases to qualified persons. Some of the benefits accruing to the holders of the concession and mineral rights granted under the law, are different exemptions from for instance income tax, custom imports and selective alien tax (Akabzaa and Darimani, 2001).

Mining firms are entitled to certain benefits and incentives under the law. Section 26 of Law 153, provides that the holder of a mining lease shall, where qualified, be entitled to a certain capital allowance. In addition to the institutional and legal framework, other mouth-watering incentives are provided for investors in the sector to attract more FDIs. For example, Campbell (2003) and Akabzaa and Darimani (2001), estimated that corporate income tax on the mineral production of private companies in Ghana was brought down from 55% to 45% in 1975 and 1986 respectively and further to 35% in 1994. The royalty rate of 6% of the total value of minerals in 1975, also decreased to 3% in 1987 (Songore et al, 1994) and retention of between 75-90% of gross gold sales in offshore accounts (Owusu-Koranteng, 2004).

Rights it is said go with responsibilities, thus the mineral right does not go without responsibilities. The Minerals and Mining Law 1986, Section 27, imposes some responsibilities and obligations on the holders of mineral rights. These responsibilities are below;

- The exercise of a mineral right must be consistent with the reasonable and proper conduct of mining operation and shall affect as little as possible the interest of any lawful occupier of the land in respect of which such right is exercised.
- The lawful occupier of the land subject to a mineral right has grazing and cultivation rights in so far as such grazing and cultivation do not interfere with mining operations.
- The holder of mineral right is under an obligation to pay compensation to the owner or an occupier of any land subject to a mineral right in owner and for damage done to the surface of the land, building works or improvement, livestock, crops or trees in the mining area.
- Finally holder of mineral right shall have due regard to the effect of mineral operations on the environment and shall take such steps as may be necessary to prevent pollution of the environment as a result of such mining operations”.

Ironically, there is no independent controlling body to oversee that licensees adhere to their responsibilities. Akuffo (1998: 58-59) explains that the licensee, who is also the polluter, is to ensure that his own activities that pollute the environment are controlled by himself. Moreover there is also the problem of what constitutes pollution, (Akuffo, 1998: 58-59).

The laws in many peoples' opinion are very easy to be manipulated by mining companies, and the regulatory bodies are also malfunctioning. Perhaps surprisingly, mining companies are still pressing for more flexible minerals and mining laws in Ghana.

Various studies (Campbell, 2003, Akabzaa and Darimani, 2001, and Owusu-Koranteng, 2004), have revealed that while mining companies are quick to exercise their rights and enjoy benefits and incentives provided for them under various laws and constitution; they have not been as quick to comply with their legal and constitutional obligations and responsibilities. They have frequently flout legal rules and trampled on the rights of local people. These violations include pollution of the water bodies and air, inadequate or no compensation for the affected people and finally, but perhaps most importantly poverty pushing, deprivation of people's means of livelihood.

3.5 Environmental Impacts of Mining in Ghana

Mining has direct impact on the environment. Perhaps the environmental impact is much more precarious as its impact on livelihoods. Large-scale surface mining in the view of Akabzaa and Dramani (2001: 47) continues to impact on the principal elements of the environment – land, water, air, and severely reduce vegetative cover and destroy biodiversity. The Minerals Commission (n.d) in Ghana reports that the degradation that comes with surface mining has provoked a lot of disagreement and discontent. It reports that mining until the last few decades was an underground activity; however recent technological advancement and the burning desire to cut costs have led to extensive surface mining which demands the use of and degradation of vast stretches of land.

The WBG (2006: 2) lamented that the typical modern gold mine makes use of large open pits and cyanide to extract gold from the ore. These activities in their view irreversibly alter landscapes, displace communities, contaminate drinking water, harm workers, and destroy pristine ecosystems or farm lands.

On land degradation, about 70% of the total land area of Tarkwa (a mining community), which was previously mostly a forest area has been taken over by mining operations. The deforestation that comes with surface mining has resulted in reduction in the quality of arable land and has severely impacted the habitat of bird species and other form of biodiversities (Akabzaa and Dramani, 2000: 47). This very often leads to food insecurity since agricultural lands are either taken over by mining or rendered barren on the closure of the mine.

On pollution of water bodies, Owusu-Koranteng (2004) also stated that the proliferation of surface mining companies has resulted in stream pollution resulting from cyanide spillages, acid mine drainage, tailing leakages, mine waste disposals, and mine pits. In Abekoase (a mining community in Ghana), Owusu-Koranteng (2004: 2) identified that the cyanide spillage of October 2001 by Goldfields Ghana Limited (GGL) killed all life forms in the Asuman River, which served as a source of drinking water for many communities. In addition, in Dumase, five streams which were the sources of drinking water for the community dried up due to the establishment of a mine pit by the Bogoso Gold Limited (BGL). Residents of Prestea who use water from the streams and rivers around the mining area believe that the unregulated use of cyanide and other chemicals has contributed to a high incidence of anemia, silicosis, skin rash, cancer, and premature death (McKinley, 2006). Owusu-Koranteng (2004: 2) further explains that surface mining

operations demand large amounts of water whilst extensive excavations lead to excessive loss of water. The excessive loss of water through mining operations in turn leads to the lowering of the ground water table, which affects the water yields in boreholes, plant life and fertile lands in general.

3.6 Social impact of Mining in Ghana

The area that have received the greatest concern over the mining rush in Ghana are the areas of social development and environment management (Abugre and Akabzaa, 1997). It has become an undisputed fact that the negative effects of mining on the life of the people in the mining country in general and on the life of the people in the mining community in particular far outweigh the positive consequences of mining. According to Akabzaa and Darimani (2001), concerns have been expressed about inadequate housing, youth unemployment, and family disorganization, school drop-out rates, prostitution and drug abuse due to the influx of all manner of people. The negative consequences of mining in Ghana were exposed through a series of studies in some large-scale mining communities, such as Obuasi and Tarkwa.

One thorny issue in mining activities is about displacement and resettlement. People also lose their means of livelihood by way of expropriation of their farm land without fair and adequate compensation. This is discussed further in the next section.

3.6.1 Displacement and Resettlement

Mineral exploitation involves large-scale open pit/surface mining which requires the use of vast areas of land resulting in the need for relocation and resettlement of affected communities. Relocation and resettlement has several implications as it causes the people to lose both physical and social assets. The World Commission on Dam (WCD), (2000) also places emphasis not only on the physically displaced but also on livelihood displacement which potentially takes away from the people their means of production, survival and socio-cultural milieu. Table 2 below shows the World Bank resettlement projects active in 1993, with resettlement, including number of people displaced.

Table 2: World Bank resettlement projects, 1993

Region	Projects	Percentages	People	Percentages
Africa	34	23.3	113,000	5.8
South Asia	29	19.9	1,024,000	52.1
East Asia	58	39.7	588,000	30.0
Europe/Central Asia	5	3.4	27,000	1.4
Middle East/North Africa	7	4.8	32,000	1.6
Latin America	13	8.9	180,000	9.1
Total World Bank	146	100	1,963,000	100

Source: WBED (1996)

There are several different types of development project that causes displacement, these range from infrastructural projects (like highways, dams, and irrigation canals among

others), natural resources extraction (such as mining and oil drilling) and industrial parks among others. The World Bank estimated (Table 3), the distribution of displacees according to the various World Bank projects (active in 1993).

Table 3: Distribution of displacees by cause of displacement in World Bank projects (active in 1993) with resettlement

Cause	Projects	Percentage	People	Percentage
Dams, irrigation, canals	46	31.5	1,304,000	66.4
Urban infrastructure, water supply, sewerage, transportation	66	45.2	443,000	22.6
Thermal (including mining)	15	10.3	94,000	4.8
Others	19	13.0	122,000	6.2
Total World Bank	146	100	1,963,000	100

Source: WBED (1996)

Displacement and resettlement in general have been a developmental issues in Ghana hitherto. The Volta Resettlement Project was probably the beginning of Ghana's Development Induced Displacement and Resettlement problems. Adams (2001:238) reports that as a result of the creation of the Akosombo Dam, some 80,000 people in 739 villages constituting 1% of Ghana's population at the time, needed to be resettled after losing their habitations. Between 1990 and 1998, a total of 14 communities with a population of over 30,000 were displaced in Tarkwa alone (Akabzaa and Darimani, 2000).

The growing displacement seems to be brewing tension in and around the mining communities. This is as a result of the eviction of communities and small mines from concessions and their relocation to marginal sites, with inadequate compensation. The displacement and relocation of communities does not only come with material cost but also causes family disorganization and destruction of social networks and ties which form a very important pillar in the livelihood and survival of the communities. The family forms an important social unit especially in the area of socialization and training of the young ones. With the family unit disintegrated, social control and child upbringing becomes very difficult. The end results are the increasing levels of crime and the state of anomie in many mining communities. Table 4 below shows the breakdown of people displaced in Tarkwa and the companies responsible.

Table 4: Breakdown of people displaced in Tarkwa and the companies responsible

Company	No. of Communities	No. of Communities	Total Population Displaced
TGL	3	1	522
GAG	0	1	45
GFG	6	7	20,000
AGF	1	1	3,700

Adopted from Akabzaa and Darimani, (2001)

In an independent monitoring of resettlement implementation of the displaced communities in the newly commissioned Newmont Ahafo South Gold mining project it was estimated that approximately 1701 households (9575 individuals) have been displaced. The table 5 below provides a summary of project impact on people, land and structures in the Newmont Ghana Gold project in Ahafo South in Ghana;

Table 5: Project impact on people, land and structures in the Newmont Ghana Gold project in Ahafo South

People	Households	Individuals
Total Number of affected people	1701	9575
Of which		
• Residents :	823	5185
• Of which		
• With primary residence in the mine-take area	399	2594
• With primary residence elsewhere	424	2586
• Non-residence	878	4390
Land	Fields	Surface (acres)
Affected Lands	7513	4708
Structures	Number of Buildings	
Affected Structures	1568	
Of which		
• Complete structures	869	

Source: Frédéric Giovannetti (2005)

3.7 Description of Study the Area

3.7.1 General Background to Asutifi District

The Asutifi District is one of the 19 districts in the Brong Ahafo region of Ghana, created in 1988. It is one of the many districts classified as deprived by the Ministry of Local government and Rural Development (ADA, 2006:1), as the district lacks sufficient infrastructure that are required of a district. As a deprived district, Asutifi is noted for its agriculture activities which are normally found in the hands of peasant farmers who predominantly rely on rudimentary methods of production. Until recently Asutifi was only noted for its agrarian activity but the discovery of large deposits of gold and the beginning of mining operations by Newmont Ghana Gold Limited (NGGL) has brought the district into the limelight. Kenyasi is the administrative capital of Asutifi District.

3.7.2 Geographic Location

Geographically, the Asutifi District is positioned between latitudes 6°40' and 7°15' North and Longitudes 2°15' and 2°45' West (ADA, 2006: 1). As the smallest district in Brong-Ahafo Region of Ghana, it covers a land surface of 1500 sq. km. The district is bounded in the north by Sunyani District and in the north east by Tano South District. It also shares boundaries with Dormaa District to north-west, Ahafo Ano South and North Districts in the south east, and Asunafo North and South Districts in the south west. According to the ADA (2006: 1), there are a total of 117 settlements in the district and among these settlements only two communities (Kenyasi 2 and Hwediem) were classified as urban by the year 2000 Population and Housing Census.

3.7.3 Topography

Asutifi lies within the forest dissected plateau physiographic region with the lowest point estimated at about 650 feet above sea level and the highest point about 1400 feet above sea level. The major river in the area, River Tano, happens to be one of the largest rivers in Ghana with many tributaries including the Nsubin, Goa and Ntotro Rivers (ADA, 2006: 2). The geology of the district shows an underlying precambrian rock of Birimain and Dahomeyan formations. This rock formation is highly noted for gold-bearing rocks. The discovery of gold in Kenyasi No. 1 & 2, Ntotroso, Gyedu-Wamahinso and other smaller communities in the district did not come as a surprise. Currently Newmont Ghana Gold Limited, (NGGL), a subsidiary of Newmont Mining Corporation (one of the world's largest mining companies) has started operations in these communities.

3.7.4 Climate/Vegetation

The area falls within the wet semi-equatorial zone, primarily the semi-deciduous forest zone of Ghana. It has a mean annual rainfall range of 125cm and 200cm with the major rains occurring between May and July and the minor rains occurring between September and October. Relative humidity is generally high throughout the year ranging from 75% to 80%.

The district is also blessed with moist semi-deciduous forest covering a total of about 475.63 sq. km. (about 30% of the entire land surface area of the district). This includes large areas of forest reserves comprising Biaso Shelter Belt, Bia Tam, Asukese, Goa and Desiri Forest Reserves (ADA, 2006: 3).

3.7.5 Demographic Characteristics

The National Population and Housing Survey (2000) estimated the population of Asutifi to be about 84,475 in 2000. The ADA (2006: 6) estimated the population of the district to be 99,928 by 2006 and it is expected to grow at a rate of 2.8 %. The age and sex structure of the population shows that 54.7% falls within the working age group. Also 50.4% of the estimated populations are females and the rest, 49.6%, are males, showing a sex ratio of 1:1.02 males to females. Below, Table 6 shows the age and sex structure of the population.

Table 6: Age and sex structure of Population of Asutifi District

AGE	MALE		FEMALE		TOTAL	
	NO.	%	NO.	%	NO.	%
0-17	169	20.0	173	20.5	342	40.5
18-64	229	27.1	233	27.6	462	54.7
65+	21	2.5	19	2.3	40	4.8
TOTAL	419	49.6	425	50.4	844	100.00

Source: Ghana Statistical Service (Socio – Economic Survey), 2006

3.7.6 Justification for the selection of study area

The characteristics of the Asutifi District coupled with the fact that Asutifi has been in the limelight of mining discourses in the last couple of years, set the background for this area to be chosen as a study area. The area is documented to have had the most recent distortions in the livelihood of rural households as a result of the operations of Newmont Ghana Gold Limited (NGGL). Besides the district is one of the largest sources of Ghana's foodstuffs and cocoa which makes it a crucial areas of concern with records of farmlands being taken over by mining. The selection of Asutifi is therefore not only appropriate but timely since it offers rich and most recent avenues for a study into natural resource exploitation and its implications on the environment and rural livelihood in particular.

4. THEORETICAL FRAMEWORK

4.0 Introduction

Through the two previous chapters, respectively the literature review and the overview of Ghana's extractive sector and introduction to the study site, the foundation for the theoretical framework has been drafted. The literature review has exposed different approaches to the problem, while the information on Ghana's extractive sector and the study site have cast light upon some of the current issues and problems facing Ghana. It is from those facts and theories that this chapter and the theoretical framework is grounded. Further, a great deal of simplification has been done, in relation to the scope of this research, so that it is manageable. Thus the choice has been made to focus on livelihoods and the effects that natural resource exploitation has on the livelihoods of the rural population and poverty in general. The four research questions that have been elaborated form the objective of this research as well as the two previous chapters are as follows:

5. What are the impacts of large amounts of natural resources on the rural households?
6. How does natural resource exploitation impact on the livelihoods of rural households?
7. In what ways can the exploitation lead to poverty?
8. What are the displacement and resettlement implications on the livelihoods of the rural households?

One popular theory of analyzing the interface between natural resource exploitation and the creation of new poverty or poverty exacerbation is the Sustainable Livelihood Approach (DFID, 2002). From another perspective, more specifically devoted to mining activities, is the Mining Induced Displacement and Resettlement (MIDR) Narrative (Downing, 2002), which can also serve as a framework to analyze the impact that mining can make on the livelihood of rural households and communities. Both of these approaches have been discussed in the theoretical review chapter.

In order to answer the four research questions, the Sustainable Livelihood Framework (SLF) directly leading from the Sustainable Livelihood Approach, will be issued together with any important aspects of the theory reviewed and a special emphasis on the Mining Induced Displacement and Resettlement (MIDR) narrative. The MIDR approach is explained in greater detail in section 4.1, whereafter the SLF will be detailed and the last section states the linkages to this specific research and its research questions.

4.1 The Mining Induced Displacement and Resettlement Approach

Beside livelihoods, this study will look into how displacement and resettlement caused by mining impact on the rural households. Downing (2002) makes an overview of Mining-Induced Displacement and Resettlement in his paper entitled "Avoiding New Poverty: Mining-Induced Displacement and Resettlement (MIDR)". In this paper, Downing

focussed on the risk posed by the phenomenon of Mining Induced Displacement and Resettlement (MIDR) to societal sustainability.

The MIDR narrative explains that mining is mostly accompanied by displacement and what specialists call the 'Resettlement Effect', which can trigger new forms of poverty (Downing, 2002: 3). Downing (2002: 3) explains this by stating that mining has the potential of creating new poverty in addition to what existed already. This may occur as a result of the conspicuous risks it brings to mining affected communities. Resettlement Effects consist of loss of physical and non-physical assets comprising of homes, communities, income-generating assets and sources, productive lands, subsistence, resources, cultural sites, social structure, network and ties, cultural identity and mutual help mechanisms (Downing, 2002: 3).

All these effects are considered in the Impoverishment Risk and Rehabilitation model (IRR) as risks (Cernea, 2000), which implies that these effects may contribute to impoverish people. The most common and the most obvious among the risks is the risk of landlessness, although it may account for only about 10-20% of the impoverishment risk associated with forced displacement (Cernea, 2000). Thus although this may be compensated for by the mining operation, it is not necessarily sufficient. In fact, another potential risks, consisting of nine different risks, have been discovered by research on displacement. These include joblessness, homelessness, marginalization, food insecurity, loss of common lands and resources, increased health risks, social disarticulation, disruption of formal education and the loss of civil and human rights (Cernea 2000).

The daily survivability of the people is directly grounded in their ability to maintain these resources. If mining truncates the maintenance and use of these resources available to the communities, it is likely to amount to a devastating impact on the sustainable livelihood of the people. It is therefore recommended by displacement specialists that effort must be made at mitigating the resettlement effects as identified above. The mitigation of the Resettlement Effect can be achieved through the identification of potential risks and making arrangements to avoid those risks. That, according to Downing (2002) will go a long way to restore livelihoods and avoid new poverty. Downing (2002) suggests various steps to take to reduce the risks of impoverishment, such as having a resettlement plan, thorough social preparation, a risk assessment of the impoverishment and sufficient entitlement.

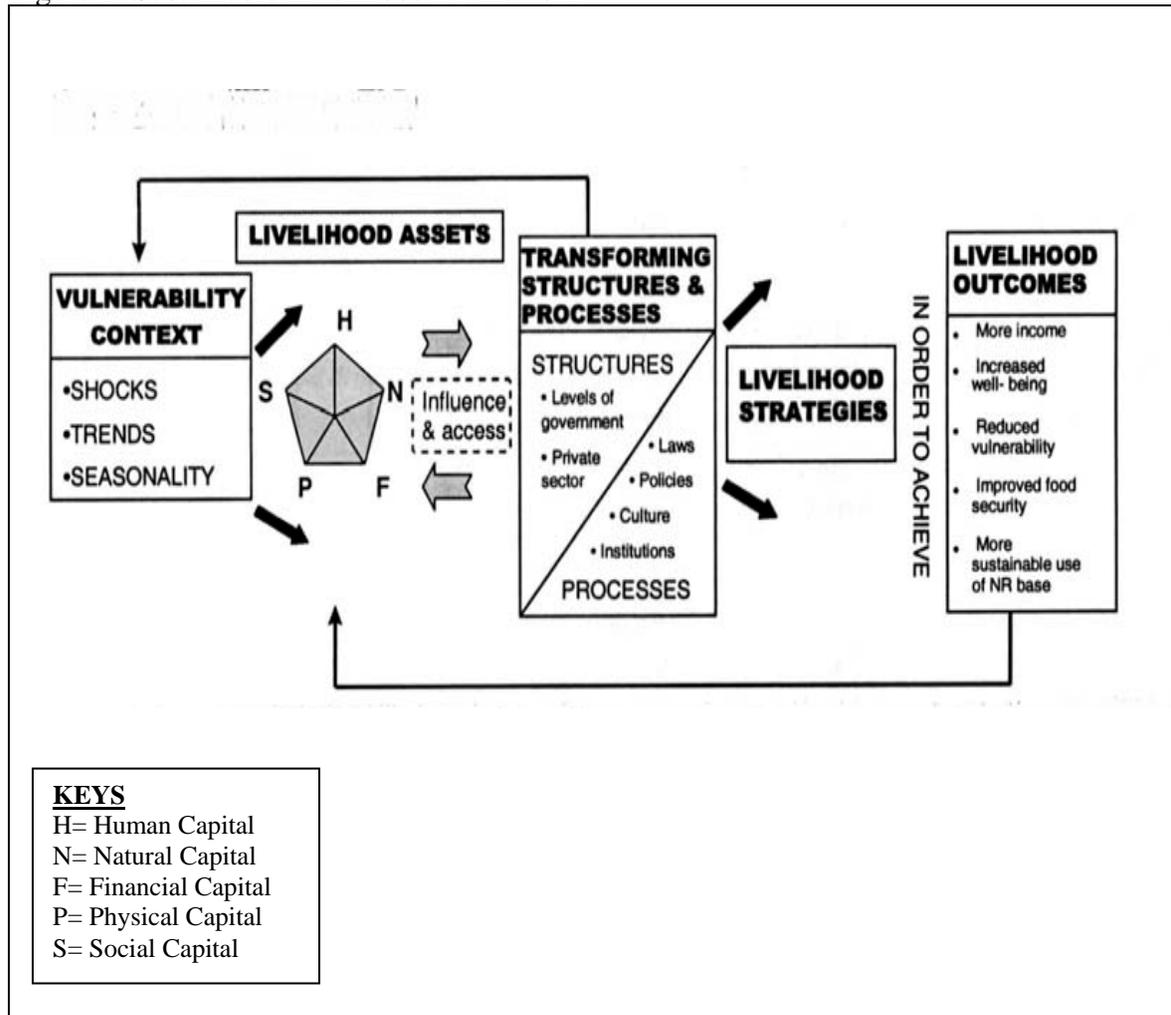
4.2 The Sustainable Livelihood Approach

The Sustainable Livelihood Framework (SLF) arising from the Sustainable Livelihood Approach is a framework which is easily applicable and adjusted to different contexts, as mentioned in the literature review. This framework was conceptualized by the UK Department for International Development (DFID), and has since been widely used and recognized. The core principles fall in accordance with the principles that this research seeks to follow and is thus very appropriate. These core principles are that the framework is people-centered as it relies a lot upon the people's own definitions and views; it is holistic in the sense that it does not provide a given world picture and is thus highly

adaptable; it is also a dynamic framework as it gives room for positive changes and influences; it builds on strengths and focuses on the macro-micro level, allowing for important positive aspects and gives room to the linkages between the macro and micro levels; and most importantly it focuses on sustainability, both at an individual, environmental and national level, although in particular for livelihoods (DFID, 2002: 4-3).

Within the Framework there are several keys and elements. The framework and its elements and keys, are first visualized in Figure 2, and this is followed by a brief explanation of the respective elements.

Figure 2: Sustainable Livelihood Framework



Adopted from DFID (2002)

4.2.1 Vulnerability Context

The framework indicates that the poor operate in an external environment termed vulnerability context (DFID, 1999: 13) which in itself is affected by some transforming

structures and processes (Kollinair and Gamper, 2002: 6). This vulnerability context however influences the poor's livelihood strategies and hence their livelihood outcomes. The framework emphasizes that people pursue their livelihoods in a vulnerability context, which is an external environment that includes shocks, trends and seasonality (Castro, 2002: 2).

Shocks here includes the sudden occurrence of human, livestock and crop health shocks, natural disasters, economic trauma, conflict and others. *Trends* comprise demographic, resource and governance trends, while *Seasonality* consists of price fluctuations, seasonality of employment and production (Castro, 2002: 5). The framework considers these as external to the control of the poor or the household but have direct and indirect impacts on the livelihood of the poor with regards to the options available to them (Castro, 2002:2). With recent research converging in the finding that the physical and social environment in rural settings are characterized by greater variability and unpredictability (Leach et al, 1999), the vulnerability context seems to have much influence on the livelihood of the rural poor. Notwithstanding the variability and unpredictability, rural household still draw their assets and capitals from this same vulnerable environment.

4.2.2 Livelihood Assets

The approach is actually grounded on the premise that understanding the strengths and the opportunities available to the poor is fundamental to the understanding of how they convert their livelihood assets into positive outcomes (Ellis, 2000, Kollmair and Gamper, 2002). Carney (1998) identifies five basic categories of assets or capital available to the poor – Social, Human, Natural, Physical and Financial assets/capital.

Social capital/assets entail the social resource upon which the people draw in pursuit of their livelihood goals (DFID, 2000). In the view of Coleman (1990) social capital is productive in making it possible for the attainment of certain goals which otherwise would not have been possible in its absence. And Carney (1998: 7) identifies social capital as entailing networks, membership of groups or associations, and access to wider institutions of society. It is important to note that for poor households, the ability to survive shocks and stresses is directly linked to their access to assistance that they will gain from their networks, family ties and social capital in general.

Human capital/assets include the store of skills and knowledge and the ability to work and be in good health that is considered essential in pursuit of different livelihood strategies (Carney, 1998: 7 and DFID, 2000). Human capital appears as a decisive factor even though it has an intrinsic value (Kollmair and Gamper, 2002: 6). It also acts as building blocks toward livelihood outcomes and supportive factor for the other assets (Kollmair and Gamper, 2002: 6).

Natural capital/assets represent the stocks of natural resources considered essential for livelihood generation and from which resources flow (Carney, 1998: 7). It includes land, water, forest, air quality, wildlife, biodiversity and all other environmental resources, which households derive their livelihoods from. Kollmair and Gamper (2002: 7) emphasize that this framework captures a relationship that exists between natural capital

and many of the devastating shocks and stresses (Vulnerability context) inherent in livelihoods. It is emphasized that many of these stresses and shocks such as earthquakes, fire, floods and others, are natural processes that truncate the use of natural capital. *Physical capital/assets* are defined to include the basic infrastructure and producer goods and production equipment which facilitate the pursuit of livelihoods (Carney, 1998: 7). This comprises houses, transport and communications, water supplies, energy, roads and other man-made assets. This framework stresses the importance of infrastructure to the pursuit of livelihood outcomes and hence the need for an affordable pricing policy for the poorest in the society.

Financial capital/assets comprise the financial resources available to the people, which enable them to pursue their livelihood objectives (Kollmair and Gamper, 2002: 7). They are available in savings, credits, cash, regular remittances and pensions. This normally forms an important “cushion” in times of shocks and stresses. Kollmair and Gamper (2002: 7) emphasize the versatility of this capital, since it can easily be converted into other types of capital in pursuit of livelihood outcomes. However, it is almost least available to the poor (Kollmair and Gamper, 2002: 7).

4.2.3 Transforming Structures and Processes

The framework also explains that the livelihood assets as explained above realize the peoples’ meaning and value within a prevailing social, institutional and organizational environment, which the framework terms the *transforming structures and processes*. In their bid to combine the various livelihood assets into livelihood strategies in pursuit of their livelihood outcomes, the poor are influenced directly or indirectly by factors such as laws, policies, cultural values and organizational structures that develop and enforce these processes (Castro, 2000: 3). DFID (2000) explains that structures here manifest in the roles of all public and governmental agents and the private organization that set and implement policies, legislations and delivery services that affect livelihoods. The transforming structure and processes provide a link between the micro (individual, household and community) and the macro (regional government, private, national and multinational enterprises) levels of society (Cahn, 2002: 2).

In his analysis of sustainable rural livelihoods, Scoones (1998: 12) explains that understanding the institutional arrangements and structures helps to come to terms with restrictions, barriers and opportunities that may occur in the attempt to access livelihood resources and how they may affect the composition of portfolios of livelihood strategies and outcomes.

4.2.4 Livelihood Strategies

Livelihood strategies provide the means and foundations for the generation of activities that ensures the survival of the household (Ellis, 2000: 40). Kollmair and Gamper (2002: 8) explain livelihood strategies as the range and combination of activities and choices (assets) that people undertake in pursuit of their livelihood goals. It is worth noting that the available livelihood strategies are dependent on the available assets, the structural arrangement and processes as well as the vulnerability context that is prevailing (Cahn, 2002: 3). Thus the decision to make a certain combination of assets is directly shaped by

those factors that are external to the individual or the household. There are three key livelihood strategies available to rural households – agricultural intensification or extensification, livelihood diversification and migration (Scoones, 1998). The rural household undertakes one or a combination of these to survive in any given prevailing conditions.

4.2.5 Livelihood Outcomes

This is said to be the end product of the application of livelihood strategies. The achievement of a given livelihood portfolio is a critical issue in the framework. The outcomes are manifested in more income, increased well-being, reduced vulnerability, improved food security and a more sustainable use of natural resources (Castro, 2002: 3). However Scoones (1998) emphasizes that the livelihood pathways and portfolio combinations do not always result in a positive outcome. This means that an unfavourable vulnerability context coupled with stringent and rigid structures and processes could result in a wrongful combination of strategies which will yield a negative livelihood outcome.

4.3 The Practical Aspect of the Theoretical Approach

The MIDR approach is appropriate and helpful in addressing the fourth research question, although it also may help to cast a light upon the other questions as well. The SLF is very appropriate and applicable for the remaining three questions, as it will answer directly, the quest for the livelihoods of the people, as well as explaining what these implications may be. Through finding out about the peoples' own opinions upon the changes in the keys in the SLF as well as the risk elements of the MIDR approach, triggered by the mining operation, it is able to assess the changes that have been caused as well as the linkages that may exist. The theoretical approach is in addition quite situation-specific and allows for macro-micro linkages, giving a more comprehensive picture of the situation.

4.4 Summary/Conclusion

The role of natural resources in the livelihoods of rural households is undeniably important. The sustainable livelihood framework demonstrates the position of the various capitals (which themselves source their sustenance from natural resources) in the survivability and livelihood of rural households. It is therefore important that the exploitation of natural resources especially by various multinationals must pay attention to the needs of rural folks whose livelihoods and general survivability depends largely on the natural resource and the entire environment.

The Mining Induced Displacement and Resettlement narrative has also illuminated the severe implications of mining in general on rural livelihoods. While quick to respond to construction and engineering issues, multinationals are conspicuously missing out in the business of social development and poverty alleviation (Downing, 2002: 19) as advocated by the World Bank. Notwithstanding, all these implications of mining, the government of

Ghana in particular and most resource-rich countries in general continue to cede vast areas of lands to multinationals who exploit the natural resources. It is high time more attention is paid to the interface of natural resources and poverty. In doing so, there is the need to rethink the regulatory and policy framework for extractive industries to pay more attention to resuscitating lost livelihoods and the ailing environment of mining communities.

Furthermore, more studies must be conducted into mining community livelihoods in relation to mining activities to diagnose the real problems at stake in order to find appropriate antidotes to these problems. This is basically what this study seeks to find – To show the impacts that exploitation of natural resources has on the livelihood of rural households, with the help of previous research, the SLF framework and the MIDR narrative.

However, having the appropriate literature review and theoretical framework is not sufficient for a successful research. In order to achieve the most serviceable way of conducting the research itself, a suitable methodology must be found. In the next chapter the chosen methodological approach will be described in detail including challenges that occurred on the field. This will be followed by the analytical chapter with conclusions and recommendations.

5. METHODOLOGY

5.0 Introduction

Methodology can be defined as “a system of methods used in a particular field” (The Concise Oxford English Dictionary, 2006). It is commonly used by students and researchers and is a widespread instrument for forming one's approach and guiding the collection and analysis processes. It is useful as it provides the field of research with common grounds to approach research. This chapter first reviews some of the method mainstreams, thereafter to clarify the choice of research methods for this thesis, as well as the reasons for these particular choices. Descriptions of analysis procedures are also included, and the extent to which the collection processes were successful or not.

5.1 Methodology Mainstreams

Within the field of methodology many approaches exist. Generally, methods can be divided into two categories, namely quantitative methodology and qualitative methodology, in addition to the third approach of action research, which will not be pursued further here. The quantitative methodology is the older one and previously more used. However this has been changing and qualitative methodologies have become widely used. Both of these approaches have their advantages and disadvantages. Therefore, the choice of method is often dependent on the particular theme for research. For instance, a study of a large area with vast amounts of data, needed, which seeks to generalize, is perhaps better served with a quantitative approach than a qualitative one. This is because quantitative studies rely more on hard data and statistics than does the qualitative approaches, and thus is easier to generalize. Quantitative approaches give overviews and are useful in penetrating large amounts of data, as well as being an essential tool for explaining correlations (Grenness, 2001: 198).

Qualitative studies, on the other hand, use often little or no statistics and consist of more soft data, often individual related views. The qualitative approach is very useful in researching social, sociological and ethnological issues, as it allows the researcher to get more detail of experiences and certain effects. Within qualitative approaches one must be very careful to balance between a descriptive and interpretative presentation. This is one of the dilemmas of qualitative studies, as a researcher should not exaggerate the situation but should neither become a journalist-like descriptor (Hellevik, 1995: 106). In addition, considerations must also be given to the balance between the way that the participants experience and the researchers' experience, since in qualitative research there must be a balance of those two (Hellevik, 1995: 106).

5.1.1 Methodology ‘Sub-Groups’

In the fields of both the quantitative approaches and the qualitative approaches, several techniques exist. There is neither room nor space enough in this research to review them all, so they will only be shortly mentioned here. Of quantitative approaches one can mention social surveys which include features of random samples and measured

variables, experiments which include experimental stimulus and a control group that is not exposed to the stimulus, official statistics including analysis of previously collected data, structured observation with the feature of observations recorded on predetermined schedule, and content analysis including predetermined categories used to count the content of mass media products (Silverman, 2001: 27). Of qualitative approaches interviews, observations, textual analysis and audio and video analysis can be mentioned (Silverman, 2001: 27).

5.2 Methodological choices

This research will make use of qualitative methodology. Basically the study makes an in depth analysis of people's livelihood assets and strategies and how they are affected by the mining activities and its environmental effects. This demands more participatory methods which can only be achieved using qualitative techniques. Qualitative methods are useful as they give another approach to, and understanding of, the researchers theme. Variables concerned with subjectivity can be better illustrated with the qualitative approach. In this particular research it applies as it is the subjective perception of the rural households that we seek to measure. The qualitative approach is also more suitable in order to obtain the inhabitants own explanations as well as their attitudes during the interview (Silverman, 2001: 32).

Qualitatively, the research combined the use of conventional research methodologies such as rapid participatory rural appraisal which includes interviews, discussions with relevant stakeholders and textual analysis of publications, facts and figures, articles and others relevant reports from environmental NGOs, government departments and mining companies. Further, secondary data were gathered from libraries based in Norway and from the World Wide Web (www). The research also made use of content analysis of company reports, research reports and data presented by MDAs.

5.3 Data collection

The study employed methods of rapid participatory rural appraisal to collect and deliver data and its outcomes within the timeframe given. As emphasized by Kumar (1987), the rapid participatory rural appraisal methods are characterized by quick, low-cost ways of gathering data systematically, which in this case was a strong advantage. This methodology provided good quality and timely information that included contributions from rural households, the larger community, and stakeholders alike (Chambers, 1981; Schrimshaw and Hurtado, 1987; Melville, 1993). This helped to produce results that lead to unraveling linkages and impacts of mining activities on rural households and mining communities at large.

The choice for this method was thus mainly grounded in its ability to provide rich data with fewer economic resources and within the shortest period of time. Getting descriptive data on some complex phenomenon is sometimes difficult; this method enabled the study to come out with the relevant descriptive information since it is more able to study complex socio-economic changes and highly interactive social situations (Kumar, 1987).

The use of rapid participatory rural appraisal methods is, however, not without limitations. Like most qualitative studies, there are critics relating to, among other, anecdotalism (Silverman, 2001: 34), credibility (Silverman 2001: 220), reliability (Silverman 2001: 226), validity (Silverman, 2001: 232) and generalizability (Silverman, 2001: 249). Although most of these limitations can be handled with good planning, generalizability is seldom achieved through qualitative studies (Silverman, 2001: 249), although this can be increased through measures like, for instance, theoretical sampling. The limitations are further grounded in the types of techniques used under the rapid participatory rural appraisal methods. This study applied the techniques of Key and Non-Key Informant Interviews, text-analysis and to some degree observation. Hence the limitations of these techniques are discussed in the sections that follow.

5.3.1 Interviews

Two types of interview techniques were conducted for this study: Key Informant Interview (Kumar, 1993) and Non-Key Informant interview (Informal Survey) (Kumar, 1987). As this research focuses on the inhabitants' own perceptions it was very helpful to do interviews to obtain that knowledge. With the interviews data we relied upon semi-structured interviews, combining some few standardized questions with multiple choice answers, and using open-ended questions. The advantage here was that questionnaires are mostly standardized and thus easy to tabulate which leads to a higher degree of comparability and some argue reliability (Silverman, 2001: 89). Comparability can be of interest here since it helps to illustrate some important factors like, for example, the difference in the perceptions between the different households as well as their different assets.

Limitations of interviews in general

The reliability and validity of a research project are usually questioned by different actors. And not without a reason since preserving those two issues is both a delicate and difficult task. A great challenge for the interview method is the possible misinterpretation of language, both verbal and non-verbal, due to cultural differences. In Silverman (2001: 89) it is stated that: "Even more important for *reliability* than the type of interview selected, is the need to follow a standardized protocol." That makes the researchers' body language and the interviewees' response and interpretation crucial.

Key Informant Interviews

Key informant interview techniques consist of interviews with approximately 10 to 20 individuals who are selected for the sake of their broad knowledge of their community and the issues raised in the research (Kumar, 1993). Key Informants are individuals who are likely to produce relevant information, ideas and in-depth insights about a topic. This kind of interview involved in our case in-depth discussions with knowledgeable persons, using semi-structured interview guides. Semi-structured interviews allowed us to have some sort of flexibility to follow up with interesting leads that arose, both during the interview and our stay in the field, while it still gave us some sort of structure and a frame

to stay within. In actual fact, out of the nine interviewees, there was only one that had problems staying within the questions asked. Particularly in that case, the structure of the interview was useful as it made it easier for us to guide the interviewee on to the relevant track again. In all cases, we had tailored the interview scheme beforehand after the type of occupation or position that the interviewee had, making us save time and knowing what we wanted from the interview.

The interview units were carefully selected from stakeholder groups such as chiefs or their representatives, from various MDAs, assemblymen, youth leaders and representatives from civil society groups and NGOs. We chose ten interviewees, which we felt were the most essential to our thesis, out of which one of them avoided any attempt made by us to interview the representative. This was sadly and perhaps surprisingly enough, the main actor Newmont Ghana Gold Limited. We state surprisingly since we expected that the company would have preferred to represent their views on the matter. Many attempts and a lot of time and effort were spent on trying to carry through the interview but sadly enough to no avail. The semi-structured interview guide, made up of a list of topics and questions on issues raised in the study, was used during these interview sessions. Below is a list of the key informants which were to be interviewed; representatives from

1. Newmont Ghana Gold Limited
2. Asutifi District Agricultural Department
3. District Planning Officer
4. Wassa Association of communities affected by Mining (WACAM)
5. Traditional Council of Kenyasi
6. Traditional Council of Ntrotroso
7. Ntrotroso Youth Association
8. Kenyasi 2 Youth Association
9. Assembly Member of Kenyasi 2
10. Assembly Member of Ntrotroso

Limitations

Key informant Interviews could be biased especially when interviewees are not selected carefully. This occurs in particular when the researcher tends to have an elitist orientation. Then informants are selected on the basis of their social and economic status, instead of their knowledge and experience (Kumar, 1987: 17). This inevitably happened in our sample as the chiefs and their spokesmen are elected because of their social position. However, we felt that the questions asked took that into consideration and that we rather managed to unveil some of the corruption and contradictions arising from the mining.

Kumar (1987: 17) further reports that, findings in this technique are rather susceptible to interviewer biases that may arise from inaccurate or distorted judgments due to shortcomings in cognitive processing. This happens especially when the interviewer picks up information and ideas that confirm preconceived ideas and notions. In our

interview processes we have tried to be as unbiased as possible, although this is difficult. The fact that we are two different interviewers with different backgrounds and perceptions definitely is an advantage in that matter. With our awareness of these limitations, we have been fore-warned to as much as possible deal with these biases that arose in the course of the study.

It should be stated though that being unbiased became more and more difficult with the time spent in the field, as we were exposed to several unpleasant facts about the people's lives after the mining and saw more and more of the tragedy, making us somewhat more and more biased in support of the farmers. Thus, it was helpful that most of the key informant's interviews were carried out in the beginning of our stay in the field.

Informal Surveys (Non-Key Informant Interviews)

Further data were collected from randomly sampled populations from rural households that have been affected in some way or another by the mining operation. The interviews were conducted using carefully structured questionnaires containing both closed and open-ended questions. Like sample surveys, this informal survey made use of semi-structured questionnaires but administered on a small size sample population (Kumar, 1987). The semi-structured questionnaires were developed to incorporate all the livelihood variables needed for this study. These variables included data on the livelihood assets available to the households and how these assets have been affected by the operation of Newmont Ghana Gold Limited.

Also the interviewees were asked about health problems, social problems and their subjective views on the mining operation and its benefits to the community. The use of informal surveys helped us to obtain information from the perspective of rural households who are affected by the mining. It also provided some data which is transferable into more quantitative data to complement the qualitative data illustration, already obtained from key informant interviews and the textual and content analysis of documents and publications.

In actual fact, the non-key informant interviews proved to provide us with much more thorough information than what we had imagined beforehand. First, we had assumed that all households are probably not affected in similar ways; but this was not the case since there were clear similarities, pointing to the possibility of some generalization. Second, the non-key informant interviews provided us with vast amounts of data, identification of common problems and a good supplement to the key informant interviews. Intentionally, the non-key interviews were intended for supplement only to the textual analysis and key informant interviews. However, as stated, the non-key informant interviews rather became a part of the main focus, providing us with good qualitative data.

Limitations

It is quite difficult to use informal surveys for collecting in-depth information. This is because they do not permit free and extended discussions and questions are mostly

framed to demand answers that can be somewhat quantified (Kumar 1987: 36). It will thus be a challenge to seek the qualitative information that we will need to acquire. However, as stated above, thanks to the generosity of the population, discussions went easily and the interviewees were willing to offer us rich information.

Moreover, it is prone to sampling biases due to the use of probability sampling techniques. Thus conclusions may be flawed and the recommendations be unjustified if respondents are not representative of the population under study (Kumar, 1987: 36). This was (tried to be) avoided by choosing randomly the households from various positions in the towns.

5.3.2 Medium of communication in interview

The medium of communication during the interviews was the local language combined with the English language for the key informants, and only the local language (Asante-Twi) for the non-key informants. This is because the key informants are basically selected from the elitist group and with the in-depth knowledge in the subject under study, some concepts and explanations are better understood in English than in the local language.

Non-key informants are characterized by low literacy and will be better able to express themselves in the local language than otherwise. Actually, most of the non-key informants did not speak English at all. With a background in the local language of the study area, the researchers did not have to use interpreters since fortunately one of the two researchers speaks the local language fluently.

5.4 Sampling

In selecting the informants, consideration was given to selecting informants from the entire gender divide, different social levels, varied age groups and displaced households. We intended to seek getting a varied group to form the sample population, in order to secure as good representability as possible. This also helped us to obtain a good understanding of the livelihoods systems and how they have been widely affected by the mining projects.

The sampling process was done differently for the two groups of strata to be interviewed—key informants and non-key informants (for informal survey). Using expert sampling techniques, key informants to be interviewed were selected from among the manifold stakeholders who are within the study area. We tried choosing the stakeholders as objectively as possible in order to avoid any elitist orientation of the sample (Kumar, 1987: 10). The expert sampling technique was carried through by choosing the interviewees whose interviews/responses were likely to be used for the theme of the thesis.

The procedure for the key informant interviews was conducted through introduction and authentic letters, as well as gaining some local contacts that introduced us. The questionnaires were tailored to each interviewee's position and relevance to the theme of the thesis, thus the questionnaires contained various amounts of themes and questions.

Non-proportional quota sampling technique was used to sample interview units for the informal survey. Respondents for this survey were representatives for (members of) rural households affected by the mining operations in some way or another. Basically there are six communities affected by the operations of Newmont Ghana Gold Limited; Kenyasi 1 and 2, Ntotroso, Gyedu, Wamanhinso and Kodiwohia communities. Non-probability sampling techniques were used to sample two communities out of the six for the informal survey. These were Kenyasi 2 and Ntotroso. Note here, however, that within these two communities, resettlement sites had been built and these were considered in this study as towns on their own, emphasizing their importance. Also the Kodiwohia community had been totally dispersed and integrated into Ntotroso resettlement site.

Since informal surveys are conducted on a smaller scale, the focus was on fewer variables and the use of non-probability sampling procedures which helped us to save more time and resources. Questionnaires for the survey included 7 demographic questions and 24 open-ended questions divided into 5 different themes in addition to some follow-up questions.

Sample size for the informal survey

The study conducted surveys on 30 households affected by mining in two communities in the study area. Since each community had separate resettlement sites, the population was made up of four different places; Ntotroso, Ntotroso resettlement site, Kenyasi 2 and Kenyasi 2 resettlement site. As the focus of this thesis is largely upon resettled people, it was decided to introduce skewed sampling, since we felt the data could best be obtained from the resettlement sites. Thus we interviewed 5 people from Ntotroso and 5 people from the Ntotroso resettlement site (despite that it is much smaller than Ntotroso), 6 persons from Kenyasi (which is the largest place) and 14 peoples from Kenyasi resettlement site (which is a very large resettlement site).

Sampling Procedure

Purposive quota sampling techniques were used to select the sample unit for the communities to be surveyed. Depending on the population of the communities, proportional quota sampling techniques were used to identify the number of individual households to be interviewed in each community. This ought to ensure that the sample size is fairly representative of the populations of those two communities. Note however that within these two communities, non-proportional quota sampling was carried out, as we allowed the resettlement sites to account for a majority of the data, as described above.

5.5 Data Analysis

This stage of the study is of utter importance, and considering the large volume of the interview data gathered from both the key informant interviews and the informal surveys, it is important to use an efficient technique to facilitate an insightful analysis. Apart from

textual and content analysis of publications, facts and figures, articles and others relevant reports and documents, the study intended to use a series of techniques for qualitative data analysis such as interview summary sheets, coding procedures and data storage through the help of the Atlas qualitative data processing software. However, this was not the actual procedure used, as it proved to be too time consuming for the time limit of this thesis. The steps in which the data analysis was actually carried out are described below:

5.5.1 Categorizing Procedure

Descriptive coding technique was employed to label data collected into various categories. Basically, coding involves systematic recording of data into various categories and subcategories of information. This was only done partly, as we, when constructing the questionnaires, identified and divided the questionnaire into the different themes. During the interviews we also tried to list additional information under the various theme questions for easier to find it again later. This did prove to be a successful and effective technique.

5.5.2 Electronic interview format

This stands for the fact that each interview was written into an electronic format within a maximum of two days after it was conducted. This was seen as a crucial action for the quality of the data, as a lot of what is said under an interview gets lost with time since it is very difficult to capture everything that is said onto the notes. However, it was definitely an advantage to be working collectively as one could devote all his attention to the interview/ discussion while the other one wrote the information down.

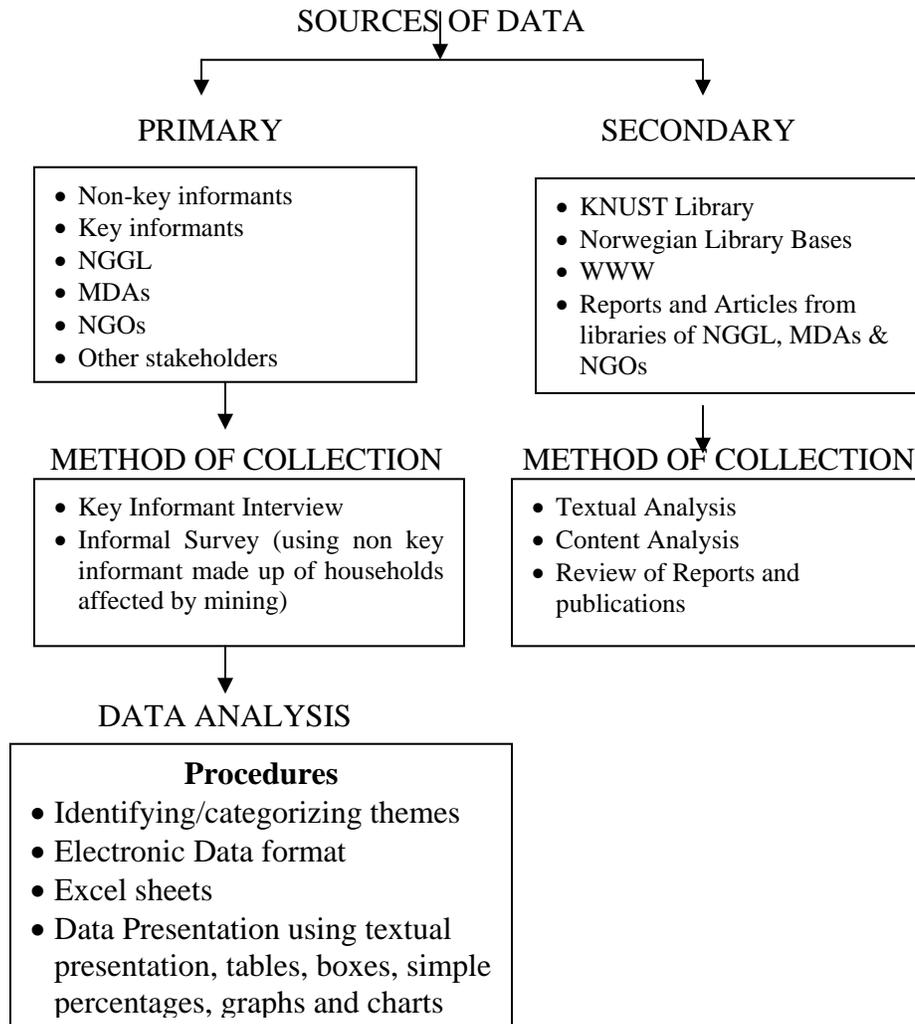
5.5.3 Data Converted into Excel

After converting the data into an electronic form, a lot of the information from the non-key informant interviews was put into a collective excel sheets for the sake of its simplicity and easy retrieval. This was done with factors such as various health problems, age and family sizes, among others.

5.5.4 Presentation of data

The use of Excel sheets has enabled us to make visual presentation of the data in the form of tables, boxes, figures and others, to use in addition to the more textual presentation form. Simple percentages, graphs, and charts are used to describe the demographic and socio-economic characteristics of the affected households and communities in general. There will also be textual presentation of the information that is gathered in this study. The model below shows the process followed in methodology;

Figure 3: Model showing process of Research Methodology



5.6 Challenges/limitations of the study

We acknowledge that a research of this type cannot be devoid of challenges. Below are some of the experienced and anticipated challenges and how we handled them to reduce their impact on the outcome of the study.

5.6.1 Access to Information

The culture of cover up information especially for strangers and strict adherence to administrative secrecy is widespread in Ghana. Officials in sensitive positions find it difficult, to release information for the fear of being reprimanded. It was anticipated that sourcing for data and information from official sources would be difficult. However, by securing an introductory note and letters from our host institution (KNUST) to authenticate who we were, we managed to secure most of the interviews. Furthermore,

we assured the institutions of the security of all information and data they gave us and that the information is purely for the purposes of the research, and not to be used to sabotage their activities. Despite this, NGGL did not want to provide us with any information which must be because of their sensitive position in the community.

5.6.2 Language Problem

Administering interviews involves the use of language (most importantly, one which can be understood and used by respondents). The ability to speak the respondent's language according to Ryen (2002) requires that the interviewer learn more than vocabulary and grammar of the language in question. It is obvious that in a case where an interviewer lacks

perfection in the language in question, the interpretation of reality will be affected. In support of this Ryen (2002) states that reality varies according to the context of its articulation and this by implication poses challenges to the use of interview as a method of data collection. It is for this reason and many others that a collaboration of this nature was formed in pursuant of this research. There is an advantage of having knowledge of the local language within the research team, as well as two different perceptions and interpretations of the situation.

5.6.3 Attitudinal problems

Like the researcher, the respondents have their own attitudes, values and idiosyncrasies which also influence how they respond and behave during the interview. These attitudes may negatively or positively impact on the study. We tried creating rapport with them before the actual work, and by this we were better able to make ourselves familiar to them, part of them and actually make them feel free to air true experiences. In addition, the approach taken allowed for personal interpretations of the situation. It came as an advantage that one of the researchers is a white person, since it is given a status to have a white person visiting your house in Ghana. However, some of the interviewees thought at first that we came from NGGL, as that is merely their previous interactions with white people. When it was learned that that was not the case, the people became very welcoming and happy for being of assistance.

5.6.4 Personal Idiosyncrasies

As humans, we may have our own cherished values and beliefs coupled with our ontological and epistemological perspective as researchers; it is an undeniable fact that the study can be influenced by these idiosyncrasies. However, to minimize the influence of personal idiosyncrasies on the study, we believe that we mastered self control, backed with the determination of creating value free knowledge of the reality on the ground. The advantage is that we are collaborating together as quite different persons with different backgrounds affecting our values and beliefs, that made us capable to identify each others idiosyncrasies. However, this may also have been a disadvantage, as communication is done in a second language and words have different meanings, thus increasing the risk

for misunderstandings and disagreement within the research team. That was tackled by aspiring for constructive feedbacks and discussions.

5.6.5 Size of the Study Area

The study area is large (comprising four different communities). Due to the size it will cost much conducting a study of this type. To meet this challenge, we divided the area into four communities as purposeful sites and used quota sampling technique to choose a sample population from the various sites. By this we were able to identify a target group to interview.

In addition, the following challenges were also experienced; narrowing down concretely and staying within the issues raised in the research topic, taking care of the soft qualitative approach and meeting the cost implication for conducting such a research.

5.7 Summary/Conclusion

Throughout this paper, we have intended to provide an overview of the methodology that we approached as a tool for carrying through our research. We see the qualitative aspect as an important and highly contributing method as we wished to go somewhat more in depth than just the surface. This was done through the rapid participatory rural appraisal with the two types of interviews, in combination with text and documents analysis.

Despite this, there will always be pros and cons to every method chosen, but the selection was made on the grounds of what type of information was needed foremost, as well as the limitations of time and financial resources. Also, there will always be challenges in the field, some foreseen and others not, but these we tried to handle with common sense and objectivity as well as professional work.

6. FINDINGS AND DISCUSSION

6.0 Introduction

This chapter focuses on findings and discussions of data collected during the fieldwork. The chapter is organized in seven sections. The first section basically presents the demographic characteristics of respondents in the non key informant interviews, using graphics and textual presentations. The five sections that follow are structured to follow the Sustainable Livelihood Framework which is the main theoretical approach of this study. The reason for this is to ensure a flow in the analysis as explained by the framework. These sections are: Contextual Analysis of Vulnerability Issues; Livelihood Platforms; Contextual Analysis of Structural and institutional Influences; Coping Strategies and Livelihood Outcomes. The last section which is Implications of Displacement and Resettlement is positioned there to cater for the MIDR approach which is referred to in the discussion under theoretical framework. It presents the findings on the occurrence of ‘resettlement effects’ in the case of the Asutifi district as a results displacement by mining.

6.1 Demographic Characteristics of the Sample Population

This section is intended to describe some socio-demographic characteristics of the sample population. This is done in order to enable the reader to gain an understanding of the sample, as well as to provide an overview of the sample. Moreover, consideration is given to the socio- demographic characteristics because of the deep influence it has on the social life of individuals especially in mining communities. The sample population consists of two main groups, key informants and non- key informants, where this section will focus only on the non-key informants due to the irrelevance of demographic characteristics when relating to key informants. The socio-demographic variables analysed in this section include geographic division, age and sex structure, educational level and occupation, income source and family size

6.1.1 Geographic Division

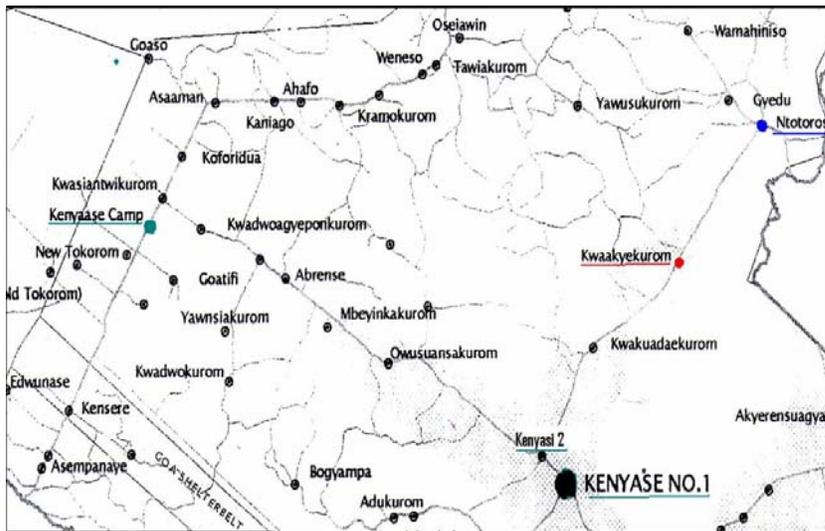
All the interviewees and their households are from within the same district in close proximity to one another which is attached to the same mining operation. Before the mining started, the geography and the structure of towns and villages were different from what it is now. This is because many were displaced and resettled near to other towns, thereby becoming part of an existing town. For example, a whole village Kwaakyekrom (marked with red, on map 2 below) was displaced and the people resettled in various places.

The two closest towns to the mining site are Kenyasi 2 and Ntotroso (find that on the map 2 below). In fact, the mining operation is in between these two towns as well as south of Kenyasi 2. Both of these towns have a new area consisting of a resettlement site for the resettled people. Kenyasi 2 is in addition a twin town of Kenyasi 1, but the latter has so

far not been much affected by the mining. These locations explain why these two towns were selected for investigation.

Furthermore, Kenyasi 2 is a larger town and has a larger resettlement area. It is for this reason that 5 interviews were conducted in Ntotroso and an additional 5 were conducted in its resettlement area. This is while 6 interviews were conducted in Kenyasi 2 and an additional 14 interviews were conducted in the Kenyasi 2 resettlement site. These constructed the sample of non- key informants. For further detail, see section 5.4 (Methodology)

Map 2: A part of a Map of Asutifi District, illustrating the study area



Adopted from ADA, 2006, modified by Aubell 2007

6.1.2 Gender and Age Structure

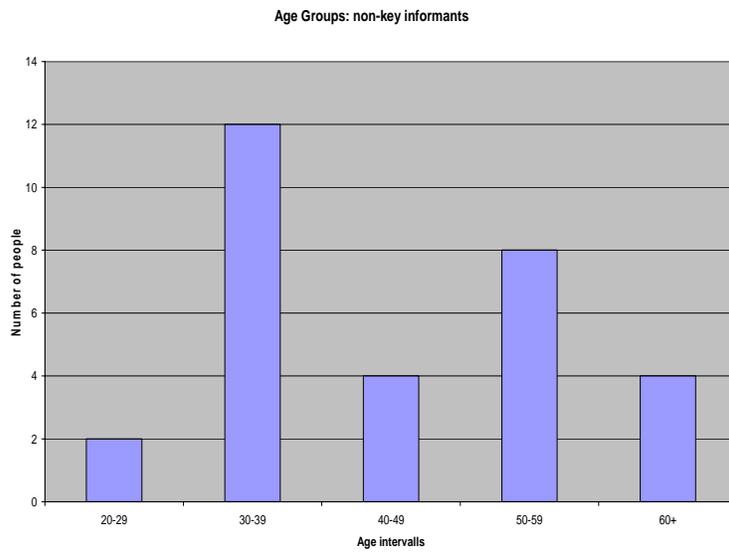
Gender is a very important factor to consider when dealing with social problems. In Ghana and most developing nations gender equality and mainstreaming in decision making has, for some time, not been considered important. However in this study the researchers attempted a fair balance between the two sexes. The non- key informant sample consists of 30 heads of households. The method of random sampling was used; however the sample randomly chosen consisted of equal distribution of the gender: 15 males and 15 females. This is not because half of the households were female headed but rather because the males were often not at home so the female head was interviewed. It is also important to note that the equal distribution of the sexes in the sample is reflective of the sex structure of the population in the district which stands at 50.4% females and 49.6% males representing a ratio of 1:1.02 males to females

Age is a very important factor in matters relating to mining and natural resource exploitation in general. One's vulnerability to the impact of mining is strongly influenced by the age and in this regard, age is a significant variable. The age structure of the sample was dominated by the age group 30-39 with 12 respondents accounting for 40% of the total sample. Then followed the age group 50-59 with a frequency 8 representing 26.7%

Only 2 interviewees were younger than the age 30 years, while more than 50% of the sample were 40 years and older.

The age structure is an indication that the Asutifi District has majority of its population of working age, as supported by the 2002 population census which describes the district's population as youthful with 54.7% between the ages 18-64 years (ADA, 2006: 7).

Figure 4: The age structure of the non-key informant sample



6.1.3 Educational Level

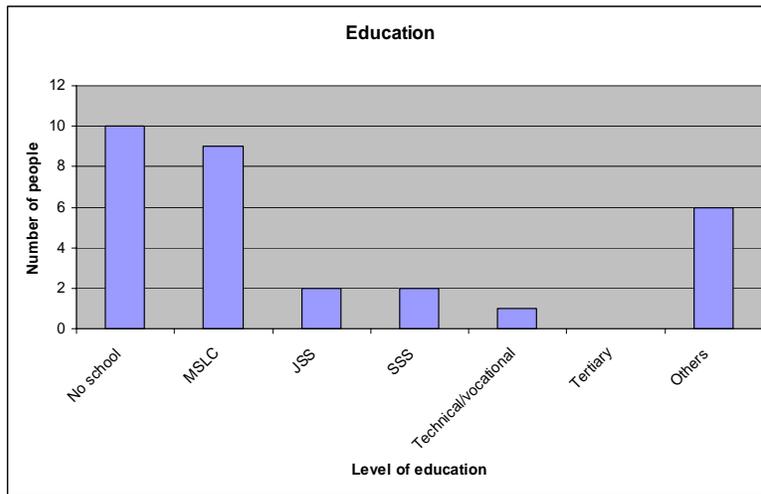
Education has a very important role to play in the determination of one's way of life: personal perceptions, general attitudes and most importantly one's readiness to contain and accommodate shock, seasonality and trends of vulnerability. In view of this, we consider the level of education of respondents as an essential variable.

The educational level of the sample was generally low, though not illiteracy. Ten persons had no formal education representing 33.3% of the sample, while 9 had Middle School Leaving Certificate (MSLC), representing 30% of the sample. No one had tertiary education, while only two persons had Junior Secondary School (JSS), and two others had also completed senior secondary school (SSS). And one person had technical/vocational education. The educational level of the sample supports the data at the district level which puts the literacy rate at 58% and illiteracy rate at 42%. This is all illustrated in figure 5.

However, Figure 5 does not reveal what the group of 'other' education consists of. Interestingly enough three persons within that group had some form of primary school, while one had GCE O'level, one had teacher training college and one had polytechnic engineering training.

The fact that most of the sample is either uneducated or only has a low level of education, does not imply that the interviewees do not value education. Rather the tendency was the opposite, as people were highly concerned for their children’s education. Some of the interviewees who had no education excused that fact by stating that: “My parents were illiterate and didn’t know any better” (Kwaku Manu, farmer Kenyasi 2 resettlement area). According to another farmer in Kenyasi 2 resettlement area, they are not able to send their children to school and he felt that Newmont Ghana Gold Limited should at least pay for their children to attend school (Dufie Dankwa, farmer, Kenyasi Resettlement area). Most of the farmers we interviewed expressed great concern regarding the negative effects on education for their children. This is discussed further in section 6.3.3.

Figure 5: Educational attainment by number



6.1.4 Occupation and Source of Income

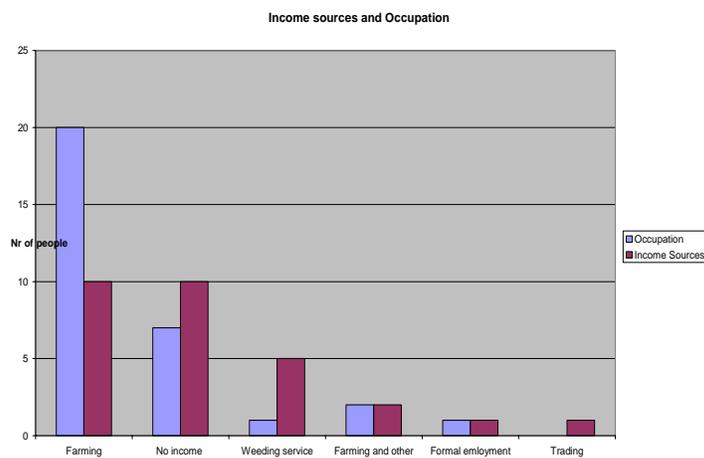
Occupation and income determines lifestyles, and in our investigation the extent of the impact of mining. The amount of income largely determines susceptibility to social, environmental or other problems. We were already informed about the fact that poor people are more exposed to the menace of mining pollution than the few rich. Moreover, not all occupations will be affected so much by mining, so that in this regard efforts were made to focus on those occupations and income sources which are most likely to be affected by mining. It should be noted here that by income, it is referred to either a relatively stable flow of capital or food into the household.

Twenty households are headed by farmers, and this represents 66.7 % of the total sample population which is also a reflection of a figure quoted in the 2006 socio-economic survey in the district (ADA, 2006: 12). It must also be emphasized that the majority of the people (91 percent) who work outside farming also engage in farming as a secondary activity (ADA, 2006: 12). Thus, it is not surprising that those three that have other occupations, are in addition farmers. Note here that the interviewee that has formal

employment, (which is illustrated in Figure 6), is also a farmer. Therefore it is safe to state that all of the households have farming as some kind of activity.

When it comes to income sources it is interesting to see that although 20 interviewees had farming as their main employment, only 10 had farming as an income source, while 5 defined their income source from weeding services. 10 households had no source of income whatsoever. The reasons being a result of the fact that mining has taken over their farm lands which used to be their source of income. These people survive by taking one day at a time, begging for food, getting some from their friends if possible, taking on small jobs for food or by the meagre rest of their compensation, and some even survive just by taking loans with their resettlement houses as a guarantee.

Figure 6: Occupations of heads of households and the income sources of the households



6.1.5 Family Size

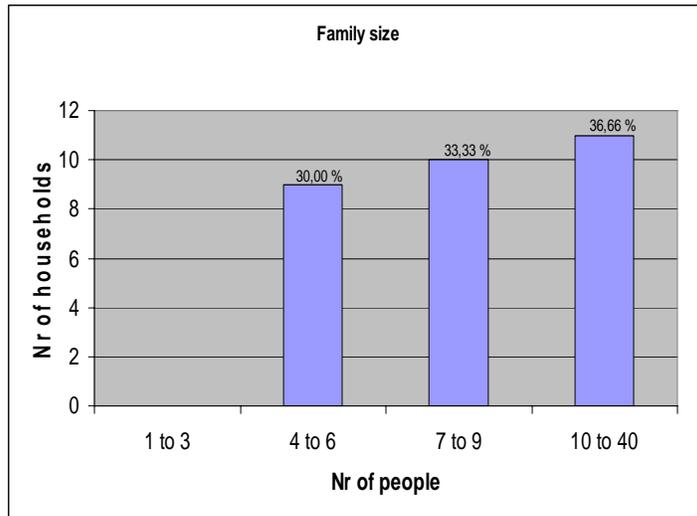
In this paper family size refers to the size of one household unit, or the number of the persons living in that one house sharing the household. The size of households ranges from 4 up to astonishingly 40 members within one household.. Initially, the plan was to range the family size in the following intervals; 1-3, 4-6, 7-9 and 10 and above. However, that ranging seemed not to be beneficial as the last interval varied extensively or up to 40 people. Thus, and due to the qualitative nature of this research, the amount of family members was listed concretely, although the ranging by intervals was still carried through.

None of the households consisted of less than 4 people, while more than 2/3 consisted of 7 and above, and 1/3 of 10 and above. In actual fact, the variation was quite large with only 1 household consisting of 4 people, while 7 households consisted of 15 and above, and only 2 of 40 people. The division was quite equal between the intervals though, with nearly 1/3 in each of the three last intervals, although like stated above the interval of ten and above has large variations. The large family size in the sample is supportive of the explanation given in ADA (2006: 12) that Asutifi is a typical agricultural district with the tendency of people to stay together or to have large family members to provide farm

hands. Currently average household size in the district lies between 6 and 7 persons per household.

The following diagram shows the amount of members of the families/households within the intervals, to provide some visual illustration.

Figure 7: Family size



6.1.6 Summary/conclusion

The demographic characteristics as discussed in this section show that the population of respondent is a young one since majority of the people falls between the ages 20-59. With educational levels seemingly low among the respondents the discussion can conclude that unemployment in the area will be high considering the fact that majority of the population are within the working group while mining demands highly skilled and educated personnel. It is not surprising therefore, that formal employment formed an insignificant part of occupation and sources of income for the respondents as shown in figure 6 above.

6.2 Contextual Analysis of Vulnerability Issues

This section of the discussion gives an overview of the vulnerability context within which the people of the study area live. As articulated by DFID (1999: 13) the vulnerability context frames the external environment in which people exist. In addition the livelihoods and survival of individuals and households are vulnerable to trends, shocks and seasons. This section is discussed under the following theme: Trends, shocks and seasonality as vulnerability issues. Under the issue of trends population, demography, natural resource change and governance are considered. Shocks as a vulnerability issue includes shocks in farming activities and health problems, while Seasonality is discussed in terms of fluctuation of prices for goods and services, as well as farm production, which is highly dependent on seasons.

6.2.1 Trends as a Vulnerability Issue

The livelihood and the survival of the people in the study area are vulnerable to trends such as population growth (demographic changes), natural resource change and systems, and the nature of governance in the area. These will be treated separately below.

Population Trends

The population of Asutifi District, according to the National Population and Housing survey (2000), was estimated at 85,475 persons and was growing at 2.8 % per annum. The 1984 census estimated the total population of the district at 54, 891 persons. In 2004, the district population was estimated at 94,486 persons. At present, it stands at 99, 298 persons, and the growth rate is 2.8%. According to the District Draft Profile (ADA, 2006), migration forms a very important component of the population growth.

Out-migration, which is not prominent, stood at 35 people per 1000. However migration into the district is much more pronounced with males accounting for 59.4% of the gross in-migration rate, (ADA, 2006: 8). It is worth emphasizing that the trends in migration have altered the population figure, especially in the mining area. This, according to the District Draft Profile, has compounded the already poor access to social facilities like potable water, sanitation, health, electricity and so on.

The ethnic composition of the population shows that the population predominantly comprises Ashantis and Bonos, (constituting about 54.3% of the total population) and the rest constitutes 45.7% and this is made up of migrants such as the Wangaras, Dagombas, Kusasis, Fantes and Ewes. The homogeneous character of both the local and migrant populations reduces the likelihood of conflicts and ensures peaceful co-existence. The Socio-Economic Survey (2006) conducted in the district shows that 73.3% of the population is Christian, 23.8% Moslems and 2.9% Traditionalists.

Natural Resource Change

Asutifi District is blessed with abundant natural resources including rich soils with high agronomic value, forest and forest products and perhaps more importantly precious mineral resources in the form of gold and diamonds, and bauxite; used in the production of aluminium.

The stock of forest resources has given rise to large-scale lumbering of valuable timber such as odum, mahogany, wawa and others. The rate of extraction according to ADA (2006: 4) has had destructive effects on the forest which was once rich with varying flora and fauna and other bio-diversity species which have economic value. The continuous lumbering in the area, without any attempt of reforestation, has resulted in the near extinction of some important tree types and herbal products and has caused distortions in the ecological balance of the area (ADA, 2006: 5).

Until recently, the rich soil found in the area gave rise to brisk farming activities. Food and cash crops were predominantly grown in the area. Cultivated food crops include plantains, cassava, maize, cocoyam and vegetables. Cash crops such as cocoa and oil palm were also cultivated on large scale in the area. According to ADA (2006: 5) the lack of adequate agricultural extension services and the use of poor farm practices have greatly contributed to degradation of the rich forest vegetation.

The discovery of gold and the development of mining activities in the area have resulted in some portion of arable land (which will have otherwise been used for farming especially in Kenyasi 1 and 2, Ntotroso, Gyedu Wamanhinso and other surrounding villages) being ceded for surface mining activities (ADA, 2006: 39).

Governance System

The draft district profile of Asutifi District Assembly (ADA, 2006: 33), defines governance as involving the management and co-ordination of various resources and institutions for effective organization of a nation's resources. It goes on to state that governance ensures that people within a certain geographic area are given the chance to play a meaningful role in the administration and decision making process of their society. In their sustainable livelihood guidance sheet (DFID, 2001: 13) UNDP "defines governance as the exercise of economic political and administrative authority to manage a country's affairs at all levels. It is used to mean the mechanisms, processes, and institutions, through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations, and mediate their differences".

The Constitution of Ghana articulates the need for governance to be localized hence the establishment of the local government unit under the District Assembly concept. This is in a bid to decentralize and localize the planning, initiation, co-ordination, management and execution of policies that affect the people within a given district. The Asutifi District Assembly established in 1989, under the PNDC Law 207 is made up of representatives from area councils (ADA, 2006: 35). The District Assembly consists of 8 area councils comprising of 117 communities. The mining areas consist of 3 area councils comprising 23 communities.

These councils are Kenyasi No.1, Kenyasi No. 2 and Ntotroso area councils. Each council also comprises unit communities, although in the views of ADA (2006: 36), the unit committees are not very functional. The unit committees represent elected representatives from suburbs within the communities. These representatives invariably must articulate the interests and opinions of the area they represent. With the committees not being functional it means that the interest, opinions, and problems of the areas they represent are rarely taken into consideration in the decision- making process of the councils. Apart from people's participation and representation in governance through unit committees and area councils, Traditional Authorities (who are the chief spokesmen of the communities) comprising of chiefs and queenmothers, are also represented in the District Assembly. There are 4 paramount chiefs in the district, with two of them coming from the mining areas (Kenyasi 1 and 2 paramencies).

The absence of chieftaincy disputes in the view of ADA (2006: 37) augurs well for the mobilization of the people for community development. The private sector is not omitted in the governance system. The District Assembly believes in the potential of the private sector becoming the engine of growth and development. However the District Draft Profile (ADA, 2006: 34), identifies low private sector participation and low industrialization in the area, citing types of ownership and management, low volumes of production, low levels of development and lack of access to formal credit as the reasons for that situation.

The activities of NGOs, multilateral and bilateral agencies are also pronounced in the district. Several projects have been executed by NGOs such as Action Aid, European Union, Social Investment Fund and some affiliated bodies. These projects include road construction, construction of classroom, capacity building, skill training, and provision of potable water, among others.

6.2.2 Shocks as a Vulnerability Issue

The survival of rural households is also linked up to some shocks. The sustainable livelihood Framework espouses that any definition of livelihood sustainability has to include ability to avoid, withstand and recover from these shocks and stresses (DIFD, 1999: 20). Livelihoods in communities in Asutifi District are vulnerable to problems in farming activities, health problems and others. These vulnerability issues occur suddenly and its impacts are traumatic and unpredictable (Conway, 1987). Shocks in farming and shocks in the form of health problems are treated below.

Shocks in Farming Activities

The study area is predominantly a farming area, and as most households are involved in farming, they are vulnerable to droughts that normally occur between November and March. Due to the dryness, bush fires are very rampant in the area. A farmer is likely to have all his crops destroyed accidentally by raging fires from another farm during the dry season.

Moreover, there are occasional crop epidemics that spread pest and diseases. For instance, the District Agriculture Officer identified frequent infestation of Block pod and capsids in cocoa and sigatoka (a type of disease) in plantain. Storage pest are more frequently identified after the harvest.

Health Problems

Generally health shocks in the study area are found in inadequate health facilities, and issues of morbidity. In the whole of the district there are only two medical doctors. The doctor-patient ratio of the district stood at 1:42,237, which reflects how the health sector is overstretched in the district. Malaria continues to be the leading cause of morbidity in the study area. Table 7 presents data on diseases and causes of morbidity.

Table 7: Top ten causes of morbidity – 2003-2006

DISEASES	NO. OF OUT PATIENTS.			
	2003 Jan-Dec.	2004	2005 Jan-Dec.	2006 Jan-June.
Malaria	22615	14550	16271	17066
Intestinal Worms	2096	758	788	671
Accidents	1353	1188	798	490
Pregnancy & Complications	-		6963	-
Diseases of Skin	3065	2324	2420	2019
Diarrhoea Disease	1328	297	522	795
Upper Respiratory Tract	5860	3558	2030	2889
Rheumatism & Joint Pains	1779	799	997	1680
Gynaecological Disorders	1556	379	-	342
Pneumonia	-		-	-
Gonorrhoea	-		-	-
Anaemia	1507	374	357	-
Hypertension	-		-	1807
Gastroenteritis	1438	926	-	-
Total OPD Attendance	42,600	25153	31146	27759

Source: Asutifi District Assembly (2006: 26)

6.2.3 Seasonality as a Vulnerability issue

The livelihood of a household or an individual is sustainable when they are able to withstand seasonal variation (Cahn, 2002: 3). In Asutifi, seasonal situations such as seasonality of price and seasonality of farm production are forms of shocks that face households. These will be treated separately below.

Seasonal fluctuation of prices of goods and services

Prices of goods and services can fluctuate in favour of /or against households. With regards to farm production, prices can fall during bumper harvest periods and tend to increase during the lean seasons. For instance, an analysis of market prices of agricultural produce (District Agriculture Officer) shows that from May to December 2005, prices of 9-11kg of plantain fell consistently from 19,000 to 13,000 Cedis. Meanwhile, for the same period the drastic fall in prices of maize (a staple food) is attributable to a maize production package introduced by the Government of Ghana (the Maize production package includes some credits in the form of inputs given to farmers by the government to boost the production of maize). For the period March to June 2006, market prices of farm inputs like cutlasses, hoes, agro-chemicals and others witnessed persistent increases.

The situation only makes rural households, who are predominantly farmers, worse off. On the other hand, when prices of their farm products increase their situation improves. Prices of petroleum, kerosene and others also have a major impact on the livelihood of rural households. Prices of petroleum and kerosene automatically push prices of goods and services up including the prices of agriculture inputs and farm services like weeding.

Seasonality of farm production

Farming in the study area is basically rain fed. The area lies in the wet semi-equatorial climate marked by double maxima of rainfall. The major wet season occurs between May to July and the minor is from September to October.

Between October and March a sharp dry season occurs, which normally impacts severely on farming activities. When the rains are late, cultivation is also delayed. During the dry season there is sometimes seasonal unemployment in the area since the amount of farm work normally decreases. However, some farmers have constructed hand-dug wells on their farms to get water for farmland during the dry season and consequently withstand the problems of seasonality.

6.2.4 Summary/conclusion

The discussion through this section shows that in the context of Asutifi district, several vulnerability issues comes to play to determine the extent of survival of rural households. Though these issues are external to the control of the household, they still have to find ways to recover from the influences of the trends, shocks, and seasonality issues when they occur in their context. Population trends, natural resource change, governance systems, shocks in farming activities, health problems, price fluctuations and seasonality of farm production are all factors that influence the daily survivability of rural households in Asutifi even though these factors are outside the domain of the households.

6.3 Livelihood Platforms

This chapter deals with the analysis of the livelihood platforms. The livelihood platforms consist of several factors relating to the people's access to assets such as natural capital, financial capital, human capital, social capital and physical capital. This chapter will deal with assets available to the people of the study area and the changes (both positive and negative) that have occurred in accessing the assets, as a consequence of the establishment of the gold mining. Below are the available assets;

- Natural Capital: Land, water, clean air
- Financial Capital: Money, credit, banking, bonuses
- Human Capital: Family size and structure, labour, education, health
- Social Capital: Social Networks
- Physical Capital: Infrastructure, houses, assets

6.3.1 Natural Capital

As stated earlier in the theoretical framework, natural capital represents the stocks of natural resources considered essential for livelihood generation and from which resources flow (Carney, 1998: 7). It includes land, water, forest, air quality, wildlife, biodiversity and all other environmental resources, which households derive their livelihood from. Natural capital identified at the research area was land, water and air. These will be treated separately below.

It should be noted here that although it may seem somewhat strange to include air as a natural capital in this context, the theoretical foundation of this research makes it explicit that for stakeholders good air and water quality represents a basis for good health and other aspects of livelihood. The need for it to be classified as such here is undeniably appropriate, since access to clean air has suffered severe changes.

Access to Land

Access to land is perhaps the factor that has suffered the most severe changes as a result of the gold mining establishment. The Ahafo area consists mostly of farmers who either used to or still do sustain themselves through farming activities. Studies conducted in 2004 on the study area explicitly indicated that 97% of the population in mining affected areas are engaged in farming as their primary livelihood activity (NGGL, 2006: 1).

When the mining arrived, most farmers lost their land to mining. The farmers were compensated for the crops but not the fallow lands. Also not all of the crops were compensated, depending on the age and the type of crops. One of the key interviewees, that was a part of the committee that evaluated the crops for compensation, stated the following: “They did not consider farmers price but rather they used their own prices from previous compensation that has been used from elsewhere. The farmers were not allowed to bargain and the prices were so low” (Assembly member, Kenyasi 2 resettlement site). Also it was clear from the data that the farmers were most often not even present under the evaluation process, let alone represented in any way. All of the affected non-key informants stated that the compensation was too low, unfair or insufficient. Most of the key informants stated the same and the inadequacy of it or the lack of sustainability of the compensation itself and/or its nature.

Access to Water

Water is one of the essences of life and survival, as human beings can not live without water. Unfortunately access to clean water or even just some water can not be taken for granted, since many countries, particularly in the developing world, suffer from lack of water access. In the Asutifi district in Ghana, before the mining was established, the farmers and their family had access to free water through various rivers and streams. Some of the farmers had also built their own wells on the farm and/or their residence.

Generally the impression is that the people had sufficient access to water, although it may be disputable whether the water was clean or not. However, rivers and streams are a flowing water source, which probably improves the water quality somewhat. When the mining started some of the rivers were blocked or cut off and/or diverted into another direction. This is because the operation of the mining required some dams to be built and some reconstruction of the river system in the district. Also rivers have been filled with top soils removed from the land. This has contributed to the loss of access to water for the population, through the rivers and the streams.

In addition there have been some incidences of contamination and pollution of some of the rivers and streams still existing in the area. This did cause some people to get sick and they were sent to the hospital. One of the respondent claims that his entire family were sick and all sent to the hospital, but have since not received any documents on what was the cause (Yaa Appiagyei, farmer, Ntotroso). The water involved has now been forbidden to drink.

It is obvious that when those sources of water are taken away, some other water sources must come instead. In actual fact, water has been provided by the mining company through the construction of hand/electricity pumped boreholes at both of the resettlement sites, but the fact remains that the access to that water is not free. So although access to clean water has perhaps become easier for some, most of the residents in the area can simply not afford the water.

Another problem with the water is that most of the boreholes are pumped by electricity and when the power goes off, the people don't even have water to buy. It is interesting to note that the power rationing schedule in the area allows power to go off every fifth evening and at anytime the electricity company deems necessary. Currently, apart from Kenyasi 1 and 2, all other communities in the mining areas have no pipe-borne water. Statistics in the district show that only 17 percent of the population has access to pipe-borne water while a whopping 83 percent of the population uses boreholes, hand-dug wells and stream water (ADA, 2006: 28), which is not so easily accessible anymore.

Access to Air

Most people conceive air as a free commodity, and something that is somewhat obvious and natural to have access to. However free air is not a matter of course and access to free air is increasingly becoming difficult, both in Africa and other continents. In the area researched, several difficulties regarding the access to free air have been identified.

According to the data material, the air quality has become severely worsened due to the issue of blasting from the mines. The blasting is the explosion that is necessary for the mining process to extract the gold from the earth. However the blasting causes the ground to shake and releases amounts of dust into the air, both directly and through indirect processes. For instance, the roads become dustier and when the cars drive on them, dust is released into the air with even greater effect. "Because of dust the air quality is bad" (Maame Yaa Adoma, farmer, Ntotroso).

The mining company has responded to this problem by engaging a contractor to water the roads twice a day. But still, through our own observation and in particular the interviewees, it is clear that this measure is highly insufficient and unsustainable. In fact more than 90% of the non-key informants identified the issue of worsened air quality, while the majority of the key informants identified worsened air quality under the issue of environmental degradation caused by the mining. “In addition there are blasting issues and very large amounts of dust. Despite it, NGGL claims to blast by the ISO standards. But air quality is bad” (District Planning Officer, Asutifi District).

Some of the interviewees made direct linkages between the worsened air quality and the health issues mostly prominent, such as coughs, chest problems and headaches. “Because of the blasting there is a lot of dust so we are experiencing catarrh, nostrils problems and respiratory problems” (Kenyasi traditional council, Kenyasi). And others went so far as to state that: “The dust is killing us” (Abena Maafo, farmer, Kenyasi 2 resettlement site). The deprivation of clean air is strongly felt by the farmers and is contributing to worsened health and lower life quality. “It has affected everything we have as the things get so dusty and it is giving us health problems” (Adwoa Kusi, farmer, Ntotroso resettlement site). Thus the natural capital issue of air has direct linkages with the human capital issues on labour and health, treated later in this chapter.

6.3.2 Financial Capital

Financial Capital identified in the area of research was the access to money, credit and banking, as well as bonuses from the government for cocoa farmers. Also grants for education fall under this category.

Access to Money

The farmers in this area, before the mining was established, lived mostly on their farms and thus did not have a great need for money. However, they did have some income in the form of money from their commercial crops. This income was mainly used to buy other goods for the households, pay for the children’s education, health care bills and the general upkeep of the house (All farmers, Kenyasi 2 resettlement site).

When the mining was established in the area, the land was confiscated and the farmers got compensated in the form of various amounts of money. This compensation often represented an amount of money much greater than the farmer had ever seen. Sadly enough, it seems like the farmers and their households did not know how to treat such amounts of money, let alone how to make it be sustainable like their farms once were. Due to that, and the fact that the compensation was too low compared to the future income of the farms, most if not all of the farmers had used up their money in a short period of time, and today have extremely limited access to money. This fact is even more alarming when considering that the monetary environment has changed as an effect of the mining.

Now the farmers who do not have any land any more need to buy their food using money, yes even the water they drink they need to buy (All Farmers, Ntotroso resettlement site)

and Kenyasi 2 resettlement site). And also the prices of the goods are higher than before as a result of inflation caused by mining. “Living costs have gone up because of population increase” (Papa Yaw, farmer, Ntotroso). According to the farmers they need to buy everything but they do not have any money.

This was also supported by the key informants who stated among others that the compensation given to the affected households was unsustainable both in size and the way it was handled (District Planning Officer, Asutifi District). Even those promoting the interest of the mining company acknowledged that the economic impact on the society is among others leading to increasing commercialization, but see that to be a positive impact (Traditional Council, Ntotroso). Regardless of commercialization and economic growth, the fact remains that the farmers do not have any access to money, whether that can be associated with unsustainable amount and/or method of compensation and/or external economic effects or not.

Access to credit and banking

In the developed world, credit and banking have long been a widely used method for households as a coping strategy. This is also increasing in the developing world, where various micro credits have given people a source of livelihood. Our data showed that the farmers were able to use credit and banking to some extent, both before and after the mining, since the farmers were able to take guarantees with either their houses and/or crops. The availability of credits has however decreased since the farmers in most cases have no crops to use as a guarantee. However many of our interviewees find themselves in deep debt, without any possibility to pay them up. “It has affected us so much because time is spent in hospitals instead of working, and the little money we get is spent in the hospitals and now I am soaked in loans because I have no direct source of income (Mohammed Bashiru, farmer, Kenyasi 2 resettlement).

Access to bonuses and scholarships

In Ghana cocoa farmers do get a yearly bonus as a part of the Cocoa Marketing Board programme (CMB), a programme sponsored by the Ghanaian Government intending to promote the national production of cocoa. The same programme offers scholarships for prominent children of the farmers engaged in the cocoa programme. The fact that so many farmers have lost their farming land, those that used to produce cocoa have lost an important access to bonuses and scholarships that used to enhance their livelihood, and perhaps sometimes save their lives.

NGGL promised, according to many of the interviewees, to substitute the farmers with new scholarship arrangements, but nothing has been done so far. For example, a woman farmer answered the following when asked how the displacement had affected her: “It has worried us so much because when we were about to be displaced we discussed with the mining company that we would get scholarships for our children, because before we got CMB scholarships and bonuses from the government because of the cocoa. They

promised us employment and scholarships but to no avail. I have a lot of children in the Secondary School but I can't pay their school fees" (Afia Kuffour, farmer, Kenyasi 2).

6.3.3 Human Capital

Human capital is perhaps one of the most basic resources that we have, since it has to do with issues like health and education among others. Those factors falling under the category of human capital, identified at the mining sites are family size and structure, labour, education and good health.

Family size and structure

In the Asutifi district, as in many areas of the developing countries, the trend has been to have large extended families within the same households, and parents tend also to have a lot of children for various reasons. Despite that trend, clear indicators show that this has been changing recently with increasing numbers of households consisting of only parents and children, and not the extended family. Some of the non-key informants mentioned that the size of the houses is a reason for the changing structures in the society, as the houses provided by the resettlement programme are very small and have sufficient room to house only the core family. In most cases the houses were in fact only 1-3 rooms, and the majority of households consisting of 10 or more persons were in fact found among the non-resettlement sites.

The extended structure of the family has previously been utilized for labour and social networks, which play a large part of the daily life and apparently the mental support. A woman farmer from Kenyasi 2 resettlement stated heartbroken that often, because of disagreements regarding the compensation, families get split, as in her case and now she has no one to look after her (Abena Kwakye, farmer, Kenyasi 2 resettlement site). This illustrates that structures and family size are changing.

Access to labour

Labour accessibility is a critical factor for the farmers as their production is highly labour intensive and the technology accessible is often not good. Therefore the labour of the household is what the farmers have to utilize for their production and income. Perhaps therefore people tended to have large households and many children. It was also reported that during labour intensive periods like harvesting, some parents take their children out from the school in order to get the necessary labour. With the loss of land the farmers don't really face that dilemma, although a key interviewee claimed that some of the farmers take their children out of school in order to plant some seeds somewhere as a part of an opportunistic hunt for compensation in case NGGL would confiscate that particular land (Assembly member, Ntotroso). In general it seems though that access to non-educated labour is good, since there is such a high degree of unemployment in the area as a result of the mining establishment. People simply do not get any work to do.

Access to education

It is admirable to see that education is highly valued by the farmers, who sometimes are themselves poorly educated or illiterate. Almost all of the non-key informants stated education as their major ‘suffering’ area. With the establishment of the mining the need rose to replace some of the schools and this was done. New buildings were built for the two schools involved, and transport is provided free of charge for those children living far away. But even though the buildings have been restored, and the distance dealt with by transport, the fact is that people do not have enough income to keep their children in school, thus the education access has been reduced.

The people are most often unable to afford to pay school fees for public school education, let alone one of the finer private schools and the children can not get the necessary books for the school. A woman from a village that was replaced stated that: “...before we had the children in a private school because we were able to get money from the farming to pay the private school. That gave them better education but now because we are poor, I had to move them into a public school and I can’t even pay for that one” (Akosua Fordjour, farmer, Kenyasi 2 resettlement site).

Another frequently discussed issue, contributing to poor education, was that since the farmers have lost their access to land, employment and income, the children are hungry and often go days without food, and thus do not have energy to learn anything and just stay at home.

Lack of income also makes it nearly impossible for the farmers to send their children to secondary schools or higher levels. Also, the CMB gave many of the farmers’ opportunity for scholarships for their children, which now are lost. NGGL has not substituted this in any way, although that is a highly prioritised wish among the locals. “The only thing I want is for Newmont to look after the children in school that would have gotten scholarships from the cocoa, so that they can become somebody” (Afia Kuffour, farmer, Kenyasi 2).

In addition, illiteracy is mentioned as the main cause of unemployment. NGGL has because of that engaged in a skills training program such as grasscutter (bush meat) breeding and traditional food cooking.

The main challenge however, is that the people do not even have capital to buy the necessary inputs to start their business, and it seems that the whole area is struck by poverty, meaning that the customers might be difficult to get. “But my daughter is being trained for catering, but she doesn’t have the money to practise it. She feels so ashamed when she goes to class without the required ingredients and has to just stand there and watch the other people practising” (Dufie Dankwa, farmer, Kenyasi 2 resettlement site).

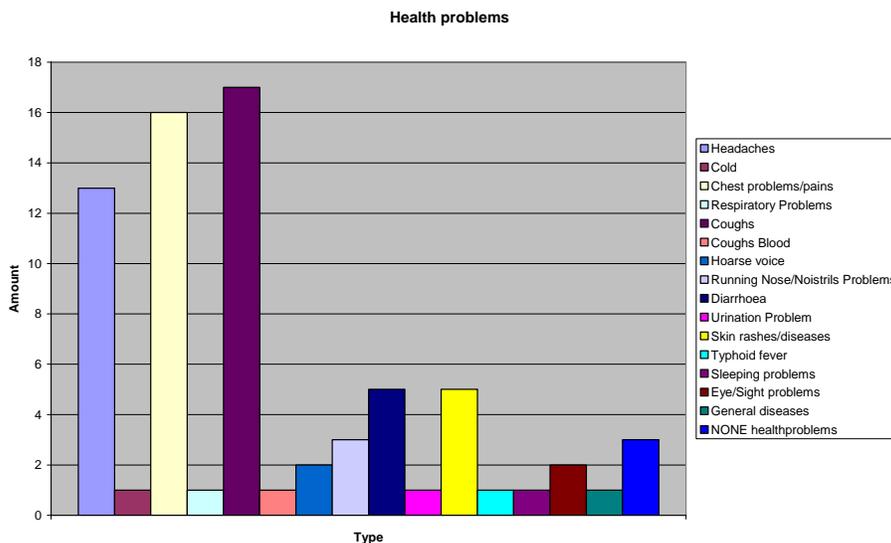
Access to good health

There is no doubt that access to good health has decreased after the mining operation started, as the air quality has decreased and people lack income to buy food for sufficient nutrition. In fact only 3 persons out of 30 stated that they had not noticed any health problems after the mining came, and 17 stated that they had coughs and/or

chest/respiratory problems. “The dust is killing us” (Abena Maafo, farmer, Kenyasi 2 resettlement site). Also a woman farmer stated that her family has had a lot of stomach problems after her farm was taken, which she thinks is due to the fact that when she was a farmer she always had fresh food but now she has to buy the food from the market, which is often not fresh nor of as good quality (Afia Kuffour, farmer, Kenyasi 2). As if that was not enough, some of the people are starving. “Before the mining farming gave us all but now we need to buy it and we don’t have money, so we have nothing and have not even eaten” (Akwasi Yeboah, farmer, Ntotroso resettlement site).

Health care centres are placed far away and people do not have the money to get themselves there when they are sick. “There is only 1 hospital 15 km away and little facilities there, so it is overloaded and the doctor doesn’t always attend to you” (Assembly member, Ntotroso). Nor do the people have the money to pay for the health care. And accordingly should they find the money to pay for the health care, that money is all they have. “If some one gets sick in the house, right now, the money issue is a problem and we would have to leave that person to die” (Akwasi Kuntu, farmer, Kenyasi 2 resettlement site). The various health problems arising after the mining was established are illustrated in Table 8.

Figure 8: Main Health Problems after the Introduction of Mining



6.3.4 Social Capital

The importance of social capital has often been underestimated, though recently more focus has been given to the importance of social capital, perhaps even so in the developing countries because of the importance social capital may have for people’s livelihood. In the area of Asutifi networks were identified as the major social capital, discussed below.

Networks

Often networks create various opportunities, but also networks function as a psychological support. The majority of the farmers have lost their networks, as only three of our interviewees had not noticed any change in their social networks, all of which were from Ntotroso and not replaced. The most common reason for the loss of social networks was the displacement itself as it has dispersed the families. ” It has broken down because of the distance. Here all people are new people” (Kwabena Boakye, farmer, Ntotroso resettlement site). In addition, if the social networks don’t break down the problem arises with the fact that the majority of them are poor so they can not help each other as much as before. “Family members live far away and can’t help because they are in poverty” (Salamatu Mohammed, farmer, Kenyasi 2).

6.3.5 Access to Physical Capital

Physical Capital is the last capital access to be included in this assessment. It consists of access to physical resources, such as infrastructure, land, houses and various other assets. These are treated accordingly below.

Infrastructure

Infrastructure can be said to include roads, public toilets, electricity, electric pump boreholes, schools and health care centres and any other facilities for the use of the inhabitants. According to many of our non-key interviewees, NGGL promised to help develop the infrastructure in the area, but so far nothing has been done. “They [NGGL] have always been promising but there has never been anything” (Yaw Badu, farmer, Ntotroso resettlement site).

However, NGGL has contracted Opportunity Industrialization Centre International (OICI) to established two educational centres for training skills in the area, and one public toilet has been constructed in Kenyasi 2 resettlement site and another one in Kenyasi 2. Also, a school has been built for both Kenyasi 2 and Ntotroso resettlement areas, but these were replacements for the old schools which have already been demolished to make way for mining.

Piped water supplies have been made for both the resettlement sites, but these are provided at a cost and in addition electricity driven so they do not work when the power is off. Also for both of the resettled areas, NGGL has introduced street lighting.

Accordingly, the inhabitants have the possibility of taking that electricity inside the houses as well, but those that bought the necessary equipment have not seen anything from the NGGL officers who are to put it inside (some of the farmers in Kenyasi 2 resettlement site). In addition, the resettled people most often do not have the money to buy that equipment.

A tarred road has been built by NGGL, but surprisingly enough it only reaches to the Newmont office and not any further to the resettlement, so after the abrupt end of the tarred road, the rest is a dusty and bad road. At both resettlement sites there are no tarred

roads and the tarred roads in the towns of Kenyasi 2 and Ntotroso were sponsored by the government. The entire infrastructure in the towns of Kenyasi 2 and Ntotroso is from before the mining came, including pipe-borne on water and roads. “They [NGGL] have not brought any infrastructure. They [NGGL] came to meet it all and have not added any to it” (Maame Gyeabour, farmer, Kenyasi 2). Neither have any public facilities or health care centres been established, except in the mining camp, where there is a health care centre but this is only available for the mining workers and their families living in the camp (Gerald, an Australian Mining officer, Kenyasi 2).

This shows that access to infrastructure has not been improved, except for the electric pump boreholes, which is not affordable by the locals and the most vulnerable. “Not any infrastructure except water but we need to buy it, electricity poles on the streets but no money to put the electricity inside the house, and dusty roads which is uncomfortable to walk on” (Rashida Baafi, farmer, Kenyasi 2 resettlement site). In addition the influx of people into the area adds a further stress to the already existing infrastructure. “There has been influx of people to the community which has stressed the social resources” (Chairman, Ntotroso Youth Association).

Land

Access to land has obviously decreased as the mining operation has confiscated large amounts of land in the district. The data material collected during the fieldwork strongly suggests that the farmers find it difficult and even impossible to regain a land to farm on, due to reasons such as the available land being too far away and badly located. A man from Kenyasi 2 resettlement site planted his seeds on a land given to him through Newmont’s Agricultural improvement and land access program (AILAP) but it was all stolen as he had no way of supervising the land which is located far away (Nana Adjei farmer, Kenyasi 2 resettlement site). Another farmer living in Ntotroso stated that he could not walk that far to the land because it takes the whole day (Ibrahim Werdusi, farmer, Ntotroso).

Despite this, the agricultural officer for the Asutifi district stated that only 2% of the surface area in the district is affected by mining suggesting that there is still a lot of land to farm on. One possible reason for the decreased access to land may also be that the land not taken by NGGL is already owned by some other farmers or landowners, as farming lands in this area tend to be inherited through generations.

Houses and Assets

The inhabitants in the Ntotroso town and Kenyasi 2 have not lost their access to houses and assets, as their residency have not been confiscated. Rather they have, in some cases, used the compensation for land to buy a car or improve their houses. One of the farmers from Kenyasi 2 had got a job for the mining company during the construction phase and was thus able to build his own house (Ismail Kodie, farmer Kenyasi 2). He, however, was not directly affected by the mining in any way since he was not displaced, nor was his land confiscated.

The resettled farmers had obtained new houses, (made of cement), for those taken over by the mining, (mostly mud houses), but each and every one complained that the rooms in the houses were way too small (some 9x9 feet and other 12x12 feet in size) and contained fewer rooms than the houses they had before. In addition, most of the replacement houses contained no kitchen, and thus people have to cook outside. Some of the farmers also had built their wells on their resettlement land or their farming land, but these were not replaced. Their assets, apart from the houses, are mostly unchanged since the arrival of mining. The lack of income, however, makes the people's access to material assets minimal.

In addition to the above, rock blasting is cracking the houses, both at the replacement sites and in the towns, and the vast amount of dust makes peoples' possessions and clothes dirty. The people most often do not have the money to fix the houses after they crack and thus over time, that is likely to decrease the value and/or the functionality of the houses.

6.3.6 Summary/Conclusion

As described through this section, most of the livelihood platforms have been reduced in some way or another, and very few have increased. This is mostly seen in relation to the overtake of farming lands and thereby lack of income as well as environmental degradation mostly in form of dusty air, and the resettlement of the people. On the question of how the displacement/resettlement had affected the non-key informants there were so many different negative ways mentioned. A farmer from Ntotroso resettlement site answered the following: "In a whole lot of ways. 1: I had work before and 2: There is no electricity here and 3: There is no piped water" (Kwabena Boakye, farmer, Ntotroso resettlement site). Yet another farmer from Kenyasi 2 resettlement site stated that: "It has affected us so much because we have gotten hardship and poverty" (Abena Maafo, farmer, Kenyasi resettlement site). Hardship and poverty are, sadly enough, the most common words in the data collected from the resettlement sites.

6.4 Contextual Analysis of Structural and Institutional Influences

The role of structures and institutional processes play an important role in mediating access, control, and terms of exchange between different assets and the perceived outcomes of a livelihood strategy.

Structures, according to Castro (2002: 3) refer to key roles at all levels, of government and private sector, which shape livelihoods. Institutional processes, on the other hand, entail policies, laws, institutions and cultural factors that shape the way structures, individuals and communities as a whole operate and interact.

This section details and analyses the structures and institutional processes that transform the livelihood of the households in Asutifi District and the study area in particular. Part one of this section encapsulates government policies that tend to shape the livelihood of the households in the study area, while part two deals with the regulatory and legal

environment within which mining operates. It is followed by the third part which analyses cultural institutions discussed under chieftaincy institutions, family institutions, cultural values and practices, land tenure systems and social relationships.

6.4.1 Government Policies

Policies of the central government which are implemented by the decentralized agencies largely influence the household livelihoods in the district. The last two decades have witnessed successive governments in Ghana pursuing economic policies that seek to liberalize the economy and encourage increasing inflows of Foreign Direct Investments (FDIs). Successive governments have thus focused attention on the few components of the country's exports which incidentally happen to be natural resource products. The mining sector, like all other natural resource sectors in Ghana, has thus become an area for policy focus.

According to the Minerals Commission of Ghana, the objective of the policy focus on the mining sector at the inception of the Economic Recovery Programme (ERP) and Structural Adjustment Programme (SAP) was to quickly attract foreign investments and to help turn around the economy. This resulted in the unprecedented injection of US 4 billion of private investment capital into the mining sector for mineral exploration and the creation of new mines (Akabzaa and Darimani, 2001: 19-23). Between 1983 and 2000, the total investment in the sector amounted to about 4.2 billion US dollars. Out of this amount, 2266.1 million US dollars, representing 54 percent of all investment inflows, was used for exploration comprising reconnaissance and prospecting activities, while the remaining 46 percent was used for the actual production or exploitation activities (Aryeetey et al, 2004: 13).

More recently the government policy of accelerated private sector-led growth, has contributed to the implementation of several strategies to woo investments. The introduction of tax exemption and tax relief to companies and multinationals and some new exchange policies and financial arrangements contained in the mineral and mining law of 1986 have also encouraged investments in various sectors of the economy, especially the mining sector (TWN Af, 1999). Aryeetey et al (2004: 4) reports that two major policies were focused upon at the beginning of the ERP and SAP. These were macro economic policies which focused on trade liberalization, public expenditure management, export promotion and the restructuring of State Owned Enterprises (SOEs). The other policies were sector specific policies which included restructuring of mining sector legislation to make it more attractive to foreign investors, de-emphasizing state control of the mining industry and more so the enhancement of the mining sector fiscal regime. Policies were therefore seen to be more protective for investors rather than the people of Ghana themselves.

The government of Ghana and for that matter the District Assembly of Asutifi recognizes the effects and threats that an expanding mining sector has on the livelihoods of people in mining areas. It is in this vein that the Ghana Poverty Reduction Strategy (GPRS) recognizes as a policy, a continuous review of institutional, legal and fiscal regimes under

which mining operates, in order to ensure international competitiveness and to make mining more relevant to national development goals (Aryeetey et al, 2004: 34). For instance, the GPRS intended to reduce environmental resource degradation arising out of mining by about 20% in 2005, and ensure equitable sharing of the benefits accrued from the mining (Aryeetey et al, 2004: 34).

6.4.2 Regulatory and Legal Environment

A qualitative study of livelihoods cannot ignore consideration of the legal and regulatory environment within which people combine and access their livelihood capital and assets. Under this section we first take a look at regulations regarding ownership and control of lands and natural resources, and then the mineral and mining laws of the Republic of Ghana.

Regulations on lands and natural resources

The 1992 constitution of Ghana contains comprehensive provisions on control of lands and natural resources. Clause 6 of article 257 of the constitution stipulates that “every mineral in its natural state in, under or upon any land in Ghana, rivers, streams, water courses throughout Ghana, the exclusive economic zone and any area covered by the territorial sea or continental shelf is the property of the Republic of Ghana and shall be vested in the president on behalf of and in trust for the people of Ghana” (The Constitution, 1992: 171). This means that all minerals irrespective of whatever land it is found on (whether state lands, vested land, customary or private owned lands) is owned by the state and controlled by the president. This instrument of the constitution entrusts the power to the government to take control of all lands where exploration has proved the existence of minerals. In the execution of this control by the president, the constitution also provides for the regulation of the mining and mineral sector which is discussed in the next section.

Mineral and Mining Laws

The mineral and mining sector has been characterized by a series of legal and regulatory reforms. As a response to growing concerns by foreign investors to revitalize the mining sector, series of laws have been promulgated since 1986 (Aryeetey, et al 2004: 6). Table 8 below outlines the notable legislation that regulates the mining sector.

Table 8: Major legislation that regulate the mining sector

<ul style="list-style-type: none">· 1992 Constitution of Ghana <p>Mining Code</p> <ul style="list-style-type: none">· PNDC Law 153 - Minerals and Mining Law, 1986· Act 475- Minerals and Mining (Amendment) Act, 1994· PNDC Law 218 - Small Scale Mining law, 1989 <p>Fiscal Regime</p> <ul style="list-style-type: none">· L. I. 1349 - Mineral Royalty Regulation, 1987· Act 592 – Internal Revenue Act<ul style="list-style-type: none">- Section 1 and 1st schedule – Corporate taxes- Section 20 and 3rd schedule –Capital allowance· PNDC Law 122 - Additional Profit Tax law*, 1985 <p>Others</p> <ul style="list-style-type: none">· PNDC Law 219 - Precious Minerals Marketing Corporation law, 1989· PNDC Law 154 - Minerals Commission Act, 1986,· L. I. 1652 - Environmental Assessment Regulation Act, 1994

Source: Minerals Commission, Ghana (cited in Aryeetey, et al 2004:7)

In order to protect the natural resources, the constitution provides for the establishment of a minerals commission under the PNDC law 154 in 1986, to provide a one-stop service for potential investors in the mining sector. It was charged to regulate, monitor and manage the utilization of mineral resources in Ghana (Akabzaa and Darimani, 2001: 21).

Fiscal Regime

The fiscal regime under which mining is conducted and under which households access their capital is also very important. The fiscal regime stipulates how much royalty is to be paid to the government and the local people for the use of the land and the resources that exist on it. It also spells out the corporate taxes, capital allowances and the profits tax that need to be paid into the government revenue pool. Therefore, one cannot underestimate the role that the fiscal regime is supposed to have, in the generation of government revenue, which in turn is used to enhance and improve the livelihoods of the people in the area.

The mining and mineral laws (PNDC Law 153) and the legislative instrument (LI) 1349 promulgated in 1987 regulates issues concerning mineral royalties. According to Akabzaa and Darimani (2001: 20), one significant feature of this regulation is the scaling down of the royalty rate to 3% of the total value of minerals in 1987 from 6% in 1975. Corporate tax which forms a very significant aspect of government revenue was also reduced to 45% in 1986 and to 35% in 1994 from about 50-55% in 1975 (Akabzaa and Darimani, 2001: 20). In order to ensure that investors are able to recoup their capital expenditure, the capital allowance, which stood at 20% for the first production and at 15% for the years thereafter, was increased in 1975 to 75% and 50% respectively. In addition to all these incentives, mining firms are permitted by law to keep up to 25% of

their foreign exchange earnings in an offshore account. Table 9 below, shows the fiscal regime operating in the mining sector.

Table 9: Some of the major fiscal regimes in the mining sector

ITEMS	Pre ERP/SAP	Post ERP/SAP	Propose Amendment
Royalties	6 % of gross value of minerals won	3-12 % of gross value of minerals won, depending on the level of operating ratio. There is also a deferment clause which depends on the exigencies of individual companies	Gold-4 %; Diamond: Uncut-5%, cut-3% Manganese and Bauxite: Unprocessed- 5% Processed -5 %
Corporate Tax	50-55%	45% (reduced to 35% in 1994)	Maintained
Import Duty	35%	Import subsidy schemes: exemptions on imports of machinery, apparatus, appliances and parts for mining; exemptions for payment of selective Alien Employment tax	Maintained
Capital Allowance: <i>Initial</i> <i>Subsequent</i> <i>Investment</i> <i>Research &</i> <i>Development</i>	20 % 15 % 5 % -25 %	75 % 50 % 3.5% -25 %	Maintained Maintained Maintained Maintained

Adopted from Aryeetey, et al (2004: 10)

However, it is interesting to note that even beyond this flexible regulatory environment, mining companies are still pressing for more flexibility in the legal environment under which they operate. The African Agenda (2004) cited in Akabzaa (2004), states that while the mining companies are quick to exercise their mining rights and make use of all

benefits and incentives that come with it they have always been slow in complying with the constitutionally mandated obligations and responsibilities, of respecting the rules of the game. Frequently, newspapers and NGOs have reported violations of human rights, pollution of the environment, inadequate and in some cases no compensation and severe distortions of the livelihoods of those affected people.

It is in view of this and in the spirit of the 1992 constitution of Ghana, that some regulatory bodies were established. The constitution spells out the processes of how the state grants mineral rights in the form of licenses and lease. It also provides for rights and responsibilities of the licenses as well as for the surrender, suspension and cancellation of mineral rights and the protection of surface rights. Another very important aspects of the regulatory environment are the legislative instruments (LI) issued on the establishment of some regulatory institution.

The 1992 constitution contains the PNDC law 154, which sought to establish the Mineral Commission in 1986 to regulate the mining sector and the environmental assessment regulation act in 1994 empowering the Environmental Protection Agency to strike a balance between the demands of rapid economic growth and the need to protect the nations natural resources, the health and welfare of the people and most importantly to ensure environmentally sound resource extraction. Other bodies which support the mining sector are the Chamber of Mines, the Lands Commission, Ministry of Mines and Energy, to mention but a few.

According to Akabzaa and Darimani (2001: 28) these bodies and institutions play a statutory role but the non-existence and absolute lack of effective cross-sector linkage and collaboration among them create some environmental problems resulting from mining operations. This has several serious consequences for the livelihood of people and households in the mining communities. In the same report, they blame the growing encroachment of forest reserves and the increasing conflicts among displaced households by mining and mining companies over compensation and resettlement, on the lack of harmonization of the supporting institutions.

In summary, it can be said that the legislative environment in Ghana facilitates and promotes foreign direct investments, thus enabling mining companies to operate. At the same time, there is a widespread opinion that the mining laws are either not sufficiently protective for the community or not operating as they should, or a combination of both. The chairman of the WACAM association stated in our interview that “The mining laws of the land were not respected by the company (NGGL) and plants and permanent structures/facilities were not adequately compensated for. The constitution states that the compensation must be done in a fair, adequate and proper way.” He stated further when asked about his personal opinion on the mining laws that: “Most of the laws in the country are not operating. The mining and mineral law does not cater for the interest of the community. It must be revised.”

6.4.3 Institutional and Cultural Influences

Institutions and cultural issues also tend to modify accessibility to various assets available to the households in pursuit of their livelihoods. The institutional and cultural influences in the study area will be discussed from the point of view of influences from chieftaincy as an institution and the family as another institution. Further discussions relate to cultural values and practices, the land tenure systems in the area and the existing social relations in the area and how these dictate accessibility to various livelihood assets.

Chieftaincy as an Institution

Chieftaincy in the view of Bofo-Arthur (2002: 1) constitutes an axis for the exercise of traditional executive, legislative and judicial powers. It serves as the centre-piece of mobilizing people for communal development and as a link between the people and the central government. It is the epitome of cultural values and practices. Chiefs possess some considerable institutional relevance that influences particularly the people living in their traditional jurisdiction.

The 1992 constitution of Ghana defines a chief as “a person, who hailing from the appropriate family and lineage, has been validly nominated elected or selected and enstooled, enskinned or installed as a chief or queen mother in accordance with the relevant customary law”. As the mouthpiece and chief spokesperson of his people, he commands high degree of influence in the livelihood of the people. Traditionally all lands are under the control of the chiefs. This is what the constitution of Ghana calls stool land or customary lands. It is the chiefs who allocate and grant land rights to family heads or various members of the community. Royalties from the use of lands and existing natural mineral resources are paid to the coffers of the chiefs for development purposes.

In the study area, there are two paramountcies, headed by paramount chiefs (Kenyasi 1 and Kenyasi 2). The paramount chiefs exert control over various divisional chiefs in the various communities namely Ntotroso, Wamahinso and Gyedu divisional areas. Under the divisional chiefs are some sub-chiefs who head various villages. It is important to note that chieftaincy as an institution in the study area has gone through some very significant modifications and distortions. While some village chiefs have lost their powers as a result of their villages being displaced and relocated due to mining activities, some paramount and divisional chiefs have lost touch with and the respect of their people. This is because in the view of most of the people who were interviewed, the chiefs are already in bed with the mining company and are being manipulated by the company. The chiefs are therefore unable to articulate the concerns of their people as expected.

In his own words, the chief of Ntotroso confirmed that “chiefs including myself have gotten contracts so that my family is better off now”. And asked whether he still maintains the respect and trust he has for the chiefs, a non-key interview respondent from Ntotroso said “The trust in the chief has eroded totally because I believe the chief sold his

integrity to the company, so my happiness with him is gone. The respect has reduced” (Papa Yaw, farmer, Ntotroso).

Family as an Institution

The family is the basic unit of the society, headed by a family head (or household head). The family sees to the socialization of new offspring’s and the general livelihood of each member of the family. The family head does this by distributing in parcels, family lands to various members for cultivation. Large family size, however, has some implications for size of land distributed. Since the study area is characterized by quite large family size, parcels of land are small in size and this does not augur well for large-scale farming. For instance in Kenyasi 2 resettlement site, a respondent had a family size of 40, living within one household (Akwasi Kuntu, farmer, Kenyasi 2 resettlement site). This is a reflection of how important large family size is in farming areas in Ghana.

Cultural Values and Practices

Values and practices form a basic pivot for the survival of a society. Values form part of institutions and they work together to improve the quality of life in various communities (Falkenberg, 2005: 4). Values in the study area include respect for chiefs and elderly in the society, adherence to taboos and communal labour and others. With the coming of mining into the study area most of these values and practices have been altered. The erosion of trust and respect for chiefs has already been discussed. In the words of one non-key informant “children no longer respect their parents because the parents are unable to look after them” (Maame Yaa Adoma, Farmer, Ntotroso). The District Planning Officer also confirmed that people no longer respond to the chief’s call when the gong – gong is beaten for communal labour (District Planning Officer, Asutifi District).

6.4.4 Land Tenure System

The land tenure system in the area defines land access, ownership and acquisition. The district and for that matter its communities and households in particular are faced with a complex land access, ownership and acquisition system. The type of crops cultivated on the various parcels of land is determined by what type of ownership system is used to acquire the land. An overview of the complex land tenure in the area will give a better understanding of how land is acquired and cultivated in Asutifi district. Generally, land ownership and acquisition in Ghana is grouped under state ownership, vested ownership and customary ownership.

State Ownership of Land

State lands are lands acquired by the government of Ghana under the State Land Act of 1962 (Act 125). Right of ownership and disposal is vested in the government of Ghana. State institutions, private individuals and organizations may use these lands upon the acquisition of lease certificate of allocation and license from the government (NGGL, 2006: 3).

Vestal Ownership of Land

These are stool lands that are managed by the government or the state. With this type of ownership or acquisition, by the application of specific laws, the state acquires rights of ownership to these lands. Even though landowners retain the right to benefit from the land, the state has the right to sell, lease, manage or collect rents on the use of the land. Lands in the mining affected area in Asutifi district are legally vested in the state (NGGL, 2006: 3).

Customary Ownership of Land

When the right to use and dispose off, land ownership is determined by customary laws and communal recognition of legitimacy of holding, then that is a customary ownership (NGGL, 2006: 3). These lands are normally managed by a chief on the behalf of the community, or a head of a clan or extended family on the behalf of the family. The ADA (2006: 28) explains that within the family structure land is shared among members in small parcels and is passed on from generation to generation and from one kin to another. This system however limits the ability of farmers to undergo expansion and large-scale commercial farming. Generally, farm size for households average around four acres (ADA, 2006: 29) which is too small for any commercial farming activity. This is probably the reason why most land is cultivated largely for subsistence purposes.

Within the customary ownership, other unique systems of land acquisition are also recognized. Settler farmers who migrated from other parts of Ghana may acquire portions of land for farming on some conditions. This system is what is called sharecropping operated under the conditions popularly known in the area as “Abunu” or “Abusa” (ADA, 2006: 28). Sharecropping is a type of land tenancy which is very popular in Asutifi. According to NGGL (2006: 4) more than half of resident households in the mining area are sharecroppers. Depending on the type of crops to be cultivated on the land, sharecropping will be done through the Abunu system or the Abusa system.

Abunu system

In this system, land tenancy is agreed between a landlord and the sharecropper; to grow tree crops like cocoa or oil palm for an agreed period (often 5 years) after which the field is shared equally between the landlord and the sharecropper (NGGL, 2006: 4; ADA, 2006: 29). This system is the most widely used for commercial farming. The sharecropper in the Abunu system is responsible for acquiring and planting of the agreed crops, however, the sharecropper takes all food crops harvested on the farm except the tree crops.

Abusa system

Land here is given to the farmer on an agreement that after harvest, crops are divided into three and the sharecropper takes two-thirds while the land owner take the remaining one third (NGGL, 2006: 4; ADA, 2006: 29). Basically only food crops are cultivated under such land tenancy agreement.

The land tenancy systems as discussed above are not mutually exclusive, because one sharecropper can at the same time be a landowner somewhere and vice versa. Besides the above land acquisition processes and systems, land could also be acquired by renting, outright purchase or leasehold. The ADA (2006: 29) reports that the land tenure system has over the years transformed from giving land free to friends and the needy, into leasehold and sharecropping. The current land acquisition processes have serious implications for the compensation and resettlement procedures undertaken by the mining company. The question of who is supposed to take the compensation or how compensation is to be shared by landowners and sharecroppers under the abunu and abusa systems has resulted in many cases, in making the sharecroppers being worse off than before, since they either received a very small amount as compensation or nothing at all.

6.4.5 Social Relations

Issues about social relations play a major role in modifying access to the various forms of capital. In the livelihood assets, social capital forms an important aspect, and as Moser (1998: 13) explains; social capital is the reciprocal relationship and social networks that are based on kin groups and place of origin. Social relations as raised in this thesis is defined to include family, personal networks and ties which can offer potentially varying supports to individuals and household. In Asutifi social relations are best illustrated by family networks and gender issues.

Family Networks and ties

The extended family system is deeply rooted in Asutifi. This type of family is defined to include the father, mother, children, uncles, aunts, nephews and nieces and all other people who are related to the family by marriage or adoption. Sometimes they all live under the same roof or very close to each other. Therefore it is easy for individual members of the household to access their networks for support in times of difficulties. It is interesting to note that due to displacement and eventual resettlement as a result of mining, most of these networks have been broken and rendered ineffective. As will be explained further under section 6.5.5, another reason for the ineffectiveness of these social networks is that majority of them are now poor and so they cannot help as much as before (Salamatu Mohammed, farmer, Kenyasi 2).

Gender Issues

Gender relations have become one of the critical aspects of social relationship especially when it comes to accessing various resources. Gender issues have varying implications for the livelihood of rural households in Asutifi. Ellis (2000) explains gender relations as the social construction of roles and relationship between men and women. In this research gender is referred to as culturally determined, socially constructed and psychologically patterned roles and relationships between men and women. In all aspects of human life these roles and relationships are unevenly distributed especially with regards to power,

decision making, and accessibility to resources among others (Ellis, 2000). It is a common situation in most developing countries to note that some activities and jobs are described as men's job and others as women's job.

Just as the participation and involvement of men and women in community activities is not equal, so are the effects of these activities on men and women. In Asutifi area, in spite of the fact that women form a significant proportion of the population, their roles have never been acknowledged on equal terms with their male counterparts (ADA, 2006: 13). Usually reproductive activities are in the domain of women while productive and economic activities, which attract monetary returns, are in the domain of men. The District Draft Profile (ADA, 2006: 13) cited a study conducted by Action Aid (Ghana) in the district in 2006, revealing that women in the area are only engaged in menial jobs. They are often denied access to credit and they find it difficult to secure ownership of land and property. It is common to see women engaged in longer hours than men in supplying community needs, yet they are discriminated against and considered housekeepers and producers of children (ADA, 2006: 13).

According to the District Draft Profile (ADA, 2006: 14), the majority of the women in the district are engaged in farming and animal husbandry and most especially in the labour-intensive activities on the farm. The productivity of women in the area is very low due to poor health and considering large family sizes, which means women are giving birth to a lot of children which can make them weak in the long run. While men are mostly outside the home engaging in activities for household consumption, maintenance as well as proper regulation of community affairs, women are mostly at home undertaking activities that ensure the upkeep and well-being of the family (ADA, 2006: 15).

It is interesting to note that the role of women in keeping the household livelihood cannot be underestimated. Apart from raising children and taking them through the socialization process, women are also engaged in several income generating activities such as trading in food crops among others.

The participation of women in public level decision-making processes is limited in Asutifi; as such their interests are mostly not taken into consideration in decision making. This according to the ADA (2006: 15) has contributed to poverty and ignorance among women and a worsening standard of living in many female-headed households.

6.4.6 Summary/Conclusion

In the area of Asutifi, the role of the structural and institutional frames is highly important for people's livelihood, perhaps in particular with regards to the establishment of the mining operation. The government policies and the regulatory and legal environment for mining have set strict bounds for the future of the farmers whose land was taken. The fact that the protective legal environment for the community is not as strong is also an influence that can not be disregarded. The legal and regulatory environment is to the disadvantage for these peoples livelihood today.

The cultural institutions are in reality not functioning supportively; disregarding whether these institutions are good or bad for the livelihood outcome. The majority of the cultural institutions have broken down either as a direct or indirect effect of the mining and/or other factors that came with the mining, such as the influx of different people with different influences. Even the previously highly valued chieftaincy is falling apart as a result of corruption and misery. Cultural values and family structures are highly influenced by the different incoming cultures, whether these are other types of Ghanaian culture or a more European/American culture. These factors are likely to create confusion and conflicts regarding the livelihood strategy within the family.

6.5 Livelihood Strategies

In both the developed and the developing countries, people have developed a range of strategies to cope with life, or a strategy for their livelihood. Livelihood strategies are thus the ways in which generations take for themselves the best possible realization of their goals. In some development arenas a livelihood strategy is also referred to as a coping strategy but basically coping strategy seems more appropriate when referring to the strategy that people use just to survive and live. Ellis (2000: 40) explains that: “Livelihood strategies are composed of activities that generate the means of household survival”. It is worth noting that the available livelihood/coping strategies are dependent on the available assets/livelihood platforms, the structural arrangement, structural processes and existing vulnerability context (Cahn, 2002: 3).

In the developing countries these methods of livelihood are perhaps more crucial for the people’s survival and subsistence, since there is no social security net catching them if they miss in their coping strategies. In the area of Asutifi the following livelihood/coping strategies were identified:

- Crop Farming (Subsistence and Cash crop Farming)
- Services
- Scholarships and bonuses (CMB)
- Accessing Credit (from Clients)
- Social Networks

These will be treated accordingly below.

6.5.1 Crop Farming

Farming, whether for subsistence or commercial use, is the most widespread livelihood strategy in this area. The occupation of farming has not reduced significantly after the mining came, since a study by Newmont showed that about 97% of the people in the mining area are still farmers (The Agricultural Officer, Asutifi District). Another study, performed by the Agricultural Assembly, for the whole district showed that 75-80% of the inhabitants are farmers.

Subsistence farming is perhaps the most widespread in the area; almost every one of the interviewees used their previous land (before the mining came) for farming for the subsistence of their family. Still all the farmers also had previously cultivated cash crops

which are crops for commercial use only. These crops were sold and the cash was used for further subsistence in form of food that they did not grow on their farms, health care, school fees, clothes, maintenance of their houses and social responsibilities. Some also gave some of their crops to charity.

After the mining came and the farmland was confiscated, few of the farmers have gotten access to new lands. However, the new lands are mostly owned by landlords who only lease the land. In addition none of the farmers who have farms now have had any harvest yet but they intend to use it in the same way as before. It must be recognized that the few farmers who got access to new land, got access to smaller piece of land, thus those lands will mostly be for subsistence and not cash crops. Further, these parcels of land (up to 2 acres) given under the Agricultural Improvement and Land Access Programme (AILAP) are to be cultivated by the farmers for only two years after which farmers may renegotiate for extension. This means cash crops which normally have longer gestation periods (especially beyond two years) cannot be cultivated by farmers hence the predominance of subsistence farming by farmers who have benefited from the AILAP Programme. Therefore it seems that people first grow for their subsistence and thereafter cultivate cash crops given a secured extension in the period of accessibility.

A substantial number of farmers that have lost their land perform weeding services for other people, whether farmers, landowners or organizations. This is what they know how to do and they are comfortable with that, but the major problem with this occupation is likely to be that there is much more supply of weeding service than demand and it is also seasonal.

6.5.2 Services

In the establishment phase of an operation like gold mining, the organization has the need for unskilled labour. Accordingly many of the locals had work in the early phase of the operation but have then lost these jobs, as the operation phase does not require labour and at least not unskilled labour. Many of the locals and some of the key interviewees also claimed that locals do not get hired because people from other places get their jobs. “We don’t get any jobs because they [NGGL] claim that we don’t have technical know how, but we should get a fair share. In any case I am educated in Development and I thus applied for a job there as a Community Development Officer but I didn’t even get an answer. In fact they put up the advertisements but have already someone from outside in mind” (Assembly man, Ntotroso).

Since mining has brought influx of people, although a lot of the miners are placed within a closed mining settlement or in Sunyani (a near by city), that has undeniable given some new opportunities for some of the local inhabitants. Most notably perhaps within taxi driving and hotel operation, as well as perhaps trading. We say ‘perhaps’ since the mining workers have their own stores inside the mining camp with more westernized food. But in addition there are people who obtained work as cleaners or cooks within the mining camp. In our data collected, there was despite the seemingly boost of economic service activities, only one person that was a trader out of 30, which is little. Informal

conversation was however made with taxi drivers/owners and a worker at one of the hotels, claiming that the hotel owner was a displaced person who had managed to invest his compensation in the hotel. Great efforts were made to interview this person but to no avail, since he for some reason or another did not want to be interviewed.

Another new livelihood source is prostitution and then often a certain version of luxury prostitution, where some of the richer elite (both foreigners and locals) own the girls, build them houses and give them money for their services. “New styles have come because of the money. Permanent prostitutes and drinking effect, and smoking within that new style” (District Planning Officer, Asutifi District). Sadly enough, this is often regarded as attractive by many of the young girls. “They [cultural institutions and/or morals] have changed because now our kids have no respect for their parents because the parents are unable to cater for them. The females are running after men and blue-blues (mining workers)” (Akwasi Kuntu, farmer, Kenyasi 2 resettlement site).

6.5.3 Scholarships and bonuses

Many of the farmers were previously engaged in growing cocoa. Cocoa farmers in this area are a part of the Government funded scholarship and bonuses program (CMB scholarship Programme). That has given the most prominent children of the farmers’ scholarships to take secondary and higher education. This has allowed these children to gain another source of livelihood for their future support and often to support their families as well.

Since the farmers do not have any land to grow the cocoa on, these scholarships are not accessible for them today. Also this program (CMB) gave yearly bonuses, that were used to help subsistence and some other financial obligations, but these have also disappeared with the absence of the cocoa production.

6.5.4 Credit

It happens throughout life for people that there is a time lag between the need for money and the actual time that money is accessible. This is for instance when the crops are not fully ready for harvest. In such cases the farmers are sometimes able to get credit from their clients, so that they get some money in advance to cater for themselves and their family until the harvest and sales period arrives for their crops. In other cases, farmers are also able to use their crops as a guarantee for credit from banks.

Without their land and thus their crops, people are not capable of getting credit from their clients or from the banks on that ground. However, some of the farmers have used their resettlement houses as a guarantee for getting credit from banks. This credit has been acquired when there was no money for food, health care or schools, and it has, more than often, left those farmers in deep debt. “I did not need to buy anything before as I got everything from the farm. Now I have been running after loans so I am choked with loans” (Yaw Badu, farmer, Ntotroso resettlement site).

6.5.5 Social Networks

When there seems to be no way out for survival, the farmers can rely upon their social networks for help. Sometimes this is done before one asks for credit, as described above. The farmers utilize their networks in such a way that they get help when needed from their friends and family and give this help back when the other ones in the network need it. This is an important capital and a livelihood strategy that is good to have access to when all other strategies seem unavailable.

With the coming of the mining and its eventual displacement and resettlement there has been dispersion of social networks due to resettlement/displacement, disagreement over compensation on family lands and influx and outflow of people in the area. In addition the social networks can hardly be utilized as before since almost every one is poor and only the elite have money and resources. “We are mixed up with different people from different places and we don’t know any one and we have no ties to each other. I can’t even get help because we are all poor” (Yaa Ataa, farmer, Kenyasi 2 resettlement site).

6.5.6 Summary/Conclusion

In general it seems that only few new livelihood strategies have been introduced after the mining, most notably the weeding service. This is while most of the previous livelihood strategies, if not all, have been in one way or another undermined by the mining enterprise, leaving the farmers generally finding difficulties in coping with their life situation and survival. Very few people have managed to substitute their previous livelihood strategy successfully.

6.6 Livelihood Outcomes

Livelihood outcomes represent the total effects of the combination of the various livelihood strategies, resulting in the end product of people’s livelihood. Often, livelihood outcomes are reflected in more income, increased well-being, and reduced vulnerability, improved food security and a more sustainable use of natural resources (Castro, 2002: 3). It is however important to acknowledge that the livelihood pathways and portfolio combinations do not always result in a positive outcome, as can be the case when a lot of external factors influence one’s livelihood assets and thus the available strategy.

6.6.1 Income

The income of our non-key informants has changed in structure from being relatively stable to being very unstable. Just after their land was confiscated they received a large one-time payment, intending to be their income for many years to come. Without a proper knowledge of banking systems and savings accounts, interest rates and investments to mention a few, this money was very likely perceived as being an annual income and it is by now used up. The current income of the non-key informants is in most cases minimal or very unstable. In some cases, there is no income at all. Actually,

one third of our sample had no income at all and only one had stable income coming from his farmland. ADA (2006: 15) uses data from the Socio-Economic Survey (2006), which puts the average household income earned per month in the district at 252,553.75 Cedis (equivalent of 26,14 USD).

With agriculture being the largest employer of the labour force (77.6%), one would have expected farming to have provided a very large percentage of the total income in the district. Though it still contributes about 51% of the total income, (which represents a decline over the years), the ADA (2006: 16) thinks that this is quite small. It attributes the shortfall to under-cropping or the use of rudimentary tools and methods in production and more importantly the upsurge of mining activities which have taken a lot of the farmland in the district.

6.6.2 Well-being

Often with an increasing real income there is a tendency for well-being to increase. And well-being can also increase due to other reasons such as high self-esteem, better health status, and easy access to services, as well as high sense of inclusion. In the mining affected area, however, income has declined, health was reported as severely worsened, people were hungry, unable to educate their children and find work, and in general very unhappy. Upon the question about whether they feel that their human rights are violated, the three of those who were asked answered yes. The following is an answer from a man in Kenyasi 2 resettlement site: “All my rights have been taken away, the right to employment, the right to be responsible. I speak but nobody listens” (Akwasu Kuntu, farmer, Kenyasi 2 resettlement site).

6.6.3 Vulnerability

To some extent, people can control and influence their own vulnerability, with the help of assets such as income, social network and infrastructure. An individual household is vulnerable when it has limited options for various combinations amongst assets for possible realization of their goals and when there are only a few strategies available to be used when there are shocks.

The poor are thus the most vulnerable to any external changes, whether natural or man-made. An example of this is that a rich man is more capable of tackling the loss of assets after an earthquake simply because he is capable of buying insurance and/or can afford losing that resource without losing large parts of his livelihood grounds. An actual example is that those who had some money or power before the mining came into the area of Asutifi were able to use that money for good investments and/or their power for increased benefits. There is no use hiding the fact that in this area the rich and the powerful ones have become richer and more powerful while the poor ones are left basically to themselves. In the case of the mining area, the wealthier households have benefited while the poorer households are losing out.

There is corruption and there is greed. “I don’t trust those people [chiefs, assemblymen, community leaders and other leaders] at all! It has been cheating and disappointment

only. I don't trust them. Right now I sit here in misery while they drive past in their fancy cars to put me in more dust and even more misery" (Dufie Dankwa, farmer, Kenyasi 2 resettlement site).

The ADA (2006: 33) identified that about 77 percent of children below 18 years are engaged in some form of economic activity, especially in mining communities. This situation, according to the document, is attributable to the high poverty level of parents and guardians. Apart from parents who are considered vulnerable, the ADA (2006: 33) explains that most of the girls in the area fall prey to men (especially the miners) resulting not only in teenage pregnancies but also contributing to the high female school drop-out rate and incidence of HIV/Aids among young women.

6.6.4 Food Security

Improved food security can result from increased income and increased production of food as a result of increased land access, increased production factors or even increased logistics. In the study area access to both land and water (inputs for food production) has been severely reduced. Thus, even though the place is perhaps less remote than before the development of mining, and the available transport (logistics) into the area has increased, food security is less.

The reduced and unstable income is another factor contributing to the reduction of food security, although in relation to how people sustain their food needs by farming themselves the loss of land and water are the most significant contributing factors. According to the Ghana Statistical Service (2000) 63% of household income is spent on food. Consequently, with a reduction in income over the years, households are becoming increasingly vulnerable to food insecurity. Table 10 reveals expenditure for households in the Asutifi District.

Table 10: Structure of Household Expenditure in the Asutifi District (as a % of total expenditure)

INCOME	PERCENT
1. Food	59
2. Energy	13
3. Transport	10
4. Education	8
5. Health	3
6. Funerals	4
7. Housing	3
TOTAL	100

Adopted from ADA (2006: 16) cited in Socio-Economy Survey (2006)

When the farmers had their land they had at least access to the food that they had cultivated, but today they often do not have any land at all, and thus no food, nor any kind of work and thus no income to buy the food. Also, even if they have land, some of the rivers have been blocked so the farmers are not able to use the water and need to carry

water from distant places, making the farming activity more difficult, less effective and less productive.

In 2005 the inhabitants experienced an artificial famine in the area as a result of the confiscation of land. FIAN (2005: 8) reports that: “The company's operations have reduced food production in the area drastically, while the population in the area has doubled, raising the cost of living in the area and adding to the economic woes of the people. The poor, affected farmers, mostly women who since birth had depended on their farms for food, are today rubbing shoulders with Newmont's affluent workers on the food market, while the meagre crop compensation received is finished whilst others are still on the waiting list, either fighting for more reasonable compensation or yet to go through the exasperating bureaucratic process for their compensations. Almost all the people that reporter interviewed expressed similar concern about the affordability and availability of food in the area.”

“Touching on why they wanted to embark on a demonstration, Mr. Adusah said the Kenyasi area which used to be a major cocoa and food growing area had started experiencing famine due to the fact that Newmont had taken over farms in the area and paid meagre compensations to affected persons” (The Mining News, 2005).

6.6.5 Sustainable use of Natural Resources

Natural resources are often scarce in modern society. Fortunately people have become more enlightened on the importance of natural resources for their livelihood and the value of the sustainable use of such resources. Sadly enough, people in poverty do not always have the opportunity for the sustainable use of their natural resources. This can be for instance when a farmer uses his small piece of land to exhaustion because he has to get enough food for his family, while a more wealthy farmer can afford more sustainable use of his land resources. Also, technology can in some cases contribute towards more sustainable use of the natural resources, but then people must also afford that technology.

In the study area, poverty has increased, and the sustainable use of natural resources will most likely be reduced partly because of the increased poverty and partly because of the mining operation itself. The inhabitants in the area are desperate and their livelihood strategy is often very opportunistic. A concrete example is where the farmers have started driving taxis instead of farming and where they produce the same amount of food on a much smaller area of land. It could be argued here however, that farmers are being innovative by adopting a multi income generating strategy in order to survive.

6.6.6 Summary/Conclusion

There is no doubt that the data material illustrates that the livelihood outcomes have been negatively affected, as there is severe reduction in the accessibility of capital available to the people and thus the choice of livelihood strategies. The introduction of mining operations has contributed to various external influences and practically taken away the

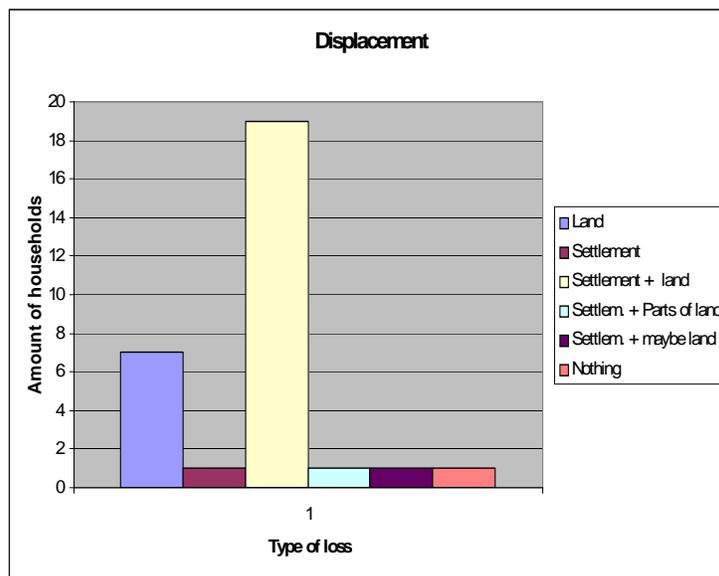
foundations of peoples' livelihoods, leaving them in a state of greater desperation than before.

6.7 Implications of Displacement and Resettlement

As Downing (2002: 5-6) clearly explained, while national mining policies are liberalized, while companies continue to opt for open-cast mining and while rural population density continues to increase, displacement and eventual resettlement are inevitable. The Newmont Ahafo South project in Asutifi is not an exception, but probably a notable example of already proven cases of mining-induced displacement and resettlement (MIDR).

This part of the research is devoted to dealing with the last part of the research questions - implications of displacement and resettlement. According to the field data, all the non-key informants except one have been displaced one way or the other. Either was one's farm land taken over, or part of the farmland, or everything together with their settlement. The Figure 9 illustrates this further.

Figure 9: Type of losses due to mining



The field data actually depict that the resettlement effects accompanying involuntary displacement has occurred in the study area. According to displacement specialists, and as explained in the theoretical MIDR framework; “resettlement effects are defined as loss of physical and non physical assets including homes, communities (settlement), productive lands, income earning assets and sources, subsistence resources, cultural sites, social structures, networks and ties, cultural identity and mutual help mechanisms” (Downing, 2002: 8).

At the first phase of the mining project in Asutifi a total of 1701 households (comprising

of 9575 individuals) have been affected (Giovannetti, 2005: 2). It is also expected that when the project enters the second phase about 20,000 additional people will be affected (Earthworks and Oxfam, 2006: 1). The resettlement effects are thus inevitable in the study area.

The field data identified various mining-induced displacement and resettlement risks which include landlessness, joblessness, homelessness, health risk and social disarticulation. In order to understand the implications of these issues on the livelihood of the people it is imperative to examine them closer.

6.7.1 Landlessness

In the view of Downing (2002: 9) mining induces landlessness by removing the foundation upon which productive systems, commercial activities and livelihood is articulated. What makes the issue of land loss serious is the inability of victims to find a suitable replacement. In the case of Asutifi, not only have households found it extremely difficult to get an appropriate replacement, but as the District Agricultural Officer explained land access is not the same any longer and available land are about 80km from the study area. Therefore in terms of proximity, land access is very difficult, perhaps even more so because of the bad nature of the roads (District Agricultural Officer, Asutifi District).

A land access programme (AILAP) has been introduced by NGGL, but like stated by the District Planning Officer, the land access programme is characterized by a lot of complexities. For instance, the District Planning Officer asserted that the programme lacks immediate results, because farmers will have to wait for four months after registration before they will be given the land to cultivate. After planting their crops they also need to wait for several months before the crops are ready to be harvested. Thus from the period of registration through cultivation until harvest period the livelihood of the whole household is put on hold.

A respondent also stated that: “NGGL brought the Land Access Programme but the lands are located far away and we have to travel long distance” (Kwadwo Oppon, farmer, Kenyasi 2 Resettlement Site).

6.7.2 Joblessness

An often ignored effect of mining-induced displacement is the loss of wage employment, access to leasehold and share cropping opportunities, as well as the dismantling of local income generating resource-base (Downing, 2002: 10). According to NGGL (2005: 36) the construction phase of the project will employ 1200 nationals while the operation phase will employ 620 permanent Ghanaian workers. But the remaining question is how many of the project-affected individuals will form part of this employment pool against the back-drop that about 9575 individuals are affected. The situation as it stands now is according to the field data that the mining is getting labour non-intensive, and hence merely demands some skilled personnel who is basically non-existing among the project affected communities.

With the local income generating resource base dismantled, people are staying at home jobless. No land to cultivate for living and no work from the mining company. Asked whether mining has brought any employment to the community, a respondent stated that: “Yes, there has been employment but not for us in the community, NGGL says we don’t have any skills and no education. So everyone is in the house because there is no work” (Rashida Baafi, farmer, Kenyasi 2 Resettlement Site). Another also responded that; “when we seek employment from them [NGGL], they say we are illiterate yet there are outsiders who are illiterates and get work there” (Maame Gyeabour, farmer, Kenyasi 2). During the field-work it was discovered that people from other mining areas in Ghana have migrated to the Asutifi District and in some cases, since they have experience in mining, they are rather considered for employment.

Moreover, a contributing factor to joblessness is the fact that most of the resettled lack the appropriate skill and know-how for their new location and that they basically need to start all over again to build new economic opportunities. There have been some training programs in the regime of NGGL, but to no avail, most likely because the people lack financial resources to start all over again or are insecure.

6.7.3 Homelessness

Homelessness goes beyond the loss of house plots, dwelling and shelter, and in this paper refers to the size of rooms, access to kitchen, compound for building extensions, gardens or plots for vegetable growing and other structures that contribute directly or indirectly to the livelihood of the household.

According to Downing (2002: 10) often associated with homelessness is profound loss of identity and cultural impoverishment as a home symbolizes family cohesion and location for mutual support. In the study area, not only were the resettlement houses built to non-standard specifications, but most households lost some rooms and structures that contributed immensely to their livelihood. When asked about the adequacy of the resettlement, a respondent answered that “the rooms are too small (9x9 feet) and the compound is very small too, so we are not able to neither plant anything here nor extend our homes” (Mohammed Bashiru, farmer, Kenyasi 2 Resettlement Site). Others had the number of their rooms reduced, for instance a farmer at Kenyasi 2 resettlement site had 3 rooms before, but was given only one room (Yaa Boatemaa, farmer, Kenyasi 2 Resettlement Site). Similarly, another respondent from Kenyasi 2 Resettlement site complained that; “the sizes of the rooms are too small, and there is no kitchen like I had before. So we have to cook outside and when it is raining we cannot cook” (Kwadwo Oppon, farmer Kenyasi 2 resettlement site).

6.7.4 Health Risks

The stress and trauma associated with moving from their original communities already constitute an enormous health risk for the displaced. The households in the Asutifi mining area are, in addition, faced with varying health risks resulting from lack of access

to potable water and mining-related environment hazards. Though potable water has been provided for the resettled in the resettlement camps, the issue of affordability and frequent outage of electricity continues to hamper their accessibility to potable water. As stated by a respondent; “All the water bodies from which we drank are drying up. Before we had free water from the streams, which was quite clean, but now we have to buy the water” (Yaw Badu, farmer, Ntotroso resettlement site). Another also said: “We have been forbidden to drink the water from the stream since they have been contaminated with chemicals and we have been provided with water but at a cost which we don’t have” (Kwame Afriyie, farmer, Kenyasi 2 Resettlement Site).

In a report by FIAN (2005: 11) the Environmental and Social Impact Assessment (ESIA) of the mining project suggests that access to safe water will be impacted by the operation in several ways. For instance, the ESIA explains that sources of water to the people living in small hamlets within the watershed of River Awonso will be polluted because of sedimentation and heavy metals. It continues to say that the damming of the river Subri does not only negatively affect the access to water but it is also a threat to peoples’ health as it is likely to increase waterborne diseases because of the stagnant water. Apart from the water access, the fieldwork revealed numerous complains of health problems, which has already been illustrated in figure 8 in section 6.3.3

6.7.5 Social Disarticulation

Another, sometimes, unaccounted implication of mining-induced displacement is disintegration of social networks and supportive structures of rural households. The study area has witnessed extreme distortions in the social networks. When asked about his networks, a respondent stated that: “We have been divided and we stay far away from each other and now we live individual lives” (Akosua Fordjour, farmer, Kenyasi 2 Resettlement Site).

When a whole village is displaced it means that the people of this former village will lose touch with their traditional authority and, most especially, community institutions. The people of Kodiwohia and KwakyeKrom villages who have been displaced will have distortions in their kinship ties, cultural identity and family cohesion. They hardly know who their chief is anymore, let alone where they belong.

6.7.6 Summary/Conclusion

Through this section, we have cast some light upon the various implications of the resettlement process, as earlier defined by Downing (2002). It is with this research material like numerous others, which supports Downing’s theory, that the negative side-effects of landlessness, joblessness, homelessness, health risk and social disarticulation manifests itself. Moreover, people lose their identity as well as security through either of these particular implications, or others not mentioned here. It should be noted that Downing (2002) also includes marginalisation in his theoretical framework, while we did not have enough material to either support or deny that factor. This is because Downing’s theory was not our main theoretical focus and rather a supplement to the Sustainable Livelihood Approach.

7. CONCLUSION AND RECOMMENDATIONS

7.1 CONCLUSION

The main objective of this study has been to identify linkages that exist between the presence of abundant amounts of natural resources and the impacts of its exploitation on rural households. The study attempts to show the impacts that the exploitation of the resources has had on the rural communities through economical, environment, livelihood, and poverty issues.

Using the gold mining industry as a case study and based on the objective, a number of issues were raised to explore the pathways for illustrating the impacts of natural resource exploitation on rural households. These issues include ways by which natural resource exploitation impacts on rural households and their livelihoods, ways by which the exploitation leads to poverty and implications of mining-induced displacement and resettlement. There is no attempt to make generalisations by this study but rather to generate knowledge that will guide policy makers regarding livelihood of rural households and to explore the reality of the situation pertaining in mining communities. It is appropriate here to review the research question identified in chapter one (section 1.3).

Regarding the issue of what impacts natural resource exploitation has on rural households the study identified several factors such as loss of jobs, land, health, social networks, education and healthy environment, just to mention some. Perhaps most notably was the unemployment situation since majority of the population is within the working age and the lack of income contributes to increased poverty, hunger and even reduction of human dignity. Also since the study area is predominantly an agricultural area and farming is the main source of livelihood the surface mining by NGGL, resulting in the destruction of the same arable land which forms the basic source of livelihood for households, has even more persistent effects. The access to natural resources and common property has been reduced, changes in the cultural and social institutions of the communities have occurred and furthermore displacement and resettlement of various communities has taken place. Another very notable impact from mining is the worsening of health situation caused by environmental degradation from mining and loss of access to water and often food as well. Thus the exploitation of gold resources in the area by NGGL has had enormous impacts on the livelihood of the people and as an effect of that it can be identified that mining has directly and indirectly distorted the livelihood and survival of households in the study area.

The second research question demands how natural resource exploitation impacts on the livelihood of the rural households. Basically livelihoods in rural communities are dependent on the available livelihood platforms/capitals. It is upon these platforms that the rural households develops/devices a strategy to achieve their livelihood objectives or outcome for survival. When these platforms are tempered with in anyway, the survival strategy is automatically distorted. It is apparent therefore that if mining will directly cause any distortion in the livelihood of rural households, it can do that by tempering

with the livelihood platforms available. In Kenyasi, Ntotroso and their surrounding communities, several livelihood platforms were identified including Natural Capital: Land, water, clean air; Financial Capital: Money, credit, banking, bonuses; Human Capital: Family size and structure, labor, education, health; Social Capital: Social Networks and Physical Capital: Infrastructure, houses, assets. It is based on these platforms that the people of the study area figure out a strategy to combine these platforms to meet their daily needs and survival. The data in this study illustrated severe changes in the platforms of the rural households by mining, in which these caused a widespread change of ways of sourcing livelihood, or as in the worst cases a lack of livelihood strategy. It is thus clear that it is precisely through the process of altering the capitals identified and people's access to them that the natural exploitation impacts on the rural households.

In addition to combining the access to various platforms into a livelihood strategy, the rural households have to relate to certain external contexts that influence their livelihoods. Therefore, in addition to impacting on peoples' livelihood platforms, mining may affect their livelihoods through processes of altering these external contexts indirectly. This can either be done through the vulnerability context consisting of trends, shocks and seasonality, or the structural and institutional context consisting of government policies, regulatory and legal environment, institutional and cultural influences, land tenure systems and social relations. Now it is clear that mining can not and will not alter certain contexts such as some of the shocks and the seasonality, as well as regulatory and legal environments and land tenure systems. However other contexts are likely to be influenced by the mining in some indirect ways. These are for instance trends, where, as in the case of this study, influx of different people as a result of the mining operation may alter existing trends thereby changing the context for the livelihoods. Also environmental degradation from the mining operation can contribute to processes leading to external environmental or economical shocks, as happened in the case of the artificial famine in 2005.

Within the structural and institutional context, mining is most likely to impact on peoples' livelihood through distorting some social relations as it has done in the case of the chieftaincy where people are increasingly losing trust in their chiefs because of corruption.

The problems associated with natural resource exploitation cannot be dealt with in the absence of a proper structural and institutional framework, for the natural resource sector of Ghana's economy. It was identified that in a bid to encourage foreign investments, government policies of liberalization of the economy have resulted into regulatory and institutional processes that are skewed in favour of investors and to the detriment of the local communities. Admittedly, those reforms introduced have contributed to enormous increases in foreign direct investment (FDIs) in the mining sector.

However, this has not reflected in the lives of the local communities using the study area as an example. The policy of liberalizing the mining sector has rather led to reductions in agricultural lands available to rural households, thereby putting their livelihoods in severe danger. There is therefore the need to review the mining and mineral laws of the country

and make them more attractive to the local communities. Mining should adequately cater for the development of local communities and must be conducted in a way that is sustainable and will not compromise the growth and development of affected communities and the unborn generations.

In exploring the ways that exploitation can lead to poverty (third research question), the study admits that prior to the advent of mining the study area was classified as a deprived area. Poverty existed in the area but at least households were able to meet their livelihood objectives. It can be stated with confidence that the coming of large-scale mining has worsened the poverty situation in the area. Poverty in this study was explained as the general lack of access to basic necessities such as food, shelter, medical care and safety which is generally necessary based on shared values of human dignity. The ways that the exploitation led to poverty occurred through processes, most notably that the households now lack land to cultivate crops for subsistence and commercial purposes and thus have no income.

According to a FIAN Report (2005: 8), members of the community confirmed in 2005 that the loss of access to land and inadequate compensation are major threats to food security. Families who hitherto depended on farming for food are now competing with the more affluent mining employees in the same market with increased prices. Though shelter has been provided for displaced households it was identified that rooms provided were not up to standard specifications and large families did not have the number of rooms they previously had. This has resulted in a situation where a single small room had to be shared by many members of the family (a condition which members of the household decried and considered appalling). The absence of a regular source of income also makes them unable to access health care facilities since they lack the financial resources needed to pay for health services. This has rendered many households poor and vulnerable.

The final research question demands the implications of displacement and resettlement on the livelihood of the rural households. As explained earlier, the implications of displacement and resettlement are enormous. In an earlier discussion it was admitted that the study identified that displacement has caused landlessness, joblessness, homelessness, health risk and social disarticulation as supported by Downing (2002). This has been done through the loss of land, access to leasehold and share-cropping opportunities, wage employment, all as a result of the displacement. This has severely distorted local income-generating opportunities and the resettled now have to take time to consider the best economic opportunities in their new area to enable them to start new economic ventures.

Despite the fact that the houses are replaced homelessness is caused, where one identifies a home as consisting of all structures that contribute directly or indirectly to the livelihood of the resettled. All the resettled non-key interviewees identified some parts of their previous structures lacking, causing them difficulties in some ways. Health risk as an effect of the resettlement and displacement comes through the various stresses that the resettlement and displacement imposes. These can appear in form of traumas as a result of the movement itself or as a result of for instance the lack of income and land.

Another very important aspect of the livelihood platforms in the area are social networks. Social networks have traditionally been a very critical source of assistance to members of the rural household. One devastating implication of displacement is that members of the family have been distanced from their critical networks from which they drew assistance in meeting their survival, inducing social disarticulation. Members of the family now live independent lives since they are either not able to access their networks or their networks have been rendered irrelevant since members are themselves poor and are not capable of assisting each other in anyway.

Summarising this, it can be said that mining does impact on the livelihood of the people through altering the platforms that they have access to, thereby reducing the available strategies as well as the outcomes of the livelihood. The mining also causes the loss of land, jobs, homes, health and social networks, mostly through distorting the accesses that the people used to have. It can be underlined here that studies have previously shown that mining activity alters the access to resources (capitals/platforms) for the rural households, (Bury, 2003), most notably through the displacement and resettlement carried out.

The purpose of natural resource exploitation is generally to trigger economic growth and development. In the study area it can be concluded that mining has not achieved the purported objectives of growth and development of the affected households and the communities in general. The discussions throughout this study reveal that the impacts of mineral resources exploitation on rural households in mining communities in the Asutifi District of Ghana have so far been negative, socially, economically, health-wise and environmentally. It is therefore time that multinationals in the mining sector, government, civil society organizations and stakeholders in the local communities as a whole, come together to form a synergistic approach to mining operations and the development of the mining communities at large.

7.2 RECOMMENDATIONS

As has been shown through this analysis, there is room for improvement. In fact there is always room for improvements, particularly when the topic itself is the fragile natural resources from our mother earth. In some cases the possibility of improving the operation or any aspect relating to it, is larger than in other cases but as can be seen from the analysis as well as the conclusion NGGL can do a lot. They can improve for themselves, the community and for the environment, in order to evolve themselves into becoming more sustainable, friendly to the environment and the people.

What follows are our recommendations for Newmont Ghana Gold Limited, both in the short run and with a longer time perspective. It must be emphasized that these recommendations are also directed towards other gold mining operations throughout in the whole world, as well as other natural resource based extractions and a consideration for governments and organizations that are evaluating or starting-up with natural resource exploitation.

7.2.1 Short-term

- Establish a health care centre: This is perhaps the most important contribution that NGGL could do for the community. As it is today, people are getting severe illnesses which can be traced to environmental pollution from the mining. These illnesses are reducing people's ability to work and support themselves and their families. By introducing health care centre in the community, people are more likely to attend the doctor due to the short distance, and get better.
- Evaluation of the Opportunity Industrialization Centre International (OICI) programme: There is also the need for NGGL to revisit the OICI programme (which has seeks to train the youth on employable skill) to ascertain the extent of successes and the impact it has made in livelihood restoration. Material gathered from the data during the field-work shows that although the OICI has trained people in some types of skills, there are still complaints of the inability to use their skills due to lack of financial resources to start up the skill was not adequately imparted. This is where micro-loans could best be used (see paragraph below). People who were not adequately trained must be given the chance to obtain an internship and learn the job properly.
- Micro-loans: The education program that NGGL has established is mostly unable to serve its intention due to the fact that the people are too poor to start their new practices. By providing micro-finance to the community, the people may stand a chance in developing a new type of livelihood that fits into the altered environment that has been created by Newmont.
- Education Scholarships: By providing educational scholarships for children that are doing well in school, NGGL provides the parents with the motivation to take good care of their children in school so that they may aspire to better things. Scholarships also provide the community and the various families with an income in the future. NGGL may in addition consider trainee programs as a solution, giving themselves qualified labor and the society income.
- Evaluation of the Agriculture Improvement and Land Access Program (AILAP) The AILAP program is an initiative to restore the farming activity. However it is not granting the intended results and should be reassessed, with the goals of granting farmers land that is accessible for them, in terms of distance and access to water. Either displaced farmers can be replaced on a farm, or the farmlands must be nearer with easy access to water.
- Contracting: It was also identified that at certain points some minor contracts are given out to the local people via the chiefs. This approach of sub-letting contracts to the people through the chiefs brews corruption and nepotism. This is because the chiefs rather engage their family members and friends, ignoring the needy local people. This situation has contributed to a very uneven income distribution and increased poverty. It will be commendable that NGGL ensures more justice

and fairness with regards to contracting and work distribution in the area by for instance introducing some requirements in the contracts. At least the affected persons in the community must be considered when it comes to contracting. This may cushion them, somewhat in meeting their livelihood objectives.

- **Community Development Protocol:** It must be emphasized that though there are efforts on the part of NGGL to sign a social responsibility agreement with the community leaders, the slow pace of efforts to sign such an agreement will automatically push its implementation far, thereby compounding the already precarious livelihood conditions of the households. It is therefore recommended that as soon as possible NGGL work in collaboration with the local stakeholders to agree on a clear and acceptable community development protocol. It must be underlined here that local stakeholders need to include not only chiefs and assembly men but most importantly objective representatives for the farmers, for instance NGO members.

This protocol should spell out the community development agenda, the responsibility of NGGL as well as that of the local stakeholders to ensure commitment to the protocols. The protocol must also encapsulate what the NGGL project is to achieve in an agreed period of time, community development objectives and how NGGL expects to achieve them. This is to assure the community as to how they will benefit from their corporate presence over the period of NGGL operations.

7.2.2 Long-term

- **More sustainable compensation:** The compensation must become more sustainable, both with regards to the size and the type of the compensation. While estimating the size of a planned compensation, the farmers themselves should be involved or a representative for them, chosen by themselves. The total area of the farmland must be compensated and not only the crops, while the future known income of the crops should be estimated fairly. The farmers must be able to get at least all that they had before and preferably more, as a compensation for the social inconveniences triggered by this process.

The type of the compensation should either be done through direct replacements of all the property and a financial amount, or only a financial amount. This is in addition to some necessary social and livelihood restoration offers. For instance the compensation must include re-schooling where needed and the expenses of all side effects caused by the mining, such as health care. Moreover, a more sustainable compensation plan must be used in processes like this. Currently, the compensation for land is in monetary terms paid out once. Although as stated above, it should be financial, that is not to say that it should be in one payment. On the contrary, the payments should be done periodically over a period of at least ten years (the lifetime of the cocoa tree).

In the meantime, the compensation money could be put into an established bank account for the displaced, giving them interest rates on their money. This is because the local people have seldom dealt with money and the need to buy everything. Thus when they get the money it seems large to them and most is consumed up within a shorter time period than what they imagined. Then they have no income at all. However, a banking program with several payments would cater better for them. Despite all the above, the most important aspect of the compensation is re-education, health care and social follow-up and catering, in order to ensure that these peoples' livelihoods gets restored.

- Environmental impact assessment: The environmental impact assessment (EIA) should always be thoroughly done in every aspect. After the mining has ended its operation, the environment must be restored as much as possible. Independent organizations should be allowed to cater for the EIA assessment using international standards, so as to increase the credibility of the assessment.

7. REFERENCES

- Abugre C. and Akabzaa T, (1997): Mining boom - a gain for Africa? *Third World Resurgence* No. 93, May, 1998. [Online] Available on <http://www.twinside.org.sg/title/boom-cn.html> Accessed 17/08/06
- Asian Development Bank (ADB) (1998): *Handbook on Resettlement: A Guide to Good Practice*. Asian Development Bank. Manila, Philippines.
- Adams, W.M., (2001): *Green Development 2nd Edition, Environment and Sustainability in the Third World*, Routledge, London.
- Adams, W.M., (2001): *Green Development 2nd Edition, Environment and Sustainability in the Third World*, Routledge, London.
- Ahmad, K. and Carboo, D., (2000): Speciation of AS (III) in some Ghanaian gold tailings by a simple distillation method, *Water Air Soil Pollut.*, 122 (317): cited by Muezzinoglu, A. (2003): A Review of Environmental Considerations on Gold Mining and Production, *Critical reviews in environmental science and technology*, 33 (1), pp. 45-71
- Akabzaa T. (2004): African Mining Codes, a race to the Bottom. In *African Agenda*, Vol. 7, number 3, pp. 8-17
- Akabzaa, T. and Darimani, A. (2001): *Impact of Mining Sector Investment in Ghana: A Study of the Tarkwa Mining Region. A Draft Report for SAPRI*, Accra
- Akuffo, S.B (1998): *Pollution control in a developing economy, Ghana*. Accra: Universities press, pp. 57-60
- Amegbey, N. A. and Adimado A.A. (2003): Incidents of cyanide spillage in Ghana, *Mineral Processing and Extractive Metallurgy (Trans. Inst. Min. Metall. C)*, 112, pp. C126-C130
- Aryee, B. (2001): "Ghana's Mining Sector: Its Contribution to the National Economy." *Resources Policy*, 27 (2)
- Aryeetey, E, Barfour O. and Twerefou D. (2004): *Globalization, Employment And Livelihoods in the Mining Sector of Ghana, 1980-2002*. ISSER, University Of Ghana Legon – Accra.
- Ashley, C., and Carney, D., (1999): *Sustainable Livelihoods: Lessons from Early Experience*, Department for International Development, London.
- Asian Development Bank. (1998): *Handbook on Resettlement: A Guide to Good Practice*, Asian Development Bank, Manila, Philippines

- Asutifi District Assembly (ADA) (2006): Asutifi District Profile. Kenyasi-Ahafo
- Auty, R. M. (1990): Resource Abundance and Economic Development, Oxford University Press, Oxford
- Banik, D. (2006): Poverty, Politics and Development. Interdisciplinary Perspectives, Fagbokforlaget Vigmostad og Bjørke AS, Norway
- Bannock, G. et al. (1998): Dictionary of Economics, Penguin Group, 6th edition, London
- Blank, R. M. (1997): It Takes a Nation: A New Agenda for Fighting Poverty. Princeton NJ: Princeton University Press.
- Blomberg, S. B. and Hess, G. D. (2006): On the conflict-poverty nexus, Economics & Politics 18 (3) Blackwell Publishing Ltd.
- Boafo-Arthur, K. (2002): Chieftaincy and Politics in Ghana Since 1982. West Africa Review c ISSN: 1525-4488, Vol. 3, No. 1 Available online at: <http://www.westafricareview.com/vol3.1/boafo.pdf>. Accessed on 18.03.07
- Bradshaw T, (2005): Theories of Poverty and anti Poverty Programs In Community Development, RPRC working paper No. 05-06, RPRC Oregon, [Online] Available at <http://www.rprconline.org/WorkingPapers/WP06-05.pdf> Accessed 23.10.06
- Bristol, J. W. cited in Amegbey, N. A. and Adimado A.A. (2003): Incidents of cyanide spillage in Ghana, Mineral Processing and Extractive Metallurgy (Trans. Inst. Min. Metall. C), 112, pp. C126-C130
- Broad, R. (1994): The poor and the environment: friend or foes? World Development, 22(6): 811–822
- Budget Review (1999): GDP growth rises by 4.6 percent, [Online] Available at <http://www.ghanaweb.com/GhanaHomePage/ghana/news/ECONS/budget1.html> Accessed 30.09.99
- Bury, J. (2003): Livelihoods in transition: transnational gold mining operations and local change in Cajamarca, Peru, The Geographic Journal, 170 (1), pp. 78-91
- Cahn M. (2002): Sustainable Livelihoods Approach: Concept and Practice, Massey University, [Online] Available at http://www.devnet.org.nz/conf2002/papers/Cahn_Miranda.pdf. Accessed 15.10.06
- Campbell, B. (2003): “The Challenges of Development, Mining Codes in Africa, and Corporate Responsibility.” Groupe de Recherche sur les Activités Minières en Afrique (GRAMA). University of Quebec, Montreal – in collaboration with Akabzaa, T. University of Ghana, Legon. Published in June 2003 in International and Comparative Mineral Law and Policy Trends and Prospects, p. 4-6

Campbell B, Hatcher P, Lafortune A, Sarrasin B. (2003): Factoring in governance is not enough: mining codes in Africa, policy reform and corporate responsibility, Extractive Industries Review, 2003

Carney, D. (ed.) (1998): Sustainable Rural Livelihoods: What Contribution Can We Make? Papers presented at the Department for International Development's Natural Resources Advisers' Conference, July 1998. DFID, London

Castro P (2002): Sustainable Livelihoods Analysis: An Introduction, Department of Anthropology Syracuse University Syracuse, New York

Cernea, M. (1998): Impoverishment or Social Justice? A Model for Planning Resettlement, In: Development Projects and Impoverishment Risks: Resettling Project-Affected People in India., H.M. Mathur and D. Marsden, (Eds.). Delhi: Oxford U.P.

Chambers R. (1981): Rapid rural appraisal: rationale and repertoire, Public Administration Development, 1, pp. 95-106

Chambers, R. and Conway, G. R., 1992: Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. IDS Discussion Paper No. 296, IDS, Brighton

Coakley G. J. (1999): The minerals industry of Ghana, in the US Department of the Interior, US Geological Survey, Minerals Yearbook. Area Reports: International 1997, Africa and the Middle East III

Coleman, J.S. (1990) Foundations of Social Theory, Cambridge, Mass.: Harvard University Press

Coudouel, A. and Hentschel, J. (2000): Poverty Data and Measurement (draft), World Bank, Washington, DC

The Chronicle: Wednesday April 13, 2005, p.13

DFID (2000): Sustainable Livelihoods Guidance Sheets. Department for International Development, Available on: www.livelihood.org/info/info_guidancesheets.html Accessed 10/08/06

DFID (1999): Sustainable Livelihoods Guidance Sheets, Numbers 1–8, London: Department for International Development, Available on www.livelihoods.org Accessed 10/08/06

DFID (2002): Sustainable Livelihoods Guidance Sheets. Numbers 5-7 <http://www.livelihoods.org> Accessed 10/08/06

Dickson, B.K. and Benneh, G. (1988): A new geography of Ghana. UK: Longman Group Ltd, pp65-69.

Downing T. E. (2002): Avoiding New Poverty: Mining-Induced Displacement and Resettlement, Mining, Minerals and Sustainable Development (MMSD) Project, Earthscan Publications Ltd for IIED and WBCSD [Online] Available at http://www.iied.org/mmsd/mmsd_pdfs/058_downing.pdf Accessed 20/10/2006

Duraiappah, A.K. (1998): Poverty and environmental degradation: A review and analysis of the nexus. World Development, 26 (12), 2169-2179.

EARTHWORKS and Oxfam (2006): Newmont Mining: Big Promises, Disappointing Returns. A progress report by EARTHWORKS and Oxfam America Available on online at: <http://www.nodirtygold.org/pubs/Newmont2006Progress.pdf>.

Elbawadi, I. (1999): Civil wars and poverty: the role of external interventions, political rights and economic growth, Mimeo

Ellis, F. (2000): Rural livelihoods and diversity in developing countries, Oxford University Press, Oxford

Falkenberg, A. (2005): Culture and Ethics in Management. Essays for Org. 416 Course, School of Management AUC Kritiasand-Norway

FIAN (2005): Newmont Ahafo South, Gold Mining Project in Ghana; Documentation of Violations of the Human Rights to Food and Water Recommendations to the Board of Directors of the International Finance Corporation (IFC). [Online] Available on: http://www.fian.org/fian/index.php?option=com_doclight&Itemid=100&task=download&dl_docID=59. Accessed 20/07/06

Forest People Programme (FPP), Phillippine Indigenous People Link (PIPLinks) and World Rain Forest movement (2000): Understanding the forest; The need to control Transnational Mining Corporation: A Canadian case study, IUCN, Moreton-in-Marsh, UK

Forsyth, T. and Leach, M. (1998): *Poverty and Environment: Priorities for Research and Policy: An Overview Study*. Prepared for the United Nations Development Programme and European Commission Institute of Development Studies, Brighton, UK

Friends of the earth (2002): "Treasure or Trash?": The World Bank's Flawed Defense of Mining as a Tool for Economic Development, [Online] Available at <http://www.foe.org/camps/intl/worldbank/teasureortrash.pdf> Accessed 10.11.2006

Friends of the Earth International (FoEI), (2005): Nature: Poor people's wealth: the importance of natural resources in poverty eradication, 108, FoEI secretariate, Amsterdam [Online] Available at www.foei.org/publications Accessed 24.10.06

Gallopin, C. G., Gutman P, and Maletta H.. (1989): Global impoverishment, sustainable development and the environment: a conceptual approach, *International Social Science Journal (ISSJ)*, 41 (3), pp. 375-397

Gavin H, (2001): "A Contextual Review of the Ghanaian Small-scale Mining Industry" Imperial College Centre for Environmental Technology, London, UK September (76)

Gelb and Associates, Alan (1988), *Oil Windfalls: Blessing or Curse?* New York: Oxford University Press.

Gellert, P. K. & Lynch, B. D. (2003): Mega-projects as displacements, *International Social Science Journal* 55 (175), 1-1

Ghana Statistical Service (2006): *Socio – Economic Survey of Asutifi District*. Accra - Ghana

Ghana Statistical Service (2000): *National Population and Housing Census*. Accra-Ghana

Giovannetti F. (2005): *Newmont Ghana Gold Ltd - Ahafo South Project Independent Monitoring Of Resettlement Implementation*, document prepared for International Finance Corporation, Washington DC, USA, [Online] Available at <http://www.newmont.com/en/operations/projectpipeline/ahafo/docs/indreviews/Independent%20Assessment%20of%20Resettlement%20Implementation%20No.%202%20-%20Ahafo%20South%20Project.pdf>. Accessed 21.10.06

Glick, R. (1997): The East Asian miracle: growth because of government intervention and protectionism or in spite of it? *Business Economics*, April 1997, [Online] Available at http://www.findarticles.com/p/articles/mi_m1094/is_n2_v32/ai_19545596 Accessed 12.12.06

Gosling, L (1979): *Resettlement Losses and Compensation*. Pp. 119-31 in L. Gosling (ed.) *Population Resettlement in the Mekong River Basin*, *Studies in Geography* No. 10, University of North Carolina, Chapel Hill, NC

Greer, J. (1993): *The Price of Gold*. Environmental costs of the new gold rush. *The Ecologist*, 23 (3), pp.91-96, London

Grenness T. (2001): *Innføring I vitenskapsteori og metode*, Universitetsforlaget, Oslo 2nd edition

Gylfason, T. (2001): *Natural resources, education and economic development*. *European Economic Review*, 45 (4-6), pp. 847-859

Gylfason, T. (2002): *Moder jord – medspiller eller motspiller?*, in Isachsen, A. J. (ed), (2002): *Hva gjør oljepengene med oss?*, Cappelen akademiske forlag, Norway

Hannesson, R. (2002): Oljeinntekter – andre lands erfaringer, in Isachsen, A. J. (ed), (2002): Hva gjør oljepengene med oss?, Cappelen akademiske forlag, Norway

Hellevik O. (1995): Sosiologisk Metode, Universitetsforlaget, Oslo, 2nd Edition.

Hilson, G. and Potter, C. (2005): Structural Adjustment and Subsistence Industry: Artisanal Gold Mining in Ghana. *Development and Change*, 36 (1), pp.103-131, Blackwell Publishing

Institute of Statistical, Social, and Economic Research (ISSER), (2001): The State of the Ghanaian Economy in 2000, University of Ghana, Legon

Isachsen, A. J. (ed), (2002): Hva gjør oljepengene med oss?, Cappelen akademiske forlag, Norway

Lane, P.R. and Tornell, A. (1996): Power, Growth and the voracity effect, *Journal of Economic Growth* 1, pp. 213-241

Leach, M., Mearns, R. and Scoones, I. (1997): Environmental Entitlements: A Framework for Understanding the Institutional Dynamics of Environmental Change, IDS Discussion Paper No. 359. Institute of Development Studies, Brighton, UK

Lightfoot, R P, (1978): The Cost of Resettling Reservoir Evacuees in NE Thailand. *Journal of Tropical Geography* 47: 63-74

Lufumpa, C. L. (2005): The Poverty-Environment Nexus in Africa, African Development Bank, Blackwell Publishing Ltd., Oxford UK and Malden USA

Lynne, B. and Legge, K. (1996): Adjusting Society: The World Bank, the IMF, and Ghana, Tauris Academic Studies, I.B. Tauris Publishers, London

Kaviraj, Sudipta (1996). 'Dilemmas of Democratic Development in India'. In Adrian Leftwich (ed.) *Democracy and Development*. Polity Press, Cambridge, pp. 114-138

Kabeer N. (2002): "Reflections on the Measurement of Women's Empowerment." In *Discussing Women's Empowerment; Theory and Practice*. Eds. B Sevefjord and B. Olsson, Stockholm: SIDA.

Kollmair M. and Gamper St. (2002): The Sustainable Livelihood Approach. Input prepared for the Integrated Training Course of NCCR North-South, Aeschiried, Switzerland.

Kumar K. (1987): Rapid, Low-Cost Data Collection Methods for A.I.D. A.I.D. Agency for International Development Program Design And Evaluation Methodology, Report No. 10, [Online] Available at http://pdf.dec.org/pdf_docs/PNAAL100.pdf. Accessed on 15.10.06

Kumar K. (1989): Conducting Key Informant Interviews in Developing Countries. A.I.D Program and Evaluation Methodology Report No. 13

Kumar, K. (1993): Rapid Appraisal Methods, World Bank regional and Sectoral Studies, Washington DC: World Bank

Matsuyama, K. (1992): Agricultural Productivity, Comparative Advantage and Economic Growth, *Journal of Economic Theory*, 58, pp. 317-334

Mayhew, S. (2004): *A Dictionary of Geography*, Oxford University Press, Oxford Reference
Online, http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t15_e2129 Accessed 06.12.2006

McDowell, C. (1996): *Understanding Impoverishment: The consequences of Development-Induced Displacement*, Oxford: Berghahn Books

McKinley, A. (2006): *The Day Gold Lost Its Glitter*, An Oxfam report, [Online] Available on:
http://www.oxfamamerica.org/whatwedo/where_we_work/west_africa/news_publication/feature_story.2006-03-29.2608277729 Accessed 25.10.06

Melville B. (1993): Rapid rural appraisal: its role in health planning in developing Countries. *Tropical Doctor*; 235, pp.5-8

Minerals Commission (1986): *Mining and Mineral Law 1986*. [Online] Available on <http://www.mincomgh.org/index.html> Accessed 14/09/06

Minerals Commission (n.d): *Ghana Minerals Sector- Overview*, [Online] Available at http://www.mincomgh.org/minerals_sector/index.html Accessed 23.11.06

Mining, Minerals and Sustainable Development (MMSD) Project (2002): *Breaking new ground*, Earthscan Publications Ltd for IIED and WBCSD [Online] Available at <http://www.iied.org/mmsd/finalreport/index.html> Accessed 19/10/2006

Mineral Policy Center cited by Muezzinoglu, A. (2003): *A Review of Environmental Considerations on Gold Mining and Production*, *Critical reviews in environmental science and technology*, 33 (1), pp. 45-71

MRF (Mineral Resources Forum) (2002): *Environment - Incidents – Cyanide Spill Incidents 1983-2001*, [Online] available at http://www.mineralresourcesforum.org/incidents/cn_accidents.htm Accessed 04.12.06

- MMSD (2002): *Breaking New Grounds*, [Online] available at http://www.iied.org/mmsd/mmsd_pdfs/finalreport_es.pdf Accessed 06.12.06
- MMSD (2003): *Finding Common Grounds; Indigenous People and their Association with the Mining Sector*, IIED and WBCS project, London
- Muezzinoglu, A. (2003): A Review of Environmental Considerations on Gold Mining and Production, *Critical reviews in environmental science and technology*, 33 (1), pp. 45-71
- NGGL (2005): *Environmental Impacts Social Assessment of Ahafo South Project*. C825/26 Lagos Avenue East Legon, Accra, Ghana.
- Nussbaum, M. C. (2000): *Women and Human Development*, Cambridge University Press, Cambridge, cited in Bloodworth, A. (2006): Nussbaum's 'Capability Approach', *Nursing Philosophy*, 7, pp. 58-60
- Nyanteng, V.K. ed. (1997): *Policies and Options for Ghanaian Economic Development* (2nd Ed.), ISSER, University of Ghana, Legon
- Owusu-Koranteng H, (2004): *Environment, Water and Health Impacts on Women Due To Mining: The Case of Wassa West and Adansi West Districts of Ghana*, A Presentation at Third International Women and Mining Conference in India (October 2004), [Online] Available at <http://www.mmpindia.org/ghana.PDF>. Accessed 01.12.06
- Oxfam America, (2001): *Extractive Sectors and the Poor*, An Oxfam America Report, [Online] Available at <http://www.polisci.ucla.edu/faculty/ross/oxfam.pdf> Accessed 24.09.06
- Pandey, B. (1998): *Displaced Development: Impact of Open Cast Mining on Women*, New Dehli: Friedrich Ebert Stiftung
- Pegg, S, (2003): *Poverty Reduction or Poverty Exacerbation? World Bank Group Support for Extractive. Industries in Africa* Department of Political Science, Indiana University Purdue University Indianapolis (IUPUI) [Online] Available on: http://www.environmentaldefense.org/documents/2737_2737_PovertyRedux2.pdf. Accessed 10/09/06
- Pegg, S. (2005): *Mining and poverty reduction: Transforming rhetoric into reality*, Elsevier Ltd.
- Perlez, J. (2005): *Cause of Mystery Ills Splits Indonesian Fishing Village*. New York Times, March 27th 2005

Prakash, S. (1997): Poverty and Environment Linkages in Mountains and Uplands: Reflections on the 'Poverty Trap' Thesis, CREED Working Paper No. 12. International Institute for Environment and Development, London

Pretty, J., Gujit, I., Thompson, J. and Scoones, I. (1995): *Participatory Learning and Action: A Trainer's Guide*. London: International Institute for Environment and Development

Quigley, W. P. (2003): Ending Poverty as we know it. Philadelphia, Temple University Press.

Reed, D. (2001): Economic Change, Governance and Natural Resource Wealth: The Political Economy of Change in Southern Africa, Sterling, Earthscan Publications

Reed D. (2002): Poverty and the environment: changing concepts. Development Bulletin, 58, Washington [Online] Available at <http://devnet.anu.edu.au/online%20versions%20pdfs/58/0458Reed.pdf>. Accessed 12.10.06

Reed, D and F Sheng, (1998): *Macroeconomic Policies, Poverty, and the Environment*, Worldwide Fund for Nature, Washington

Repetto, R: (1992): Earth in the Balance Sheet: Incorporating Natural Resources in National Income Accounts. *Environment*, 34 (12), pp. 12-20, 43-45

Ross, M. (2001): Extractive Sectors and the Poor: An Oxfam Report, Boston

Ross, M. L. (2002): Comments on "Treasure or Trouble? Mining in Developing Countries, UCLA Department of Political Science, [Online] Available at <http://www.natural-resources.org/minerals/law/docs/pdf/Comments%20on%20TWB%20-%20Ross.pdf> Accessed 18/10/2006

Ross, M. (2003): How Does Mineral Wealth Affect the Poor? Department of Political Science, UCLA

Ryen, A., (2002): "Cross –cultural Interviewing" in J.Gubrium and J.Holstein (eds.) (pp.220-235). *Handbook of Interviewing*. Thousand Oaks, US: Sage

Sachs, J. D. and Warner, A. M. (1997a): Natural resource abundance and economic growth, Center for International Development and Harvard Institute for International Development, Harvard University, Cambridge MA, [Online] available at <http://www.geog.byu.edu/shumway/Geog331/Readings/Natres&EG.pdf> Accessed 27/02/2006

Sachs, J.D., and Warner, A. M. (1997b): Sources of Slow Growth in African Economies. *Journal of African Economies* 6 (3), 335-376 [Online] available at <http://www.earth.columbia.edu/about/director/documents/jrnafec1297.pdf> Accessed 20/10/2006

Sachs, J. D. and Warner, A. M. (2001): The curse of Natural resources. *European Economic Review*, 45, pp. 827-838

Sawyer, A. (1990): *The Political Dimension of Structural Adjustment Programmes in Sub-Saharan Africa*, Ghana University Press, Accra, Ghana

Scoones, I. (1998): *Sustainable Rural Livelihoods: A Framework for Analysis*. IDS Working Paper No. 72. IDS, Brighton.

Schrimshaw SCM, Hurtado E. (1987): *Rapid assessment procedures for nutrition and primary care. Anthropological approaches to improving programme effectiveness*, Tokyo: United Nations University

Scudder, T. (1991): *A sociological Framework for analysis of new land settlement*, pp.145-167, in M. Cernea (ed): *Putting People first; sociological variables in rural development*, Oxford University Press, Oxford

Sen, A. (1999): *Development As Freedom*. New York: Anchor

Silverman D. (2001): *Interpreting Qualitative Data*, SAGE Publications, London, 2nd edition

Singh, N. and Kalala, P. (1995): *Adaptive Strategies and Sustainable Livelihoods: Community and Policy Studies for Burkino Faso, Ethiopia, Kenya, South Africa and Zimbabwe*, Manitoba, Canada: International Institute for Sustainable Development

Singh, N. and Gilman, J. (1999): Making livelihoods more sustainable. *International Social Science Journal*, 51(4), 539–545

Soanes, C. and Stevenson, A. (2005): *The Oxford Dictionary of English*, (2nd 2e. revised), Oxford University Press, *Oxford Reference Online*, [Online] Available at <http://www.oxfordreference.com/views/ENTRY.html?entry=t140.e37648&srn=7&ssid=322697906#FIRSTHIT> Accessed 06.12.06

Songsore, J, Tsikata, K., and Yankson, K. (1994): *Mining and the Environment: Towards a Win-Win Strategy (A study of the Tarkwa-Aboso-Nsuta Mining Complex in Ghana) (Final Report) June 1994*. Study prepared for the Ministry of Environment, Science, and Technology (MEST-EPC) and the World Bank in Support of the formulation of a growth strategy for the Western Region

Stevens, M. and Owens, C. (1998): Gold – Its extraction and the environment: Experiences in Papua New Guinea. *Australian Science Teachers Journal*, 44 (4), pp.13-19

The Constitution (1992): The 1992 Constitution of Ghana, [Online] Available at http://www.parliament.gh/const_constitution.php Accessed 22.11.06

The Concise Oxford English Dictionary (2006): Eleventh edition revised, Ed. Catherine Soanes and Angus Stevenson, Oxford University Press, *Oxford Reference Online*, Oxford University Press, [Online] Available at http://www.oxfordreference.com/views/BOOK_SEARCH.html?subview=HowToCite&book=t23 Accessed on 23.11.06

The reports of the Conference on mining development and social conflict in Africa, Third World Network, Africa secretariat available on: <http://www.theminingnews.org/pubs/READER34AfricaDevelopSocialConflictConfReport.pdf>

The Mining News, 2005: Looming Trouble at Kenyasi, [online] available at: <http://www.theminingnews.org/news.cfm?newsID=770> Accessed 07.04.07

Torvik, R. (2001): Natural resources, rent seeking and welfare. *Journal of Development Economics*, 67, pp 455-470

Tofte A.(2004): War And Cattle; Livelihood Strategies and Perceptions of Wealth and Poverty in Southern Sudan. Agricultural University of Norway. Available at http://www.umb.no/noragric/publications/msctheses/2004/2004_ds_Tofte-Amalie.pdf.

Towill, L. E. et. al. (1978): Reviews of the environmental effects of pollutants: V. cyanide, US Environmental Protection Agency Report, 600/1-78-027, Washington DC, USA cited in Amegbey, N. A. and Adimado A.A. (2003): *Incidents of cyanide spillage in Ghana*, Mineral Processing and Extractive Metallurgy (Trans. Inst. Min. Metall. C), 112, pp. C126-C130

UN, (1987): The Brundtland Reports. [Online] Available on <http://www.answers.com/topic/brundtland-commission> Accessed 06/08/06S

UNICEF (1989): Children and Environment: A UNICEF Strategy for Sustainable Development. A UNICEF Policy Review, United Nations Children's Fund, New York, U.S.

United Nations Environment Programme (UNEP), (2002): Global Environment Outlook 3, Earthscan publications, London

UNDP (1997): Human Development Report, Oxford University Press, New York

UNSD (United Nations Statistic Division), (2006): Integrated Environmental and Economic Accounting 2003 (SEEA 2003), [Online] <http://unstats.un.org/unsd/envAccounting/seea.htm> Accessed 05.12.2006

USAID (2002): Nature, Wealth and power; Emerging Best Practices for Revitalizing Rural Africa, Discussion Paper, USAID's Africa Bureau (AFR/SD), Washington DC
World Bank (1992): World Development Report, Oxford University Press, Oxford, [Online] available at http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2000/12/13/000178830_9810191106175/Rendered/PDF/multi_page.pdf Accessed 07.12.06

World Bank Group Mining Department (2002): Treasure or Trouble? Mining in Developing Countries, [Online] Available at <http://www.siteresources.worldbank.org/INTOGMC/Resources/treasureortrouble.pdf> Accessed 18/10/2006

World Bank Group (WBG) (2006): Tarnished Gold: mining and the unmet promise of development, The World Bank Group's Gold Mining Operations, Washington, [Online] Available on: http://www.oxfamamerica.org/newsandpublications/publications/briefing_papers/briefing_paper.2006-10-04.9020425296/Tarnished_Gold_brief_Sept2006.pdf Accessed 10.12.06

World Bank (2006): Understanding Poverty, [Online] Available at <http://www.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTPA/0..menuPK:430373~pagePK:149018~piPK:149093~theSitePK:430367,00.html> Accessed 20.11.06

World Bank Environment Department (WBED), (1996): *Resettlement and Development: The Bankwide Review of Projects Involving Involuntary Resettlement, 1986-1993*. Environment Department Paper No. 032, Resettlement Series. Washington, D.C.: World Bank [Online] Available at http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/1996/03/01/000009265_3980728143956/Rendered/PDF/multi_page.pdf Accessed 23.11.06

World Bank Operations Evaluation Department (WBOED) (1993): *Early Experience with Involuntary Resettlement: Overview*, Report No. 12142. Washington, D.C.

World Commission on Dams (WCD) (2000): *Dams and Development: A new Framework for decision-making*, London: Earthscan, [Online] Available at <http://www.dams.org/report/contents.htm> Accessed 18.11.06

World Commission on Environment and Development (1987): *Our Common Future: Report of the World Commission on Environment and Development*, Oxford: Oxford University Press

Yelpaala K., (2004): *Mining, Sustainable Development, and Health in Ghana: The Akwatia Case-Study*, [Online] Available at: http://www.watsoninstitute.org/ge/watson_scholars/Mining.pdf. Accessed 23.11.06

Yunus, M. (2005): *Eliminating Poverty through Market-Based Social Entrepreneurship*. Metropolitan Economic Strategy, Global Urban Development Magazine, 1 (1), [Online] Available at: <http://www.globalurban.org/Issue1PIMag05/Yunus%20PDF.pdf> Accessed 18.10.06