

INSTITUTE FOR DEVELOPMENT STUDIES

**ASSESSING THE SOCIAL AND ECONOMIC EFFECTS
OF MINING ON WOMEN AFFECTED
BY
NEWMONT GHANA GOLD LIMITED'S
OPERATIONS**

Emmanuel Yamoah Tenkorang
October, 2016



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**Emmanuel Yamoah Tenkorang
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Executive summary

Mining projects have often been justified on the grounds of the benefits they bring to the economies of host countries. Part of government revenues of resource rich countries are made up of taxes, royalties and rents from mining. Mining projects, however, have substantial negative consequences for local communities around the mines. There is a resultant effect on households in terms of poverty and health status. These affect different sexes in the household differently, but that on women has not been adequately researched. This study was therefore undertaken to assess the social and economic effects of the operations of the NGGL mining project on women in the Asutifi North District.

Combination of purposive and convenience sampling methods were used to sample key informants, adult women interviewees and FGDs. Ninety four interviews, two FGDs and eight key informant interviews were conducted in the district.

Loss of access to land for farming constituted the most significant effect on the women, with 67.8% to 90% of respondents reporting loss of land. The significance of these losses on the lives of people who predominantly are farmers was the reduction in the production of the three (3) most important food crops in the district: cassava, yam and plantain, pushing their prices up.

Roads in rural areas had generally improved in terms of their access and quality but in urban areas, the road infrastructure had worsened. Newmont Ahafo Development Foundation has undertaken micro credit schemes, business start-up projects and scholarship schemes to ameliorate the plight of the local people but this did not reflect in the lives of the respondents.

The local economy had generally become more expensive as women had to buy most of the things they survived on before the mining, which hitherto, they obtained freely from nature or their farms. People had to pay for water as they either had no access to streams again or that the streams were polluted and were therefore not wholesome for consumption. There was not much employment created in the mines or allied services for local women. Gender parity in kindergarten and primary school in the district lagged behind that of Ghana and the trend shows that these will still lag if things stayed the same.

Migration was the most predominant form of coping strategy adopted by households. Forty five percent (45%) of the respondents had a close family relation migrating from the district in the past 10 years to look for jobs.

The NGGL mine in Asutifi North District had acquired a large area of concession, which constitutes about 25 percent of the total land area. Even though there had been various activities to lessen the negative effects of this mine on the women in the district, including compensations, relocations, training programmes, infrastructure and scholarships, these have not sufficed to ameliorate the plight of the women.

Women's needs directly ensured the survival and development of the household unit. More secured and regular sources of income are preferred to one-off cash compensation. Programmes on health improvement, access to lands for farming, scholarships for wards and support to trade are a few of the projects that would directly benefit women.

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A study of this nature is not possible without the contribution of several different stakeholders at various levels of effort. I wish to foremost express my appreciation to Mr Daniel Owusu-Koranteng and Mrs. Hannah Owusu-Koranteng, for introducing me to the Ford Foundation who sponsored the research. The Ford Foundation deserves to be specially acknowledged for sponsoring the whole research. The contribution of all the people at Wacam is very much appreciated.

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List of abbreviations

ANDA	-	Asutifi North District Assembly
EIA	-	Environmental Impact Assessment
ERP	-	Economic Recovery Programme
CHPS	-	Community-based Health Planning and Services
FAO	-	Food and Agriculture Organisation
FDI	-	Foreign Direct Investment
FGD	-	Focus Group Discussion
GDP	-	Gross Domestic Product
GPI	-	Gender Parity Index
JHS	-	Junior High School
KG	-	KinderGarten
NADeF	-	Newmont Ahafo Development Foundation
NGGL	-	Newmont Gold Ghana Limited
NTFP	-	Non-Timber Forest Product
OLA	-	Our Lady of Apostles
SIA	-	Social Impact Analysis
SHS	-	Senior High School
SPSS	-	Statistical Product and Service Solutions
SGS	-	Société Generale d’Surveillance
URTI	-	Upper Respiratory Tract Infection

CHAPTER ONE

INTRODUCTION

Background

Mining projects have often been justified on the grounds of the benefits they bring to the economies of host countries and local areas within the mining concession. These include job creation and infrastructure provision. Series of activities along the mining chain such as exploration, development, feasibility, financing, construction, production, refining, transport and retail, closure and decommissioning create forward and backward linkage jobs (IFC, 2012). The technology, capital investments and infrastructure accompanying the setting up of these extraction operations present opportunities for growth and development of both the local and national economies (Eftimie, Heller, & Strongman, 2009).

Mining also accounts for substantial parts of government revenues of resource rich countries through payments of taxes, royalties and rents. In some countries, such as the Republic of Congo, the mining sector contributes more than half of government revenue (Schirfrin & Rodriguez, 2013). In South Africa, the mining sector contributes 18 percent of Gross Domestic Product (GDP) and over 50 percent of foreign exchange earnings (Smit, 2016).

Mining projects, however, are often associated with negative consequences for communities that are within its catchment area and the scale is often high. This is due to the high investment in technology and the massive disturbance of the land and ecosystems where the mineral ores are located and mined. Aubynn (1997) notes that surface mining activities requires vast areas of land and these have resulted in the alienation of large tracts of land from communities, depriving them of their access to land for livelihood activities. Direct effects like destruction of land based livelihood activities, pollution of water bodies, elimination or minimisation of access to Non Timber Forest Products (NTFPs) and displacement of livelihoods and households. All these affect the ability of households to take care of the family because their income levels drop significantly and they also spend too much time looking for alternative livelihood activities, NTFPs and water. This results in increasing poverty among these people (Tenkorang & Osei-Kufuor, 2013).

The relative costs and benefits from mining to the economy and society at large, has been debated within the literature with both sides making serious arguments to counter the other (Akabzaa & Darimani, 2001; Angelsen, et al, 2014). Notwithstanding these debates, developing countries have been advised by the Bretton Woods institutions that the exploitation of their mineral resources is a sure way to eliminate poverty and to put countries on the path to development. Most

developing countries in Africa have heeded this advice and reformed their mining sub sector to attract investment to modernise mining.

The modernisation of the mining sector, undertaken under the mining sub sector improvement programme, was part of the Economic Recovery Programme (ERP) embarked upon by the Government of Ghana to recover economic productivity by increasing Foreign Direct Investment (FDI) into the sector (La Verle, 1994). As a result of the mining sub sector improvement programme, gold production in Ghana increased by 500 percent between 1983 and 2002 with earnings of over US\$600 million. Gold once again regained its position as the major foreign earner for Ghana replacing cocoa exports. Total annual mineral exports increased from US\$115.3 million in 1984 to US\$1.79 billion in 2007 (Akabzaa, 2009; Awudi, 2002).

Newmont Ghana Gold Limited is one of the mining companies that were attracted into Ghana as a result of the reforms in the mining sub sector. The company has two mines in Ghana: Ahafo and Akyem projects. However, for the purposes of this study, the Ahafo project with an expected mine life of 15 years was selected. This is because actual mining in the Ahafo project began in 2006 and seven years later, the effects of the operations on the people would be manifest. The active Ahafo project concession is located in the Asutifi North District of the Brong Ahafo Region. The district has a total land surface area of 900 Sq km with 66 settlements. There are two urban settlements in the district. These are Kenyasi and Ntotroso. The district population was 52,259 in 2010 (Ghana Statistical Service, 2014).

The first gold was poured on the 18th of July, 2006 and commercial mining commenced in August 2006 (Newmont, 2006). This mine is a surface mine. Its development involved the resettling of individuals and communities impacted by the mining-related activities.

The Problem

Mining has affected several communities negatively in the Asutifi North District. As at 2005, nine thousand five hundred and seventy five (9,575) individuals were directly affected by the Newmont project (Newmont, 2005). Of this number, 5,185 lost both their residential and cropped fields while 4,390 people were to be economically displaced through loss of cropped fields (Newmont, 2005). Over 95% of the displaced households were found by Newmont (2005) to be practising subsistence and cash crop farming on small holder farms as their primary livelihood activity. This large scale displacement therefore, had the potential to impoverish most of these people. According to the Food and Agriculture Organisation (FAO) (2012), the poverty rate in Asutifi district is 30 percent, which is higher than the national rate of 28.5 percent. This therefore means that people in this district are poorer than the average Ghanaian.

Issues bothering on mine negotiations in local communities generally overlook women's needs and opportunities. Women living in mining areas are often times excluded from the extractives value chain, denying them of opportunities and benefits they need to develop themselves, their households and their communities (ECA, 2015). Often times, the discussion about the effects of mining activities fail to look at issues with gender lenses. How does mining affect men and women? With the discussion of the varied effects of mining on the society raging on, the effect on a very significant segment of the population, women, appears to be neglected. Men and women are affected differently by mining and the effects of mining impact on their lives differently. This is explained by the different positions occupied by men and women in the social structure, especially in rural communities. Women generally manage homes and this responsibility often requires that they engage in livelihood activities to supplement the income of the head of household, often a male (Arora & Rada, 2014). In addition, they have to depend on the forest for the supply of wood fuels, non timber forest products like mushrooms, vegetables, snails, medicinal plants etc as a supplement to household provisions and extra income source.

The grant of a mineral license to a mining company usually diminishes the access local people, especially women, have to the land and its resources in the concession. In this situation, Ahmad and Lahiri-Dutt (2006) argue, women suffer the most. This is because, women generally do not have legal rights over land and rarely have titles to land. Compensation therefore usually goes to the male landowner. This rapid social change affects women more than men. Factors that enhance the asset status of rural women merits special attention, including their human capital, ownership of land and other resources and participation in social processes (Ellis, 1999).

It is however, not clear how mining operations affect the livelihood of women in the district and this requires research to document the effect of the operations of NGGL on the livelihood of women.

Objective

The study generally was to assess the social and economic effects of the operations of the NGGL mining project on women in the Asutifi North District.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Mining and land based livelihood

Livelihood is understood to be the activities that individuals or households do to ‘get by’ or ‘getting on’. Baro and Batterbury (2005) explain that to get by means individuals or households are just surviving from the activities, but when profit is made from the activities to either invest in household resources, or saved or invested in other livelihood activities, then there is “getting on”. In rural communities, livelihood activities are generally land based. This means that the livelihood activities depend directly on the land resource or other resources attached to the land including forest products, rivers and minerals.

A significant proportion of livelihood activities of families in rural areas is dependent on natural resources. The sustainable livelihood approach refers to five capitals that the rural household depends on to survive: Natural, social, human, physical and financial. A combination of these resources determines how well the household is doing. Sherbinin, et al (2008) explain that the type and amount of each capital that a household has depends on past investment and accumulation strategies, influenced by social, cultural, political and economic opportunities and constraints. However, due to the high levels of poverty in rural areas, the most prevalent investment is in natural capital: accumulating access and knowledge to as much natural resources as possible.

Shackleton, Shackleton and Cousins (2000)’s review of empirical studies found that the Shindi community of Zimbabwe, depend on over 100 goods from woodland resources and in South Africa communities were regularly using between 100 - 300 species (excluding medicinal plants) from the wild. In all, the most commonly used products were fuelwood, construction wood, wild fruits and herbs, and fodder. In other studies, up to 50% of household sustenance was noted to be from natural sources and that wild products contributed as much as 35% of average household income and up to 20% of cash income of households.

Livelihood is not only about the use of natural resources to make a living. It is more about the use of different capitals that includes the natural environment to eke out a living. In the analysis of livelihoods systems, one has to consider more than just how a household obtains and allocates food and other items. The typical rural household has to draw on several capitals like natural resources, labour, capital, and time in response to external constraints and opportunities to manage their everyday lives successfully (Baro & Batterbury (2005). Large scale mining projects in rural

areas have environmental, social and economic effects on community members. Especially for open pit mining which requires large areas of land for actual mining and other ancillary activities, access to lands for local people, pollution effects on the environment and labour influx are but a few of the stresses on the local area.

One of the impacts the development of a large scale mining project in an area is the change in the demographic makeup of a community manifesting itself in changes in values and attitudes in the community, job profiles, crime, health status and access to social amenities due to an influx of a large labour force (Turnley, 2002). All these present stresses to the original livelihoods of the households before the advent of the mine.

Livelihood coping strategies

Three broad clusters of livelihood strategies have been discussed by Scoones (1998) as a reaction to the impacts brought about by these large extractive projects in especially rural areas. The clusters are agricultural intensification, livelihood diversification and migration. Agricultural intensification involves farmers putting in more effort to generate more output per unit area of land through capital investment or increases in labour inputs. Diversification entails families engaging in more than one livelihood activities, sometimes farmers diverting into off-farm income earning activities, or vice versa. The last cluster is when people move to seek a livelihood, either temporarily or permanently, elsewhere. Scoones (1998) notes further that it is not uncommon to see individuals or families pursue a combination of strategies concurrently or in sequence. However, for the purposes of this work, migration will not feature prominently because the study will concentrate on non-migrant female respondents because the study will be conducted to samples within the jurisdiction of the Asutifi North District.

Even though livelihood diversification is a usual thing, extensive livelihood diversification is as a result of uncertainties like illness, poor incomes, or disturbances in livelihood asset access or availability (Baro & Batterbury, 2005; Donald et al. (2005). These diversified sources of livelihoods provide vital access to cash at key moments especially where the risks of farming are high and rural savings, credit and insurance mechanisms are poorly developed (Reardon, 1997).

In pursuing diversified livelihood strategies, the relationship between access to assets and the use to which they can be put is mediated by social factors like social relations, institutions, organisations and by exogenous trends like economic trends and shocks (drought, disease, floods,

pests) (Ellis, 1999). How these factors mediate the interaction and how they can be controlled for an improved relationship is key to reducing risks and eliminating poverty. Systematically studying and describing the factors informing the diversification behaviour of these households is a good beginning.

Ellis (1999) notes further that gender considerations are inseparable of rural livelihood assessments. Men and women have different access to resources and opportunities, thereby different levels of assets stocks. Diversification can have either liberating or trapping effects on women depending on the circumstance. Fewer women own land, they have lower educational attainment and their access to productive resources as well as decision-making generally is mediated by men. They therefore often confront a narrower range of labour markets and get lower wage rates. In general, therefore, diversification is a more secured option for rural men. Therefore, diversification can trap women in customary gendered roles.

Diversification can also possibly lead to an improvement in the independent income-generating capabilities of women. Women can shift their employment to the service sector, thereby ensuring that they get paid for work, instead of not being paid or being paid in kind. Activities that are accessible to rural women however need to be promoted for this to happen. These mean that the activities should be located close to residences and correspond with jobs that women have equal or better access qualifications.

Social impact assessments

Social Impact Assessments (SIAs) estimate the likely social consequences of specific policy actions or project development. Burdge and Vanclay (1995) discuss social impacts as including all social and cultural consequences to human populations from the actions or projects which alter the ways in which people live, work, play, relate to one another, organise to meet their needs, and generally cope as members of society. Cultural impacts involve changes to the norms, values, and beliefs of individuals brought forth by the project in the community. The purpose of an SIA is not to make a judgment of the intervention but to present information as to its consequences (Turnley, 2002). Even though most definitions of SIAs consider it as a process undertaken in advance of a proposed project, Burdge and Johnson (1998) argue that since changes induced by the project do not unfold linearly, it is important to conduct SIAs at all stages of the project lifetime to account for emergent issues.

In order to conduct an SIA, the full range of participatory techniques, including key informant interviews, FGDs and questionnaire administration should be considered (Burdge and Robertson, 1998) and supplemented by review of secondary sources. Social and or economic profiles or analyses performed for other projects and local oral or written history are also valuable sources of cultural information (Turnley, 2002).

Other writers on SIA agree that social, cultural, and economic impacts of projects are the factors that need to be considered, though there is poor definition and agreement on what constitutes these impacts (Turnley, 2002). Economic impacts include those issues that involve a change in the market value of an asset, or resource because of the project. In other circumstances, a change in basic economic indicators such as unemployment levels or the presence/absence of major industrial sectors constitutes an economic impact. Some indicators of economic impacts include property values, the level of business activity, and the quality or quantity of jobs in a community. The industry of employed people provides information about the structure of the economy and changes in the structural composition of employment often reflect economic impacts of a project. For instance, expansion of manufacturing and services, may reflect in a reduction of the proportion of workers in agriculture while workers in manufacturing and service sectors rise (GSS, 2014; Turnley, 2002).

Burdge (1998) notes that the social and cultural boundaries of impact assessments are usually measured at either the project or community level, whereas economic impacts are often assessed at the regional or national levels. However, in conducting SIAs, some issues have to be considered in selecting and assessing indicators. Firstly, only those indicators that generate an impact are studied, that is only the indicators that explain the effect of the project, not the total social environment, are studied (InterOrganisational Committee, 1995).

Another issue to consider when discussing indicators is that the impacts resulting from changes in the indicators must be measurable. Indicators do not necessarily have to be quantifiable, qualitative descriptions of change are also good measures of the indicators. There must be empirical indicators, not uniquely quantifiable (Turnley, 2002).

CHAPTER THREE

METHODOLOGY

Introduction

This section describes the underlying principles governing the data definition, description, collection and analysis. The study adopts a pragmatic approach to data definition and analysis.

Research design

The research design is a Social Impact Assessment. Social impact assessments have been defined by Burdge and Vanclay, (1995) as the process through which the social consequences from specific project developments are estimated. These projects are usually undertaken in advance of the projects, but it is not uncommon to undertake SIA at any stage of the project's life since the impacts do not unfold in a linear fashion, SIAs are necessary at all stages (Interorganisational Committee, 1995) to account for the emergent issues of this dynamic system (Turnley, 2002). The Interorganisational Committee (1995) stressed that the absence of an accepted methodology for SIAs pose a major challenge, however, it is suggested that methodological rigour is one important way to cure the challenge (Turnley, 2002). The study therefore adopted the SIA, triangulated the sources of data and applied various approaches including documentary reviews and participatory methods.

The study area

This study focuses on the Asutifi North District of the Brong Ahafo Region of Ghana. The Asutifi North District was created in 2012 when the mother district Asutifi District was re-demarcated into Asutifi North and South Districts by Legislative Instrument 2093 of 2012 (Republic of Ghana, 2012). The district is bounded to the North by the Sunyani Municipality, to the North East by the Tano South District, to the North West by the Dormaa East District, Asutifi South District to the west, Asunafo North Municipality and South Districts in the South West and Ahafo Ano South and North Districts (Ashanti Region) in the South East. The district capital is Kenyasi, about 50km from the regional capital of Brong Ahafo Region, Sunyani. The land size of the Asutifi North District is 936.31 square kilometres.

The Asutifi North District is underlain by precambrian rocks of Birimian and Dahomeyan formations with the Birimian formations known to be gold bearing rocks. Diamond has been discovered at Wamahinso, which is about 11 kilometres due north of Kenyasi (Ghana Districts, 2011; World Places, 2011). The district also has a high potential for manganese, iron and bauxite. Other exploration activities are on-going in other communities within the district. In view

of the discovery of economically viable quantities of gold in the district, Newmont Gold Ghana Limited developed its first project in Ghana, its only operation in Africa, in 2006.

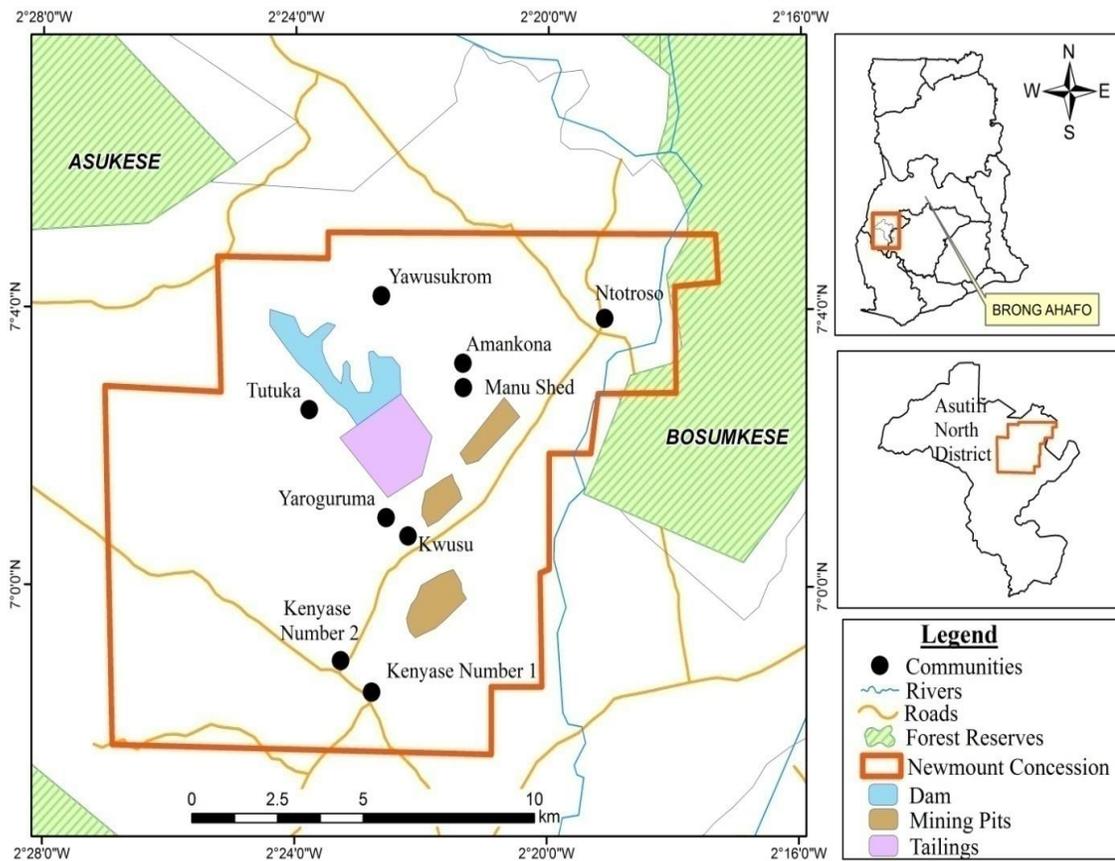


Figure 1: Map of Asutifi North District showing the concession of Newmont Ghana Gold Limited and sampled communities

Source: Field survey, 2016 and Cartography section, UCC.

The population of the district was 52,259 with females constituting 48.8 percent as at 2010 (Ghana Statistical Service, 2014). With an intercensal growth rate of 2.5 percent, the population of the district is projected to be 60,604.4 in 2016. The economy of the District is basically based on agriculture as 66.1 per cent of residents are engaged in it. Farmers in the district are mainly peasant cultivating food and cash crops. Incomes that accrue from their produce are meagre. The district occupies a land surface area of 936 square kilometres. Population density in the district is 55.81 per square kilometre of land and the rural population is 90.4% (Asutifi Assembly, 2010).

In this district, 66.1 percent of households are engaged in agriculture and there are more households engaged in agriculture in the rural areas (80.2%) than the urban areas. With 90.4

percent of the population being rural, it therefore means that agriculture is the most important economic activity for the district.

In terms of sex representation in the district, females constitute 48.8 percent (Ghana Statistical Service (GSS), 2014). GSS (2014) explains that the higher ratio of males in the district to females may be due to the location of illegal mining “galamsey” sites in the district which attracts more males into the district. About 93.2 percent of all females older than 15 years and employed are engaged in the informal activities (GSS, 2014).

By the end of 2007, the company estimated that it had over 17 million ounces of gold reserves, representing nearly 20 percent of its global gold reserves. The company’s Ahafo project entails the development of four mining areas and the construction and operation of related mine facilities. The Ahafo project produced approximately 446,000 equity ounces of gold and reported approximately 9.7 million ounces of gold in reserves, enough to be actively mined for approximately 20 years as at 2007 (World Business Council for Sustainable Development, 2009). Newmont Gold Ghana Limited’s mining concession covers an area of approximately 270 km² (Newmont, 2005).

Large-scale mining however, has only been recently introduced in the district. The Ahafo mine uses the surface mining approach which uses large areas of land for the actual mining, infrastructure and waste disposal (World Coal Association, 2012) denying agriculture access to these lands. In the Asutifi North District, farming is the main livelihood activity that contributes to household needs (Safo-Kantanka, Attah, Ofosu, Nagel, Akuto, van Beurden, and others, 2006). People in the district largely practise subsistence farming which means that agriculture growth depends on expanding the acreage of fields under cultivation but with the advent of large scale mining accompanied by concessions granted, arable lands have become increasingly scarce and expensive (Newmont, 2006).

With the mining taking over productive farmlands, people are compelled to change their livelihood sources. The number of people who engaged in agriculture as their primary source of income has been decreasing while employment in other sectors like commerce, industry and services is increasing with the commerce sector having the highest employment (Safo-Kantanka et al., 2006). Trading is the predominant commercial activity while mining and timber logging constitute the industrial activities people engage in.

Sample and sampling techniques

The target population were females who had lived continuously in mining affected communities in the district for at least 10 years. There were three main categories of respondents for the study. These are female respondents, Focus group discussants and key informants. The key informants were purposively and conveniently selected from institutions that could provide information on the social and economic effect of the mining operations on women in the district. These included respondents from the district planning coordinating unit of the Asutifi North District Assembly (ANDA), Department of Agriculture, Department of Education, District Health Management Team, Social Services, District Police Command and NGGL.

Towns that have been directly affected by the mining operations were purposively selected. The selection was done based mostly on the relative locations of the mine and communities and access routes to the mine. These include Kenyasi numbers One and Two, Ntotroso, Tutuka, Kwusu, Yawusukrom, Manu Shed, Amakona and Yaroguruma. It is from these towns that the focus group discussants and female respondents were selected. Respondents were selected conveniently. Table 1 shows the communities selected for the interviews.

Table 1: Communities from which female respondents were selected

Community	Frequency	Percentage
Kenyase I & II	47	50.0
Ntotroso	36	38.3
Tutuka	7	7.4
Manu Shed	2	2.1
Yawusukrom	1	1.1
Amakona	1	1.1
Total	94	100

Source: Fieldwork, 2016

From Table 1, 94 interviews were conducted in the district. The respondents were women who were at least 25 years old and had lived in their community for more than 10 years. These qualifying criteria were to ensure that the respondents were adults before the commercial mining activity began in 2007 and their duration of stay was to ensure that they would have experienced the pre and post mining advent in the district. The difference in sample sizes per community is a reflection of the population distribution in the towns. The likelihood of people fitting the selection criteria was higher in the more populous communities than the less populous communities.

Two FGDs were performed in Kwusu and Yaroguruma. These were constituted by between eight and ten people per discussion conveniently selected and made up of only women of at least 25 years old who had also lived in the community for at least 10 years. The minimum age limit of 25 years is to ensure that the discussants were conscious of their environment as at the time the commercial operations of NGGL began in 2007.

Methods of data collection and tools

Four methods of data collection methods were adopted for each of the three categories of respondents. Unstructured interviewing was used to collect data from the key informants and in this venture, interview guides were designed and administered. Focus Group Discussions (FGDs) were used to collect data from the focus group discussants by the use of a discussion guide. Structured interviews were adopted for the third category of respondents by the use of a structured interview guide with mostly, open ended questions.

Data analysis

Data analysis was done in three forms. The data obtained from key informant interviews, respondent interviews and FGDs were transcribed, typed and coded into the NVivo version 10 software. Data reduction and reorganisation was done and emerging themes analysed with the use of discourse and narrative analysis methods. Quantitative data obtained from respondents and official sources were edited, coded and entered into the SPSS software for statistical analyses to be performed and the results discussed. Some of the tools used include frequencies, modes, means, and frequency distributions. Content analysis was conducted on documents obtained from libraries, institutions and internet searches and the information obtained fused into the discussion of the study.

CHAPTER FOUR RESULTS AND DISCUSSION OF FINDINGS

Introduction

This section presents the results and discusses the findings based on the analyses performed on the results. Eftimie, Heller and Strongman (2009) note the gender bias in the distribution of risks and benefits from mining projects. Men generally gained employment and compensation, while the costs, such as family and social disruption, and environmental degradation, affect mostly

women. It is noted from Asutifi Assembly (2010) the lack of good quality data disaggregated by sex in the Asutifi North District. The study therefore had to rely on official data hardly disaggregated by sex and the narrations of females and key informants interviewed during the data collection. This chapter is organised in four main sections: background characteristics of household respondents; primary effects of the mining on the women; secondary effects of the mining on the women and the coping strategies adopted by respondents.

Background characteristics of household respondents

The background characteristics of respondents are discussed in this section. These include age, marital status, household size, duration of stay in the district and educational qualification.

Age

The minimum age of the household respondents was 28 years and a maximum go 100 years. The mean age was 47.54 yrs. These therefore suggest that the respondents were generally matured enough to respond to questions concerning themselves, their households and communities. Respondents had lived in the district for at least 10 years and at most 69 years.

Marital status

The marital statuses of respondents were obtained and are illustrated in Table 2.

Table 2: Marital statuses of respondents

Marital Status	Frequency	Percentage
Married	65	69.0
Not married	3	3.2
Divorced	2	2.1
Widowed	5	5.3
Separated	1	1.1
Non response	18	19.2
Total	94	100

Source: Field work, 2016

From Table 2, 69 percent of the respondents were married. This therefore implies most of the respondents were homemakers of households of at least two people or more. Therefore, they would normally experience the complexity of managing these households in the face of changing fortunes in the socio-economic environment within the district and could therefore share their assessments.

Household size

The minimum household size was 1 and the maximum was 20. The mean and modal household sizes were 8.7 and 6 respectively. In comparison with the district's average household size of 4.2 persons (GSS, 2012), the sample had bigger households.

Educational qualification

Educational qualifications of respondents were determined. 80 of the 94 respondents gave their educational qualifications and the distribution is as shown in Table 3. From Table 3, more than half of the respondents had either no formal education or primary education. This therefore implies that apart from a situation where they had obtained skills training informally; their employment option would generally be limited to informal work or menial jobs in formal institutions.

Table 3: Educational qualification of respondents

Educational level	Frequency	Valid percentage
None	24	30.00
Primary	24	30.00
JHS/MSLC	28	35.00
SSS	3	3.75
Tertiary	1	1.25
Total	80	100

Source: Fieldwork, 2016

Primary effects of mining on women

The primary effects of the mining operations on women in the district were discussed with the respondents. Respondents noted that the major activity that affected them the most was the granting of large areas of land as concessions for the mining company. The EIA document on the Ahafo mine notes that (SGS/NGGL, 2004):

Agricultural land use dominates with the majority of people depending on farming as the source of livelihood and the principal means of employment.

Respondents contended that their major livelihood activity was farming, corroborating SGS/NGGL (2004), and the grant of the concession implied that their access to these lands for farming had been curtailed. Access to lands and forest rangelands are critical to the survival of rural populations as their economic activities are largely dependent on these resources and for a district that has 66.1 percent of its people engaged in farming, this access is critical. The next subsections look at the access to land and forests and issues emanating from these.

Loss of access to land

The extent of loss of access that respondents had suffered was discussed. Sixty eight (67.8) percent of the respondents had lost access to land because of the granting of the concession to the company. Respondents were not very sure of the actual sizes of land they had lost, but 47.7 percent of them said they had lost all the land they used to farm on. The extent of loss of land was directly related to the distance of the particular community from the actual mining activities. Discussants from Yaroguruma estimated that they had lost as much as 90 percent of their lands to the mine. A resident of Tutuka expressed her circumstance this way:

We used to reside and farm at the bank of the Subri stream but since the company took over all farmlands by the river bank and also diverted the stream, we lost everything. I am now farming on my husband's family land which is woefully not enough.

The lands that were left for the respondents to farm was judged by 57.8 percent of respondents to be enough for their food crop farming activities, but not for cash crops like cocoa farming. An explanation given for the land being enough was that it was adequate for maize or cassava cultivation. This is because these crops were annual crops and the land could be replanted

every year without fallow. In the case of cocoa, which is a perennial crop, the land got full after about three years of planting. The rest said what was left was largely small and inadequate to secure their livelihood.

Ownership of land

Land is a resource that is essential for the very survival of most rural individuals and households. The ownership of land status data obtained from respondents showed that 62.3 percent of the respondents owned land. Respondents were asked about how they came to own the land. Five (5) ways were obtained through which they came to own the lands. The most predominant response was that their clans owned the land and by virtue of their membership of these clans, they were part owners (39.4%). Table 4 shows the distribution of the sources of ownership.

Table 4: Sources of ownership of land

Source of ownership	Frequency	Percentage
Family land	15	39.4
Inheritance	13	34.2
Husband	6	15.8
Given to me	3	7.9
Bought it	1	2.7
Total	38	100

Source: Field work, 2016

The next most important source of ownership of land was through inheritance. The Asutifi North district which is traditionally an Asante area were matrilineal. Therefore, females could inherit their mothers, aunties or sisters on their demise. However, the study could not establish a comparison with the amount of land owned by men in the district.

Of the respondents who did not own any land, the major reason responsible for their status was that the grant of the concession to the company had deprived them of their ownership of any land. A minority response was that the respondents were not from the district and therefore did not own any land there.

Loss of access to forests

It is not unusual for local people to depend on the forests and resources found in them for livelihood and commercial purposes. Ninety percent of the respondents said before the advent of the mine, they depended on the forests and its resources for both domestic and commercial provisions. Eighty four (84) percent of the respondents who depended on the forest for resources used these products domestically, that is in their households. Angelsen, et al (2014) found that 28% of the total incomes of rural households are made up directly from environmental resources, of which 77% comes from natural forests. Environmental income shares are higher for poor households implying that the poor rely more heavily on subsistence products such as wood fuels and wild foods.

Table 5 illustrates a distribution of the products respondents depended on the forests for.

Table 5: Forest products extracted by respondents before mining

Product	Frequency	Percentage
Snails	24	38.1
Mushrooms	13	20.6
Bush meat	12	19.1
Herbs	6	9.5
Firewood	6	9.5
Crabs	2	3.2
Total	63*	100

Source: Fieldwork, 2016

*Multiple responses

From Table 5, the major items respondents took from the forest were snails, mushrooms and bush meat. This situation reflects the pre mining concession period. In order to ascertain the effect of the granting of the concession on these activities, the proportion of respondents who currently had access to the forest was determined. Ninety five (95) percent of the respondents did not have access to the forest, post concession period.

The reasons given for the non access currently included that the company had blocked all access routes to the forest. Other respondents said either the forest area had been mined or that the company forbade anyone from going into the forest. The non access to the resource affected the women differently. The most prevalent effect was that they now had to buy forest products they used to get freely from the forest on the market at a time that their income sources have dwindled.

The second effect was that it had denied them of a source of cheap nutritional products. A few respondents submitted that it had denied them of the source of their livelihood which had brought untold hardships on them.

From Table 5, over 80 percent of the products extracted from the forests are protein based food sources, which are a necessary alternative to fish protein for these respondents and other households. Ministry of Health (2010) notes that in Ghana, animal protein is very expensive, thereby reducing the amount of protein consumed by Ghanaians in comparison with other countries. The consumption of protein in Ghana is lower in rural areas compared to urban areas and men eat more protein than women. This therefore implies that these forest products are very important for the sustenance of these, largely rural, households and for these women in particular.

Effects on major economic activities of women

Table 6 shows the major economic activities of respondents' households. Table 6 shows that over 72 percent of the respondents' households were farmers. The effects of the granting of about a quarter of the lands in the district as a mining concession on the farming were therefore discussed with respondents. The most predominant primary effect on the major economic activity was consistent with the distribution of major economic activities.

Fifty seven (57) percent of the responses were that since most of the lands were taken away, it had led to reduction in production of foodstuffs. This has pushed the demand for food in the district up, leading to an increase in food prices

Table 6: Major economic activity of household

Occupation	Frequency	Percentage
Farming	68	72.4
Trading	15	16.0
Employed by NGGL	2	2.1
Fish mongering	1	1.1
Seamstress	1	1.1
Unemployed	2	2.1
Non-response	5	5.2
Total	94	100

Source: Fieldwork, 2016

Farm households who have lost land and therefore have a lower capacity to organise food stuff from their farm and to extract income from their farming activities, now had to buy food they used to produce themselves from the market at higher prices.

One respondent in Tutuka captured this situation in the quotation that follows:

Most farmers have been rendered landless; the few who are into farming are also concentrating on the cultivation of cash crops. Thus, there is pressure on the demand for the scarce foodstuffs leading to high prices.

One other respondent from Ntotroso also expressed her uncertain state as:

We do not have enough land to farm on. We cannot also cultivate cash crops on the land that we are farming on because we do not know when they are going to take over the land.

The second narrative illustrates a situation in which the farmer is working on an area of land where a moratorium has been declared and a census of the crops has been done. In these areas, active mining or any other activity could be done at any moment without long prior information or further compensation for crops planted after the moratorium. Farmers are therefore not sure cash crops, which generally take not less than 3 years to fruit, will mature before the land is taken over. The other problem with this uncertain state is that farmers cannot invest in fertility of the land because of not knowing when all the investments will come to nought. This therefore affects productivity of the land during the period the farmers are cultivating it.

The second primary effect of the mining on women in the district was its impact on trade and the prices of general goods in the district. Some respondents noted that because of the diversions of most of the roads in the concession to create room for the mining, most of the distances they now had to travel had increased. This therefore meant that passengers were charged higher fares to get to other towns. This has therefore introduced some price hikes on goods in the district. Another reason given for the price hikes was the artificial increments in prices of goods with the perception that since the area had become a mining enclave, people were rich. This had created an artificial local inflation. Respondents therefore said that life was very expensive for them in the district.

Some respondents who were traders also noted that the relocation of most staff of the mining company and related services companies to Sunyani had negatively impacted trade. Trade had slowed down very much, affecting sales and profits. A narrative from Kenyase Number II:

When the workers of Newmont were living in the community sales were higher than now.....Nowadays trading in farm products is not yielding much sales as it used to.

Further interaction with some staff of NGGL explained the reasons staff had relocated to Sunyani. The first was that hitherto, owing to the antagonistic community reaction to the mining, staff of the companies were attacked by people. Another reason was that even locally recruited staff of the companies moved away to live in Sunyani because it was a city.

Secondary effects of mining on women

Eftimie et al. (2009) asserted that in rural communities like those in the Asutifi North where people gather food, water, and firewood, when the access to both land and forest resources becomes diminished these tasks take much longer to do. This has the potential to restrict women and girls' chances of attending school or to do other tasks. The indirect effects of mining on communities in the concession area were discussed under the following sub topics: access to infrastructure; effects on trade and prices of goods; employment; agricultural production; health; education and migration and their effects on respondents or their households.

Access to infrastructure

When respondents were asked about changes in their access to infrastructure, there were four things generally mentioned. These were water supply, roads, schools, hospitals.

Access to water

SGS/NGGL (2004) found that the pollution of water systems from surface run offs from waste dumps and treatment plants constituted a potential impact of the mining with a high significance. With regards to water supply, urban communities appeared to have had pipe borne water supplied to them improving their access to potable water, in certain circumstances. This notwithstanding, there were mixed effects of the 'improved' supply of water in the urban areas. Three quotations from Ntotroso will illustrate the situation from there:

Before the mining, we were fetching water from the stream. We also had a bore hole but it was contaminated until the company brought pipe born water to us.

We find difficulties when our taps stop flowing for days because the stream we depend on has been taken over by the mining company. Now we depend on the well created by the Queen mother of this community.

No developmental project has been carried out by Newmont, we cannot even drink from our own stream because the company has laid its pipes lines into the stream; polluting the water, making it undrinkable.

From the first quotation, it does appear that there was improvement in the water situation. In the second narrative, though the state had supplied water, when it stopped flowing there were problems for the people. They had to rely on a source of water provided by the queen mother, a private individual because the stream they depended on had been reallocated to the mining company.

In Kenyase number 2, potable water was supplied by the European Union through the Government of Ghana therefore the improvement in the water supply was generally reckoned not to be due to the mining company. Three narratives captured from Kenyase number 2 will suffice.

The water has improved but that was not done by the mining activities. The community was asked to contribute some amount of money for the water which we did.

There was difficulty in getting access to water but an individual in the area known as Jerry supported us in getting water

There are problems with access and quality of water in the community

For the rural communities, their water supply situation had rather worsened. They initially depended on two sources of water: rivers and streams and rainwater. Most of these streams had been either polluted from the surface run off or spillages or dammed; therefore, they could not use them. Dust and fumes arising from the blasting in the pits and roads and the fumes from the heavy equipments had contaminated rainwater in the area. Respondents were therefore not using rainwater for drinking and other household uses anymore. Respondents in Tutuka saw only a worsening water access and quality situation:

The pollution of the water bodies has brought about untold diseases, for example, skin rashes and malaria.

Generally, access to good quality water in the area worsened and people who were particular about the water they drank especially had to resort to buying of sachet water. This source of water is of doubtful quality and expensive for these generally poor households over the long term. Further discussions showed that in the supply of water to the urban areas, it was mostly the sponsorship of the state and its development partners. The Kenyasi water expansion project was sponsored by the European Union, for example.

The dewatering effect of underground mining being now pursued by the company has a high potential of lowering the water table in the district leading to loss of yield of most of the boreholes. Pohl (2011) states that dewatering of underground mines lead to drying up of wells and MPC (1999) established that these dewatering effects on wells could extend over 7 miles from the mine. A respondent from the ANDA submitted that at a meeting of mine stakeholders, the company informed them that they were expecting the dewatering effect of the mine to become more pronounced within nine years of the commencement of the underground mine.

This therefore means that boreholes would have to be sunk deeper into the ground to yield water. Even at the development stage of the underground mining project, NGGL has had to support Kenyasi to deepen one borehole which became dry as a result of the lowering of the water table. The potential for a widespread loss of yield from boreholes in the district is high as the underground mining develops.

Another negative consequence of the underground mining on potable water supply in the district is the potential for pollution of aquifers leading to pollution of borehole water sources.

Access to improved roads

The road infrastructure in the district was assessed based on three main factors. These were access, distance covered and quality of surface and its effects. Respondents from the rural areas generally saw an improvement in the access to and quality of the roads in the area. Hitherto, they depended on roads that could be referred better to as big paths to get to the major towns in the district. However, with the onset of the mines more roads have been constructed and maintained, ensuring that it was now easier for taxis to ply the roads. These roads were however not tarred and in the dry periods, a lot of dust was generated when vehicles passed. The continued inhalation of these dusts could lead to several infections of the respiratory system of the people. In other instances, there were rather road diversions which lengthened the distance that some of the rural

travellers had to cover to get to their destination. One discussant in the FGD in Yawusukrom reiterated:

The main road to Kenyasi has been prolonged due to the diversion of the road. The reason given was that the previous road runs through the active mining zone. This has direct bearing on the fare which invariably influenced the price hikes of produce.

In the urban areas, respondents rather saw a worsening situation in the road infrastructure. There used to be tarred roads linking these towns but due to the influx of heavier equipment and increasing frequency of vehicular traffic, these roads had deteriorated. At some stages, the pot hole filled surfaces were scrapped leaving dusty surfaces. The Kenyase to Hwidiem road was cited as an example. In addition, most of the roads constructed to serve the mining activities were not tarred, generating a lot of dust when vehicles used them. The Kenyasi by-pass road is a typical example. In the case of the Kenyasi-Ntotroso road, even though this dusty road is watered to control dust, some respondents complained about it. One respondent in Kenyase number II said this about the dust control measures undertaken by the company:

The dust emanating from the cars that ply the road is of concern. The company only waters the road to their plant site twice a day leaving other roads.

Respondents who complained about the road network wondered why the roads were not tarred so as to deal with the dust problem and the need for watering some of the roads.

Access to health facilities

Access to health facilities in the district was poor. Respondents noted this and that they travelled to other districts to access good health care. There was no District hospital in the district. There was a Health Centre and a private maternity home in Kenyasi No 1, three Community-based Health Planning and Services (CHPS) compounds in Biaso, Goamu, Yawusukrom Koforidua (GSS, 2014). There were, in both private and state health facilities, 3 doctors, 2 physician assistants, 2 midwives, 44 nurses and 45 traditional birth attendants in the whole district. This health staff strength and infrastructure were deemed not to be encouraging. This situation led to many of the respondents also coming to a conclusion that the state of health access in the district was poor.

A respondent in Kenyasi number 1 said this about the government health facility in the town:

Inadequate staff and lack of facilities in the community clinic makes life difficult

for us when we are not well or indisposed.

Another respondent noted a slight improvement in the condition of the clinic in the town as:

The clinic now has ambulance which is helping a lot of accident victims.

These just go to reiterate the poor state of health in the district noted by GSS (2014) and others. Other respondents travelled outside the district to access good quality healthcare.

The contribution of mining to the state of health was noted. In Tutuka, the company was said to be building a clinic for the community. A community health nurses' training school put up by the chief of Ntotroso with the proceeds he received from the mining was an activity considered by a key informant from the District Assembly as going to help in the administration of health and general development in the district. This is because if a large number of the nurses that were trained in this school were retained in the district after graduation, access to health staff would improve. Moreover, the school also had opened up another avenue for students who live in the district to pursue further education to secure jobs. However, mining had not contributed appreciably to improvement in access to health facilities in the district. A quotation from a respondent from Ntotroso summarises how most of the women felt about the state of health in the district:

Initially it was good because they registered us under the health insurance and food was distributed but even that was discriminatory. After six months the food distribution stopped and now strange diseases are being encountered like skin diseases. Also water in the community is not safe for drinking, washing and bathing. These are due to the chemical from the mines.

Access to educational facilities

On the issue of the effect of the mining on access to educational facilities in the district, most respondents did not discuss this. Two respondents said the mining had contributed to access to education. The first respondent was from Kenyase number 2 and this is what she said:

NADeF funds are used in supporting the education of children who excel in their exam.

This respondent was referring to the scholarship scheme that NADeF has for people in the District. This scheme was implemented in the ten (10) towns in the NGGL Ahafo concession area. In Kenyase number 2, 453 females have been given scholarships to date in various second cycle and tertiary institutions and apprenticeships. The data on scholarships awarded by NADeF to

towns within the Asutifi North District is as shown in Table 7.

Table 7: Scholarships awarded in Asutifi North District by NADeF, 2009- 2015

Community	Apprenticeship programme	SHS Total	Tertiary total	Student total			Total Commitment
				Female	Male	Total	
Gyedu	144	263	140	230	317	547	917,579.01
Kenyasi 1	116	578	421	480	635	1,115	1,385,080.00
Kenyasi 2	98	792	586	646	830	1,476	1,776,772.00
Ntotroso	172	338	238	311	437	748	1,287,357.00
Wamahinso	30	507	205	298	444	742	843,430.00
Total	560	2,478	1,169	1,965	2,663	4,628	6,210,218.01

Source: NADeF, 2016

From Table 7, of a total of 4628 people who had received scholarships from NADeF in various activities and levels of education, 1965 (42.5%) were females. In total, NADeF had spent over 6.2 million Ghana Cedis on the scholarship scheme in the area. None of the respondents in the study area and their relatives however had benefited from the NADeF scholarship scheme.

A respondent in Ntotroso referred to availability of schools as a result of the mining. This respondent also said that apart from the Community Health Nurses training school that was built by the chief with royalties received from mining, there were stories of investment of NADeF in scholarships, which neither she nor her relatives benefited from.

Access to infrastructure and livelihoods

An investigation of how access to infrastructure in the district associated with livelihoods of the women showed that 78 percent of the women claimed the current state of access to infrastructure have a deleterious association with their livelihood. The main reason given was that living had become more expensive as they now had to buy most of the things they lived on when earlier on, most of these provisions were obtained freely from nature. These mostly included food, wood for building, wood fuels and other non timber forest products. People currently had to pay for water to use as they either had no access to streams again or that the streams were polluted and were therefore not wholesome for consumption. This therefore meant that for people who could not afford an essential commodity like potable water, their lives could not be secured.

Of the minority who felt the state of access to infrastructure had improved their lives, they

cited the fact that water was now closer to them, taking the drudgery of walking over long distances carrying water.

Socio-economic conditions

Most of the positive impacts of mining projects are related to the effects of mining on local, regional and national economies (SGS/NGGL, 2004). The effects of the mining on the women in terms of the social and economic conditions within the district were discussed. Respondents also discussed the interaction of mining with their socio-economic wellbeing. The effects on social life of the respondents are discussed first in this section before the economic effects.

Effect on social life

Of the respondents who responded to the particular enquiry of whether the mining situation in the district had affected them, 81 per cent said it had affected them negatively. The reasons given for the negative effect on the social life of the people included the economic hardships it had brought, which means that people had to always be on the move to get an income. A respondent in Kenyase number II stated that:

I don't have the luxury of visiting with family and friends since I have to always be on the move to find something for the family.

Some respondents also explained that because of economic hardships, families' relations had become strained to an extent that people had problems in their marriages. Some men could not dispense their responsibilities to their families in terms of school fees, family provision and other needs of the family. The women moved around a lot looking for money to support the family, denying the husbands and children of their obligations.

The next reason given as the social effect of the mining on the women was that people had left the communities to look for economic opportunities elsewhere. This had led to strains in family relations as well.

The migration of people into the area was seen by a minority of respondents both as a negative and a positive social effect. The negative perspective was that this in migration was accompanied by the influx of alien cultures. This had led to indecent dressing of females especially and the increase in prostitution. The positive perspective was that the influx had brought about modernisation to the local culture.

Economic effects

Majority of the women (90%) noted that the local economy had been affected by the onset of the mining activity in the district. They said that the local economy had become very expensive. Several reasons were given to explain this. The first of two major explanations was that the reallocation of farmlands as mining the concession had led to decreased production of food crops. There is therefore less food for the relatively large population. This contributed to a local level inflation in the price of food. One woman from Kenyase Number I explained this way:

Since most farmers have been rendered jobless, the demand for the farm produce from the remaining few farmers is high, leading to an increase in prices of food produced.

To make up for the food deficit, food had to be transported from outside the district to be sold in the district. The cost of transportation had to be added to the final price, still keeping the prices high. However, a respondent from Tutuka noted a confounding reason to the scarcity of food products in the district. She stated that:

Most farmers have been rendered landless, the few who are into farming are also concentrating on the cultivation of cash crops.

Interactions with key informants in the Department of Agriculture in the district indicated that the areas in the concession area where a moratorium had not been declared, farmers planted cash crops like teak especially because of speculation. It was established that the compensation for teak for instance was way higher than that of most food crops. In addition, after a couple of years the maintenance effort was minimal. They planted these cash crops in the hope that when those areas were declared a mine take area, they would earn higher compensation amounts.

The second explanation was the artificial inflation accompanying mining areas. The women explained that people assumed that because there was mining in the district, people were rich and could afford to pay higher prices for goods. A quotation from a woman from Tutuka captures these views:

Due to the perception that there is a lot of money in places where gold mining activities are ongoing, people inflate the prices of goods and services.

Only a few people who lived in the district were employed by the mining company or allied service companies, therefore the price hikes created a lot of financial difficulties for most of the women in the district.

Employment opportunities

One of the major justifications for licensing mining companies is that they have the potential of creating jobs. Eftimie et al, (2009) however notes that this is often at the expense of traditional jobs because the people who originally worked on the land do not possess the skills to work in the mines. Even the employment created goes primarily to men because they are either labour intensive or technologically based. In addition, with the generally lower levels of education of women compared to men in most African countries including Ghana, the white collar jobs mostly also go to men. Women get jobs in spin-off industries like trading.

The employment that were created either for or that benefitted women in the district was discussed with the respondents. Ninety five percent (95%) of the responses to the question asking about whether there was creation of employment for them in the mine or allied services said they were not employed by the mine or any mining related service.

Several reasons were given for the non employment of the women or their relations in the companies. The most prevalent response was that women applied, but they were not employed by the companies. Other respondents went further to explain that there was a social agreement between the mining company and the traditional councils in the concession where indigenes of the area were supposed to be employed through a validation by the chiefs. A respondent from Ntotroso explained:

In the beginning application forms were circulated and when we went there to be employed, we were told to bring our chief which we did at the due date, but they did not employ us. As we speak now somebody is working over there using my name.

Another respondent in Kenyasi Number II stated:

We applied and were not taken. The chief and assemblyman will validate but they will give the job to another person, even though my name and face will be there.

The two narratives establish this system of validation of applications by the respondents.

The perception that there was corruption in the recruitment process could also be seen in the narratives. The perception that people could be employed with different people's documents and even pictures was also rife. Beyond the perception, many of the respondents or their relations had applied through the validation process but were not successful. This then led to the speculations of what had really happened. It must be noted however that large scale mining is a

technology intensive enterprise, therefore it requires a defined set of skills and if applicants do not possess those skills then employability is minimum. A few respondents gave responses that they were not employed because the companies said they did not have the skills needed to be employed in those companies. One woman from Kenyase Number II submitted that:

We have not been employed because they say we don't have the needed qualifications.

This submission is an acknowledgement of the importance of requisite skills and education to make one employable. A different rationalisation of the limited employment of women of the district or their relatives in the mining and allied services was that there was an agenda to recruit non indigenes. Some of the respondents felt that most of the employees of the companies were from outside of the district. A respondent from Kenyase Number 2 noted that:

They only employed non indigenes from other towns.

Another respondent from the same town also said that:

Most of the employed are from Tarkwa and Obuasi.

The first statement alludes to the situation of non indigenes being employed more by the companies. The second statement however goes to support the issue about the skills set needed to be employed by the mine or allied services. Obuasi and Tarkwa have had a long history of mining, therefore the people who were employed from these areas are people who have worked in mines before. Workers from Obuasi and Tarkwa possess the required skills to be employed and not simply because they come from outside of Asutifi North District.

Of the respondent who had either been employed or had their relations employed in the mining or allied services, i.e. the five percent (5%) there were two groups of responses. The first set of responses was of those who were still employed by the company. The second set of responses was from those who had ever been employed in the companies but were out of job. A minority of this category of respondent were actually still employed. Most of them or their relations had been employed at the early stage of mining development when more labour was needed for mostly construction work. When that stage was completed, most lost their jobs. The second factor accounting for the loss of employment was that the mining company usually implements redundancy programmes depending on the situation of the gold mining industry.

Respondents were also asked if the mining operations had resulted in them or a close relation creating employment in the district. Eighty five percent (85%) said no. The reason for which respondents who said it had generated some employment was that it had given opportunities

for trade, thereby creating jobs. There has been however changing fortunes of the trading as a reflection of happenings in the mining industry. These include expanded employment of manual labour, redundancies among others. The trading issue has been discussed elsewhere in this report, comparing the percentage of women or their close relations who were employed by the mine or allied service and those that had created jobs because of the mine, indicates that ten percent (10%) more people created a job than being employed by the companies. It must be noted also that the company does not have the ability to employ all the over nine thousand displaced people even if they had the skills and the company was asked to employ only indigenes. Hence there was a net deficit of employment creation from the mining operations.

Discussions with the key informant from NGGL revealed that the NADeF had undertaken a business start up capital project for some of the community people. This project was to help people set up on their own, creating jobs for themselves and others. Table 8 illustrates a distribution of the beneficiaries of this project.

Table 8: Distribution on business start up capital project

Town	Student total		Profession	Total amount (Ghana Cedis)
	Female	Male		
Gyedu	2	0	Bakery and dressmaking	6,963.70
Kenyasi 2	1	3	Auto mechanic, soap making, mushroom farming and hairdressing	20,000.00
Ntotroso	4	1	Hairdressing, bakery, barbering and decoration	24,653.80
Total	7	4		51,617.50

Source: NADeF, 2016

From Table 8, 11 people had benefitted in the 51,617.50 Cedi project. On average, each beneficiary got 4692.5 Ghana Cedis. Even though the effort from the company is commendable, the mean amount does not appear to be such as would allow the beneficiaries to set up businesses that had the potential of creating employment for others. One beneficiary of the project was sampled. Her case is presented below.

I had been trained in making confectionaries like cake, pies, bread etc. However, I did not have any money to set up on my own. I applied to NADeF for a loan and they gave me 4900 Ghana Cedis to buy an oven, utensils and flour to set up on my own. I was supposed to pay 490 Ghana

Cedis a month for 12 months. In the beginning I was able to pay the amount monthly for a few months but the market turned bad and I could not pay. There were other people who were also supplying the same products on the market. I stopped paying for a year until they came to ask me for the rest of the money. I told them to give me some time and also that I will start paying but I would not be able to pay the 490 Ghana Cedis monthly payment. They agreed and I have started paying a little at a time. I sent 200 the last time.

NADeF gave me three apprentices to train for a year but no one from NADeF came to find out about how well or poorly they were faring, but they were able to come asking about the balance of the money I owed them. For each of the apprentices, NADeF was to pay me 1500 Ghana Cedis, but they gave me 1000 for each of the apprentices to enable me buy the needed supplies to teach the apprentices. I have finished training them but the balance that has to be given me has not been paid.

The start up capital allowed me to buy an oven and 2 heavy duty LPG cylinders. If more of the apprentices were brought in as well as sales girls who would go round selling the products, this would go a long way in ensuring the sustainability of the business.

Agricultural production in the district

Land use changes in an area due to mining has the potential of decreasing subsistence agriculture, diminishing food supply and food security, women's economic empowerment and ability to provide for families. This therefore implies that there has to be changes in the diet of these communities (Eftimie et al, 2009). The agricultural production in the district was analysed.

In the District, 66.1% of households are engaged in agriculture (Ghana Statistical Service, 2014). This therefore makes agriculture the most important economic activity for the population in the district. Asutifi Assembly (2010) asserts that the agricultural sector employs majority of the District's women population. Owing to the predominance of women in agricultural production in the district, transformations in this sector will have multiplier effects on women in the district. Agriculture in this district largely used traditional technology in which production is largely dependent on the size of land cultivated.

There are large areas of forest reserves in the district. These include the following: Biaso Shelter Belt; Bia Tam Forest Reserve and Goa Forest Reserve. These forest reserves together cover

a total of about 20% of the entire land surface area of the District (Asutifi North District Assembly, 2013).

In addition to the 20 percent of the surface area of the district held in forest reserves, 270 square kilometres of the 936 square kilometres land surface area covering the district (28.8%) is granted to NGGL as a mining concession (Newmont, 2005). This therefore impacts on the amount of land available for farming, the most significant employer of women in the district. In view of this, the agricultural sector was the first sector to be discussed.

The agricultural sector in the district generally was made up of two activities: crop production and livestock rearing. However, livestock production lags behind crops. The situation has been explained that owing to the absence of veterinary officers in the district coupled with the forest vegetation which limits commercial production of cattle, animal production is greatly limited.

The study therefore concentrated on crop production in the district. Crop farming constitutes the major source of income in the District, and accounts for about 51.1% of all incomes (Asutifi North District Assembly, 2013). The crop production in the district was generally made up of food crop and cash crop production. According to data gathered from the Asutifi North District Department of Agriculture, the major food crops planted in the district included: Cassava, Cocoyam, Maize, Plantain, Rice and Yam. Asutifi Assembly (2010) notes that farmers in the District are mainly peasant farmers whose foodstuffs produced are meant for human consumption and meagre incomes. This therefore implies that the consumption of the food crops is critical to the survival of the people in the area.

Table 9 illustrates the per capita consumption of these various food crops in the district.

Table 9: Per capita consumption of food crops produced in Asutifi North District

Crop	Mean (Mt/person/year)
Maize	43.80
Rice	24.00
Cocoyam	40.00
Cassava	152.90
Yam	125.00
Plantain	84.80

Source: ANDA, 2015

From Table 9, the three most important food crops grown in the district and consumed by the populace are Cassava (152.90), Yam (125) and Plantain (84.80). This sub section of the report will therefore discuss the findings regarding the production of these three food crops. With regards to these food crops, their production levels, areas under cultivation and their yield per hectare are discussed.

All the agricultural data captured for the area until 2013 was for the erstwhile Asutifi District. This district had a population of 105, 843 people in 2010 as against a population of 52, 259 for Asutifi North. In order to make sense of the data captured from 2004 to 2015, the data was recalculated to per capita bases to allow for trend analyses.

Issues bordering on concession grants and the loss of access to the land for agriculture would result in negative impacts on the population in general, and women in particular, since agriculture is the highest employer of people in the district and of women in particular.

The discussion of the food crops follows in the order of importance: cassava, yam and plantain.

Cassava

Cassava is the most consumed crop of the people in the district and the data on estimated area of production, gross production level and net deficit, all per capita were obtained and illustrated in Figures 2, 3 and 4 respectively.

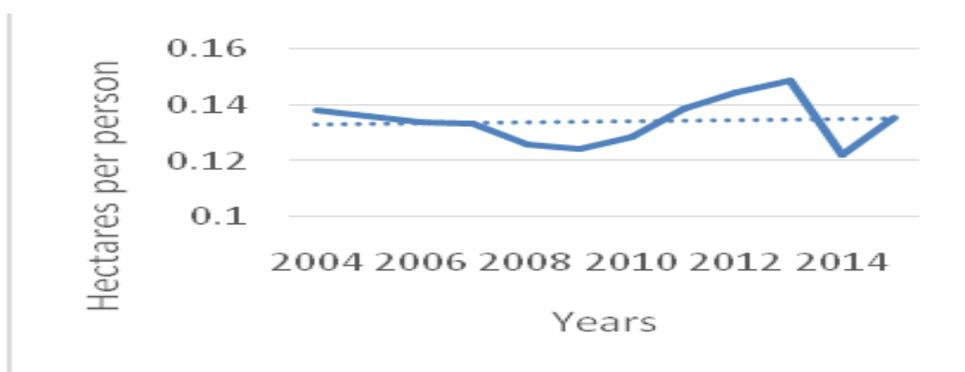


Figure 2: Estimated area of production of cassava per capita

Source: Fieldwork, 2016

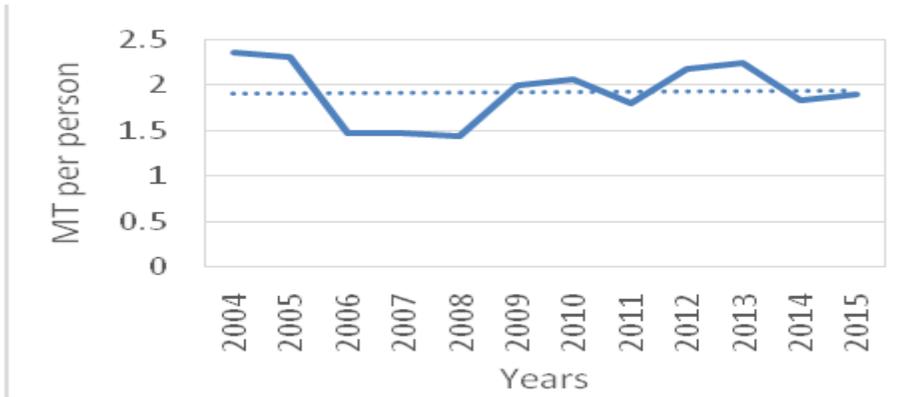


Figure 3: Gross production of cassava per person

Source: Fieldwork, 2016

From Figure 2, the per capita area under production of cassava has generally stagnated since 2004, but in different years, it has been fluctuating. The dip between 2013 and 2014 actually illustrates the period when the Asutifi North District began collecting data from its jurisdiction of 936 km². Hitherto, the data was collected for the 1500 km² jurisdiction of Asutifi District. From the dip in per capita area of production of cassava, it shows that more of the cassava growing in the erstwhile Asutifi District happened in the areas covered by Asutifi South District. From Figure 3, the per capita production of cassava for the same area follows a similar trend like that in Figure 2. The per capita production of cassava shows a general stagnation in the district even though there appears a slight improvement between the years 2013 and 2014. This however does not present enough data of an increase in per capita production.

In the final analyses, from Asutifi Assembly (2010) alluding to the fact that in the district most food crop production is for consumption, the net deficit per capita of the cassava was also discussed. The Department of Agriculture in the district has records on food deficits beginning from 2010. Figure 4 shows the distribution of net deficit of cassava in the district against time.

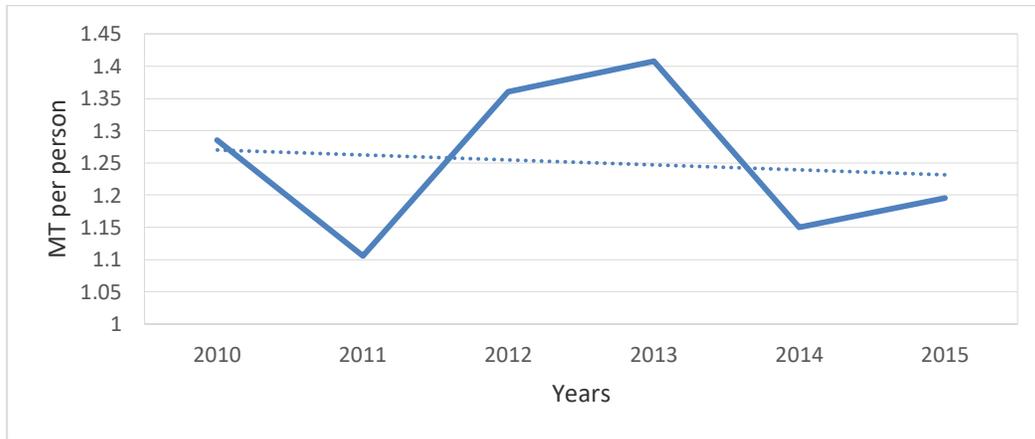


Figure 4: Net deficit of cassava per person

Source: Fieldwork, 2016

Figure 4 shows that there were more pronounced fluctuations in per capita deficit of cassava in the district between 2010 and 2015. There appears a slight improvement in food surplus in the district between 2013 and 2014, implying there is a general decreasing deficit of cassava supply in the district.

Yams

The next ranked important crop consumed in the district was yam. Figures 5 and 6 show the trends in per capita area under cultivation and production respectively. With regards to all these variables, there were slight variations in values across the years and in both cases, the general trend is shows a positive change. That is both area under cultivation and production per capita are improving along the years. Paying attention to the periods around 2005, 2006 and 2007 when the surface mining activities gathered the most momentum, the estimated area under cultivation per capita increased but gross production per capita of the crop decreased.

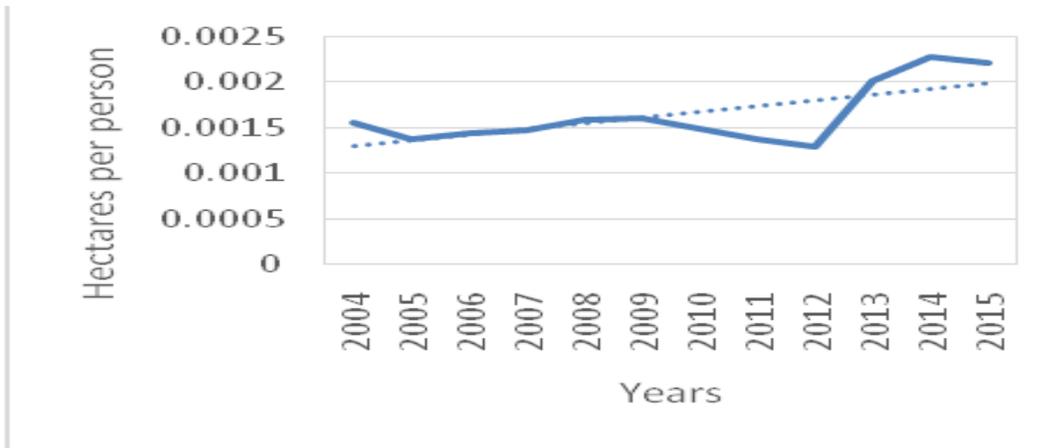


Figure 5: Estimated area of production of yam per person

Source: Fieldwork, 2016

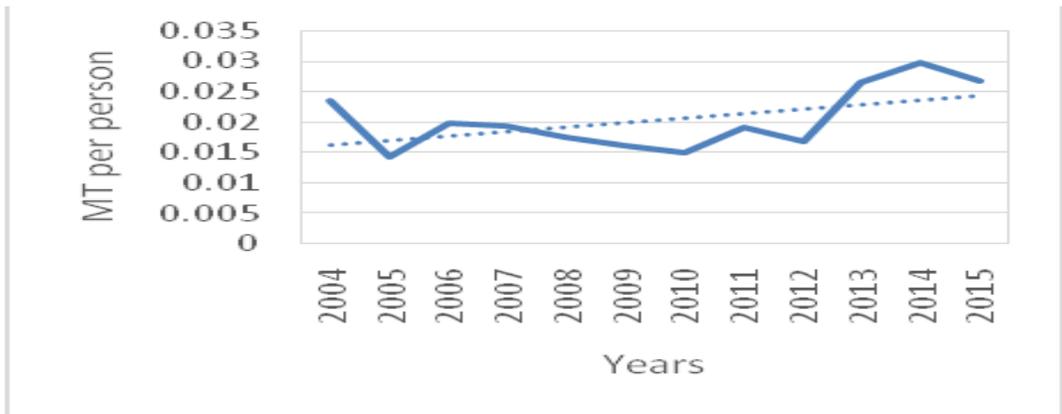


Figure 6: Gross production of yam per person

Source: Fieldwork, 2016.

This means that the productivity decreased, therefore, generally one of three things might have happened. The first option is that a less efficient technology was adopted by farmers in the district which led to this reduction in per capita production. The second option is that weather conditions like rainfall volume, rainfall distribution etc varied to the disadvantage of yam production. The third option is that the farmers had to shift their cultivation from land conducive to yam production to marginal lands which resulted in decreasing productivity.

The net deficit of yams per capita in the district between 2010 and 2015 is shown in Figure 7.

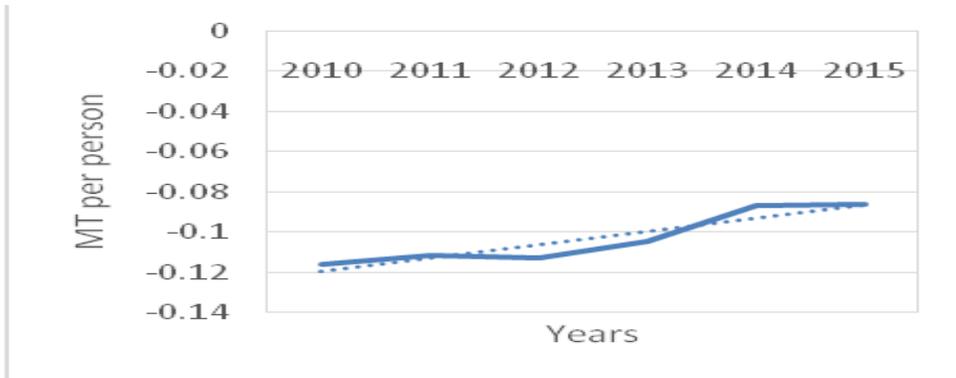


Figure 7: Net deficit of yam per person

Source: Fieldwork, 2016

This shows a net positive trend in the district. However, there is still a net deficit per capita of yam and the graph shows that at this rate, this situation is not ending any time in the short term. If this trend continues at the same rate, it will take eighteen (18) years more for surplus per capita of yam to be achieved in the district.

Plantain

Plantain was the third most important food crop cultivated mostly for consumption in the district. Figures 8 and 9 illustrate the estimated area of production per capita and the gross production of plantain per capita over the years, respectively.

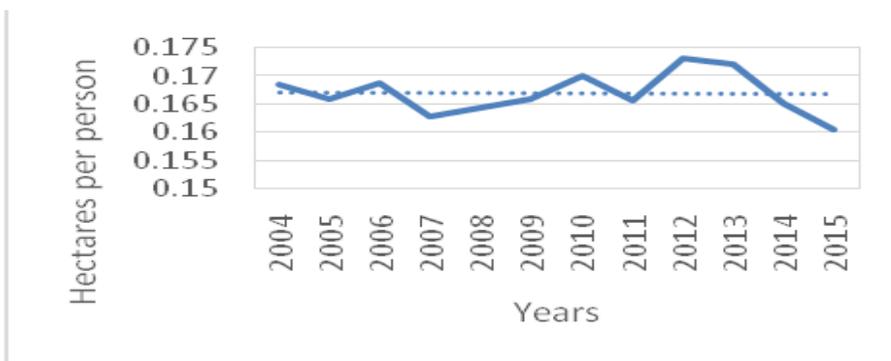


Figure 8: Estimated area of production of plantain per person

Source: Fieldwork, 2016

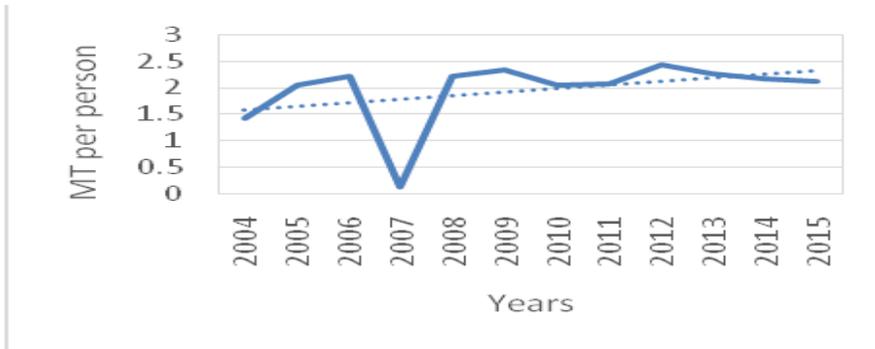


Figure 9: Gross production of plantain per person

Source: Fieldwork, 2016

From Figure 8, there is a general stagnation in the area under cultivation per capita of plantain. However, there has been a general reduction starting from 2012 to 2015. Regarding gross production per capita, though there is a general improvement across the years considered, there was a pronounced drop in 2007 and also, from 2012, as with the area under cultivation per capita, there has been consistent drop in the production levels per capita.

With regard to the consumption of plantain in the district per capita across the years 2010 to 2015, Figure 10 shows the distribution.

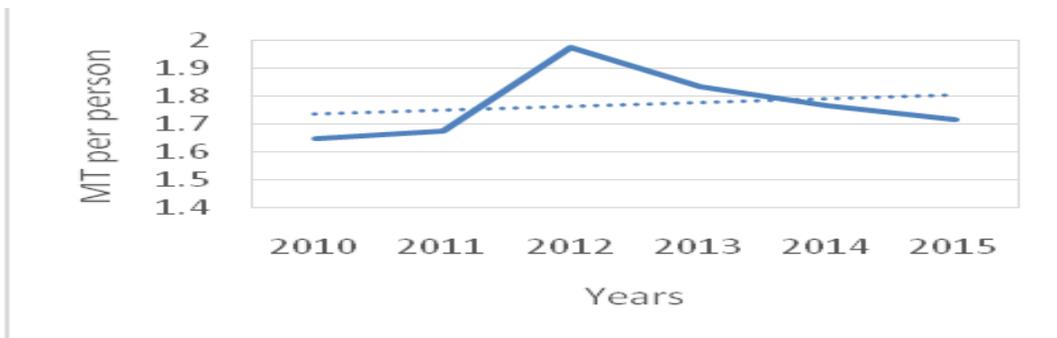


Figure 10: Net deficit of plantain per person

Source: Fieldwork, 2016

From Figure 10, there is a general improvement in surplus of plantain in the district, however in tandem with the estimated area of production and gross production of plantain per capita, since 2012 there has been a reduction in the net surplus of plantain in the district.

The state of health in the district

Mining presents activities that potentially cause adverse health effects as a result of environmental exposures to air, water, soil, and noise pollution (Stephens & Ahern, 2001). These

environmental exposures then usually lead to diseases and illnesses. It is in view of these impacts of mining on human health that one of the five values of the International Council on Mining and Metals (ICMM) is to ensure that the safety, health and well-being of host communities, among others, are upheld at all times.

Even though both sexes are affected by the adverse effects of mining on host communities, Bellamy (2004) states that women are more vulnerable to diseases, especially the poor ones. This is because economic and cultural factors often act as limitations on their access to clinics and health workers. When these women are indisposed, it often reduces their productivity in agricultural, economic or social pursuits. In many cases, these women are also the caregivers of sick family members which means they have less time to engage in economic or other social activities. They are also wearied by this labour.

This section of the study discusses the trends in the top ten diseases in the district that are related to mining. It is assumed that if there are worsening situations for the district, then the women are disproportionately bearing the brunt.

Of the top ten diseases in the district, four are adjudged to be related to mining. These are: Malaria, Upper Respiratory Tract Infection (URTI), Gastroenteritis (Typhoid) and Diarrhoea. Figure 11 illustrates the trends in per capita cases of these diseases in the district.

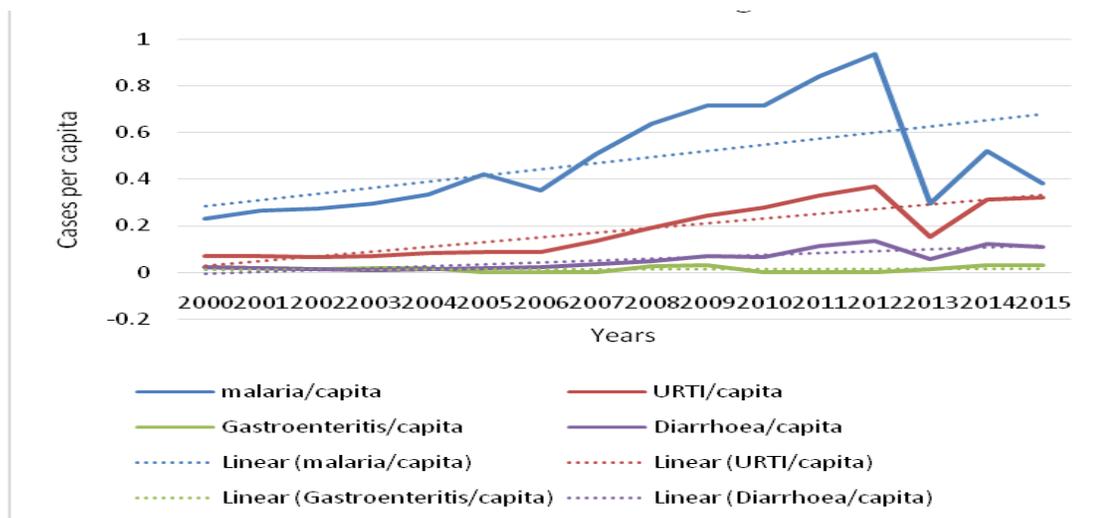


Figure 11: Trends in 4 top ten diseases in Asutifi North District related to mining

Source: Fieldwork, 2016

From Figure 11, malaria has been the mining related disease with the highest prevalence per capita in the district. Its prevalence has been increasing steadily since 2000, it took a slight dip in 2006 and rose sharply thereafter to a maximum of almost one episode of malaria per person per year in 2012, it then dipped sharply in 2013 and fluctuated between 2014 and 2015. The high incidence of malaria in areas where open pit mines operated is largely due to the opening up of several smaller pits that collect stagnant water and the construction of roads and culverts that lead to large areas being water logged. These then promote the breeding of mosquitoes, leading to more malaria infections. It is for this reason that AngloGold Ashanti implemented a malaria control project in Obuasi in 2005.

The next significant mining related disease in the district is Upper Respiratory Tract Infection (URTI). This disease is usually as a result of infection of the upper respiratory tract due to inhalation of dust or fumes. The movement of traffic on dusty roads, the evacuation of large areas of land, smoke from heavy duty diesel engines and smog and dust from blasts, all contribute to URTI infection rates. From Figure 10, the trend in URTI infection is similar to that of malaria, however, the rates of URTI are lower than that of the malaria. Diarrhoea, which is mostly as a result of drinking poor quality water, also showed similar trends like malaria and URTI, but its prevalence was lower than that of the URTI. Gastroenteritis showed very minimal prevalence rates in the district.

In general, for all the diseases, there were significant drops between 2012 and 2013. This also happens to be the period when the Asutifi District was re-demarcated into Asutifi North and South districts and when demographic data was split between the two districts. The reduction in per capita disease prevalence in the Asutifi North District can be explained that the high prevalence before 2013 was due to the areas that were re-demarcated into the Asutifi South District.

Education

Access to education of people in any community is an important development resource which has the tendency of securing the survival of both the educated and their communities. Studies conducted have identified cause-effect relations between maternal education and child health, health seeking behaviour, fertility, and other outcomes within households (Grepin & Bharadwai, 2015). Cleland and van Ginneken (1988) established that improvement in mothers' education by one year averagely corresponded with a 7-9% decline in under-5 children's mortality.

In Grepin and Bharadwai (2015), a one (1) year improvement in maternal secondary education was associated with 21 percent decline in child mortality.

Apart from improvement in the health situation of the family, maternal education resulted in economic outcome improvements such as improvement in income, water and latrine facilities and housing quality (Cleland & Van Ginneken, 1988). The trend in educational status of females in the district was therefore investigated. Information obtained from the education department of the Asutifi North District Assembly and the United Nations Statistics Division are used to show the trends in Gender Parity Index (GPI) in the district. The GPI is defined as the ratio of the net enrolment of females to that of the net enrolment of males in the same age bracket. A value above 1 shows that more of the females of that age bracket that have the capacity to go to school are enrolled than their male counterparts. A value below 1 illustrates the reverse. In the Asutifi North District, the ratio of the population of females to males in 2000 and 2010 are 0.96 and 0.95 respectively. Therefore, if the GPI stays between these two bounds, then there is a crudely fair enrolment in the district. Anything outside these bounds mean there is a disproportionate enrolment of one sex.

Figure 12 illustrates the GPI in KG, Primary, Junior High and Senior High schools in the district.

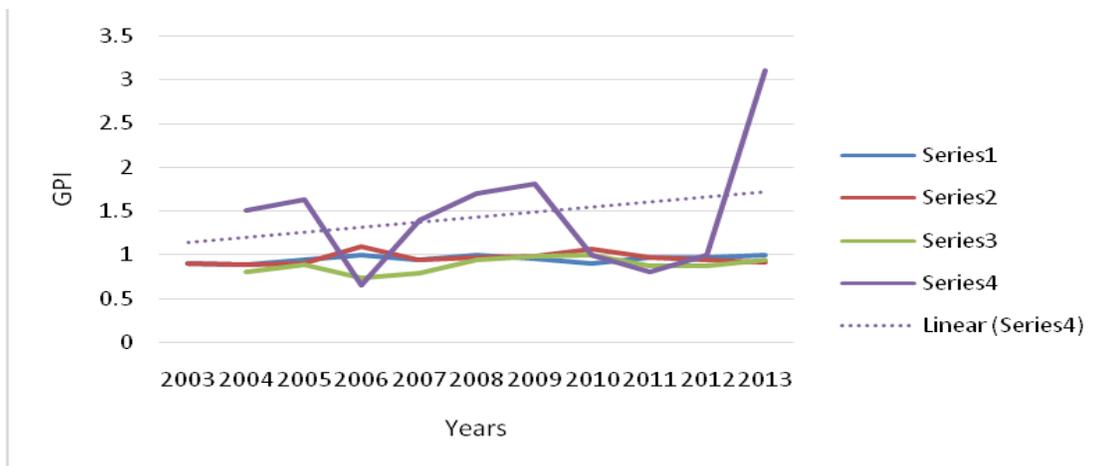


Figure 12: Gender parity indices for KG, primary, JHS and SHS in Asutifi North

Source: Fieldwork, 2016

Key:

Series 1-KG

Series 2- Primary

Series 3- JHS

Series 4- SHS

From Figure 12, the GPIs in all the levels of education with the exception of the SHS level revolve between 0.74 and 1.1. The GPI in the SHS generally shows high values and variations in

comparison with the other levels because at that level, students are placed there from other districts and regions in Ghana. The GPI at that level then cannot reflect trends in local conditions. The sharp increment in the GPI between 2012 and 2013 is explained by the fact that the Asutifi District had four SHSs, but Asutifi North has two SHS in the district now, OLA Girls and Gyamfi Kumanini. Because OLA Girls is a highly reputable SHS, females from all over the country enrol there and that is what has made the GPI in the district, especially since its creation in 2013 rise that sharply.

Owing to this anomaly, the GPI in the SHS level was not further discussed. The GPI of the other levels of education are hence discussed. Figures 13 and 14 show distributions of the GPI in KG in the district and in Ghana, respectively.

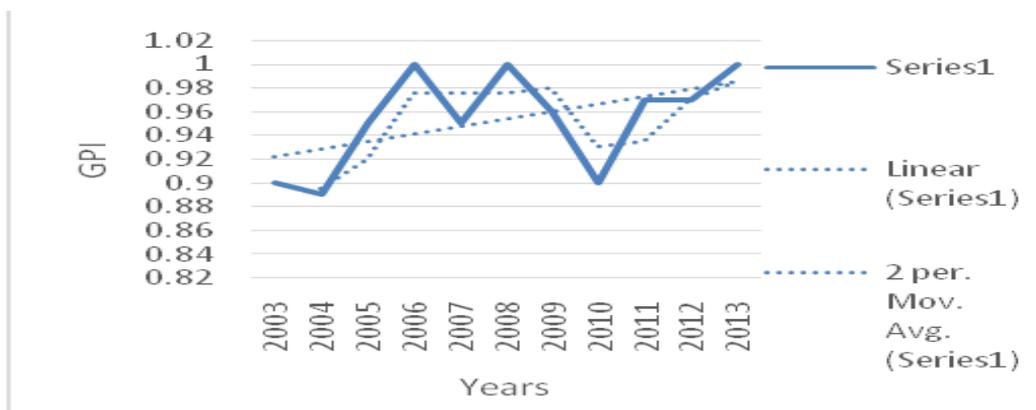


Figure 13: GPI in KG in Asutifi North

Source: Fieldwork, 2016

From Figure 13, the GPI in Asutifi North has a minimum value of 0.89 and a maximum of 1.0. In addition, a look at the trend line shows that the average GPI in the district has improved from 0.92 in 2003 to 0.98 in 2013. A look at the two point moving average trend line on Figure 13 shows that the GPI increased from 0.89 in 2003 to 0.98 in 2006, stagnated there till 2009 when it dropped to 0.93. It then increased to 0.99 in 2013.

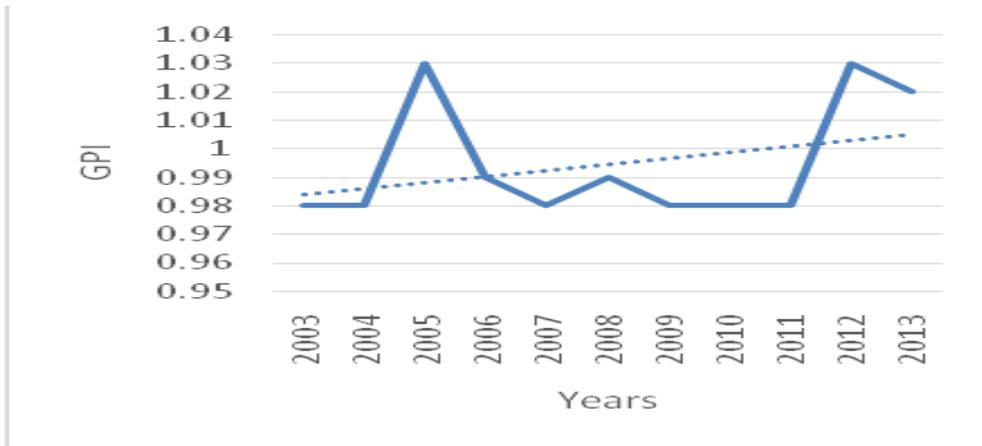


Figure 14: GPI in KG in Ghana

Source: MoE, 2013

However, comparison of the linear trend line in Asutifi with the GPI in KG in Ghana, Figure 14 shows that the minimum for the period 2003 to 2013 was 0.98 and maximum 1.03. Also, the trend line shows a minimum average GPI in Ghana to be 0.985 in 2003 to 1.005 in 2013. This implies that trends in GPI in Asutifi North lag behind that of Ghana and if the trend continues, GPI in Asutifi North will always lag behind that of Ghana if things stay the same.

The GPI in primary schools in Asutifi North District and in Ghana are shown in Figures 15 and 16 respectively. Figure 14 shows that the linear trend line for GPI in primary schools in Asutifi North increased from 0.95 in 2003 to 0.98 in 2013, a change of about 0.03 in 10 years. However, the two point moving average curve shows that GPI in primary schools in Asutifi North increased from 0.88 in 2003 to 1.02 in 2007, dropped to 0.96 in 2008. The value then increased to 1.03 in 2010 but has since dropped to 0.93 as at 2013 and is dropping. In real terms, the GPI in the district has had greater variations as the years went by.

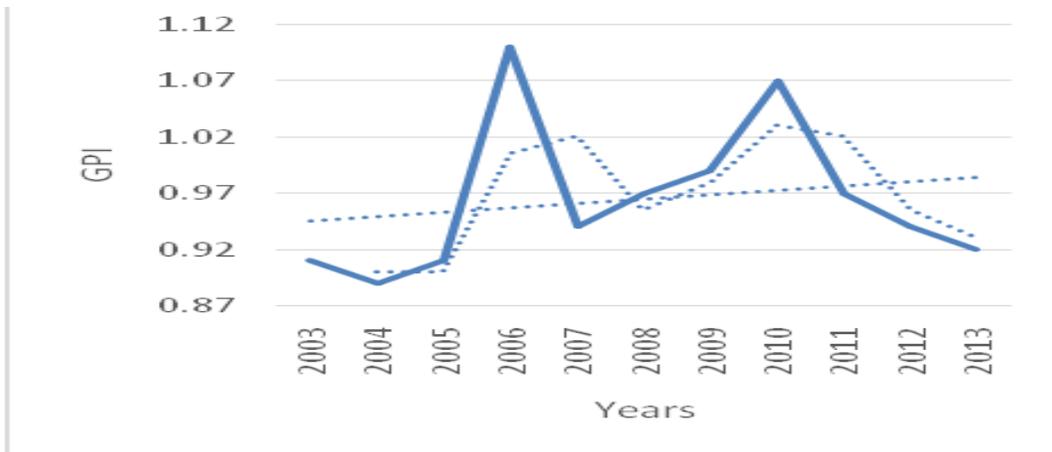


Figure 15: GPI in primary schools in Asutifi North

Source: Fieldwork, 2016

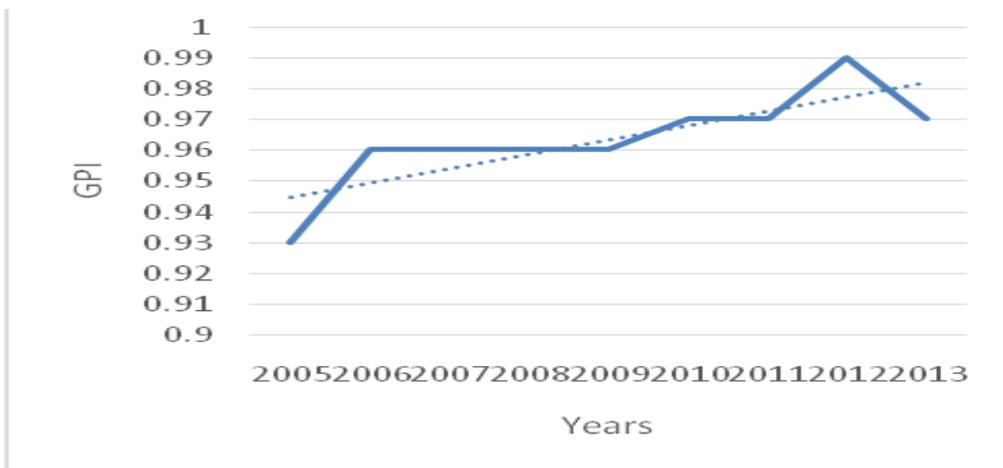


Figure 16: GPI in primary schools in Ghana

Source: MoE, 2013

In comparing the linear trend line with that of Ghana, Figure 16 shows the average GPI increased from 0.945 in 2005 to 0.98 in 2013. This implies a change of 0.035 in eight years. This therefore implies that the average GPI in Asutifi North is lower than that of Ghana and that the rate of change in the district is also lower than that of Ghana, therefore if things stay the same then the district cannot achieve the national GPI.

With regards to the GPI at the JHS level, Figures 17 and 18 show the distribution in the Asutifi North and Ghanaian situations.

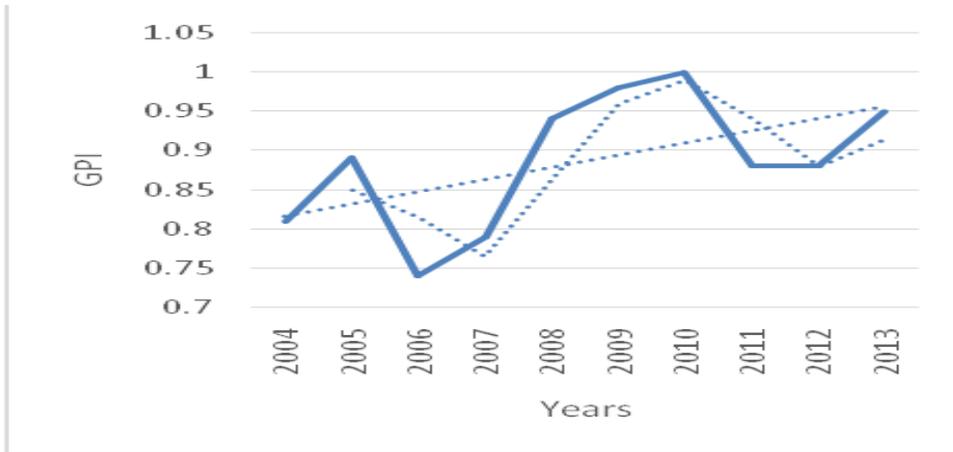


Figure 17: GPI in JHS in Asutifi North District

Source: Fieldwork, 2016

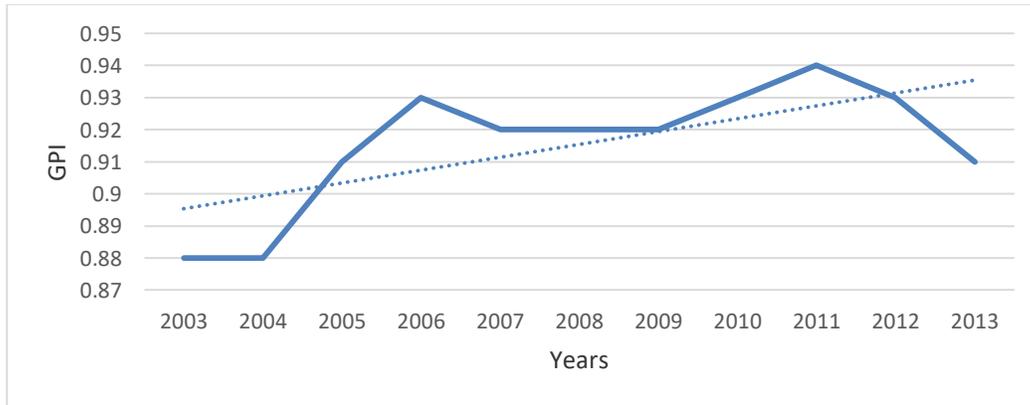


Figure 18: GPI in JHS in Ghana

Source: MoE, 2013

From Figure 17, the trend in GPI in the district even though started at 0.80 in 2004, it increased to 0.9 in 2005 and dropped to its minimum value of 0.75 in 2005 from where it increased to 1 in 2010 and declined again. Even though there are these fluctuations in the GPI, the linear trend shows a positive trend which is not too different from the situation in Ghana (Figure 18).

Coping mechanisms to the mining effects

Livelihood diversification is an important strategy adopted by people to respond to stresses on current livelihoods (Hussein & Nelson, 1998). From the field work, two main diversification strategies were adopted by either the women themselves or the household as a unit. These were trading and migration. The following sections discuss trading and migration as it related to women

in the district.

Trade

Gender is an important aspect of rural livelihoods because men and women own different assets, access to resources, and opportunities (Ellis, 1999). Women are found to have a narrower range of labour diversification options than men. However, Brenton and Gamberoni (2013) found that women made major contributions in trade in most African countries. African governments were admonished to recognise the role that women play in trade as can be used as a driver of growth, employment, and poverty reduction. Participation of women in trade as a diversification option in the Asutifi District was discussed.

Forty percent of the respondents were engaged in some form of trading. Of these traders, 38 percent of them began trading after the mining started in the district. The current state of trade in the area was adjudged by the trading respondents to be in a bad shape. Several reasons were given for the situation. The major reason for which trading in the district had become a not so worthwhile activity was the relocation of workers of the mining and allied services companies to Sunyani. This had taken a huge chunk of lucrative consumers away from the local traders. A respondent in Kenyasi number II said:

When the mining activities started and the companies' workers lived in Kenyasi trading was very good. Trading has however gone down due to the relocation of the workers outside Kenyasi

Further investigation showed that apart from the current workers of the companies who had relocated to Sunyani, other reasons accounted for the situation. The first was that in the initial phase of the mining project, a lot of labour was recruited for construction and when the actual mining began, excess staff were let to go. The second issue was that sometimes; the company engaged in redundancy of staff to respond to the price of gold on the world market. Another respondent from Kenyasi number II captured her assessment for the slowing of trading as:

Before the redundancy of most of the workers in Newmont, business was vibrant however after the laying off, business has slowed down.

The third reason adduced for the situation was that even when local people were employed in any of the companies, they relocated to Sunyani which was a more urbanised city than any of the towns in the district.

There was a slightly different view of the reasons accounting for the decline in trade in the district was that because the illegal mining of gold in the district had been banned, most of the youth who were involved in it had moved away from the area with their money, which was a good and reliable source of income for the traders. A respondent from Kenyasi Number I explained by this narrative:

This is because, before the banishment of ‘galamsey’ by the company and the local authorities, the youth were having money to spend making the business booming, however same cannot be said of now.

From the quotation, the activities of the mining company in combination with local authorities are clear. In actual fact, most of the illegal mining activities occurred around Kenyase and Ntotroso, which were all within the concession of the company.

The final reason given for the decline in trading was that due to the economic impact of the relocation of lands to the mine on most people who were farming before the mines, people did not have money to buy things. There was not money circulating in the local economy to boost trade. Three quotes from some respondents in Kenyase Number I, Kwusu and Ntotroso explain:

Kenyase Number I: Many people do not have money to buy

Kwusu: It’s difficult now because people are not buying

Ntotroso: It is not moving well because people don’t have money to buy them

Ntotroso: Initially trading was going on smoothly but currently it’s not really good

Interestingly, the general slowdown of the economy in the district due to the loss of access to land for farming in the district shows a wider dispersion across the district than those due to the absence of both legal and illegal mining workers. This is because most of these workers used to stay in the urban towns of the district, therefore their absence was felt there more.

Access to micro credit facilities usually boosts trading, and NADeF gave micro credit support to 801 people in the district. In Table 10, the distribution of the communities, the number of people and amount of money distributed are displayed.

Table 10: Distribution of beneficiaries for NADeF micro credit scheme -up to 2015

Communities	Total no. of actual beneficiaries	Total Funds Disbursed GH¢
Gyedu	158	60,000
Wamahinso	109	30,000

Ntotroso	223	57,500
Kenyase 1	173	100,000
Kenyase 2	138	60,000
Total	801	307,500

Source: NADeF, 2016

Under this scheme, about 95% of the beneficiaries are females and the individual loans ranged between GHc 200 – GHc 2,000. This project was administered in five phases. None of the respondents of this study had benefited from this micro credit scheme.

Migration

Migration is an important livelihood diversification and has been linked with income generation. Remittances from family who migrated to work elsewhere do relieve rural credit constraints (Karim and Nelson, 1998). Forty five percent (45%) of the respondents had a close family relation that had migrated from the district in the past 10 years. These relations included husbands, sons, brothers, sisters etc. The reason for the migration was predominantly to look for jobs. This was because they were either jobless or were underemployed in the district. The reason for this state is the loss of access to land.

The use of migration as a livelihood strategy is expected to contribute positively to the well being of the household. On the contrary, it was only 12.5 percent of the respondents whose close family members had migrated said the migration has contributed positively to the household. The positive responses were made up mostly of remittances that were sent back home by the migrated family. The other was that they have been able to build back home.

The most predominant effect of the migration on the household was negative. Most of the respondents with migrant family members said that the migration of their family members has a negative effect on their households. The first negative effect of the migration on the root households is that the migrated families were not remitting the households. The main reason why these family members migrated in the first place was to look for other sources of income to support the stressed household. Therefore, when remittances did not come, the livelihoods of these households were precarious. A respondent each from Ntotroso and Manushed narrated their frustration:

Ntotroso; My son would have been taking care of us if he was around

Manushed; Life has been miserable for me since all my children left and no one to talk to or share ideas with. They have lost their livelihood and did not have any job in the community If they were around they would have been supporting me.

The paucity of remittances sent home by migrated relatives can partly be explained when one considers the education and occupation levels in the district. Most of the people have low levels of education and work mostly as farmers. This therefore means that when they lost access to the lands and migrated, the jobs they could mostly find elsewhere was in farming or menial jobs which really do not pay much. In this case too, they had to maintain two households: themselves in their new place and the one back home. For the skills that these migrants possessed, they could not have been maintaining these two households.

The second negative effect of the migration on the home household was that with the absence of these members from their households, physically taking care of the needs of their households was not possible. One woman capturing the situation where her husband had travelled noted that:

If he was around, he will help take care of the kids: when you have no money then at least you can be with the kids.

A subsidiary effect deriving from the absence of these migrated family was that some of the women said that the absence of these relations was leading to the disintegration of the family units. Some narratives from some of the women in some of the towns now follow to illustrate:

Kenyasi Number 1: It has affected us emotionally because we wish we were living here with him

Ntotroso: It has destroyed the very fabric of the family

These households had a double agony: not much remittance from their migrated family neither their presence. Liao, Barrett and Kassam (2015) notes that a number of studies suggest that in some contexts, livelihood diversification (in this case migration) is not always the most effective strategy for the rural poor. The case of the Asutifi North District is consistent with these findings.

Summary of coping strategies

Ellis and Freeman (2004) stated that rich households were more likely to diversify into non-farm based activities, while vulnerable households were more likely to engage in casual on-farm wage labour. in the Asutifi North district however, due to the peculiar circumstance of land

access worsening, poor households could not engage in on-farm wage labour. This therefore pushed the males mostly either into illegal mining activities or to migrate elsewhere.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction

The study was undertaken to assess the social and economic effects of the operations of the NGGL mining project on women in the Asutifi North District.

Combination of purposive and convenience sampling methods were used to sample key informants, adult women interviewees and FGDs. Ninety four interviews, two FGDs and seven key informant interviews were conducted in the district. The household respondents were women who were at least 25 years old and had lived in their community for more than 10 years.

Summary

- 1) Sixty eight per cent (67.8%) of the respondents have lost access to land because of the granting of the concession to the company and 47.7 percent of them said they have lost all the land they used to farm on. Of the rest who had lost some land, what was left was largely small and inadequate to secure their livelihood. The extent of loss of land was directly related to the distance of the particular community from the actual mining activities.
- 2) Ninety five (95) percent of the respondents said they were barred from going into the forests they used to gather non timber products after the granting of the concession. The company has blocked all access routes to the forest or that the forest area had been mined. The women now buy forest products they use to get freely from the forest on the market at a time that their income sources have dwindled. In addition, it has denied them of a source of cheap nutritional products, especially protein based, and of their livelihoods.
- 3) There is reduction in the production of the three (3) most important food crops in the district. These are cassava, yam and plantain. This has pushed the demand for food in the district up, leading to an increase in food prices.
- 4) Urban communities appeared to have had pipe borne water supplied to them improving their access to potable water, in certain circumstances. This notwithstanding, there are mixed effects of the 'improved' supply of water in the urban areas. Rural communities' water supply situation has rather worsened. They initially depended on rivers, streams and rainwater. Most of these streams are either polluted or dammed, therefore they are not accessible to communities.
- 5) Roads in rural areas have generally improved in terms of their access to and quality. These roads are however not tarred and in the dry periods, a lot of dust is generated when vehicles pass. There are also, road diversions which increase the distance from some towns to

others. In the urban areas, the road infrastructure has worsened. These roads used to be tarred but due to the influx of heavier equipment and increasing frequency of vehicular traffic, these roads have deteriorated into either pot holed or dusty surfaces.

- 6) Mining has not contributed appreciably to improvement in access to health facilities in the district. Apart from a community health nurses training school put up by the chief of Ntotroso with royalties, not much is found. Of the top ten diseases in the district, four are related to mining. These are: Malaria, Upper Respiratory Tract Infection (URTI), Gastroenteritis (Typhoid) and Diarrhoea. Apart from gastroenteritis, the incidences of all the others diseases are generally increasing.
- 7) The company, through NADeF has undertaken micro credit schemes, business start up projects and scholarship schemes to ameliorate the plight of the local people. It was however not possible in this study to establish their effects since none of the respondents or their relatives benefited from the scholarship scheme.
- 8) The poor state of access to infrastructure in the district has a deleterious association with livelihoods of the women. Living has become more expensive as the women have to buy most of the things they survive on when before the mining, most of these provisions were obtained freely from nature. People currently have to pay for water to use as they either have no access to streams again or that the streams are polluted and are therefore not wholesome for consumption.
- 9) The local economy has become very expensive. The first of two major explanations is that the reallocation of farmlands as the mining concession has led to decrease production of food crops. This contributed to a local level inflation in the price of food.
- 10) There was minimal creation of employment in the mines or allied services for the women or their close relations (5% of respondents). Of these respondents, only a minority are still employed.
- 11) The GPI in KG and primary school in the district lagged behind that of Ghana and the trend shows that these will lag behind that of Ghana if things stayed the same. However, at the JHS level, the situation was no different from that of Ghana in general.
- 12) In order for the women to cope with the changes in the district, 38 percent of the women had turned to trading.
- 13) Another form of coping strategy is migration. Forty five percent (45%) of the respondents

had a close family relation migrating from the district in the past 10 years predominantly to look for jobs. This was because they were either jobless or were underemployed in the district.

Conclusion

The NGGL mine in Asutifi North District had required that a large area of land, about 25 percent of the total land area, was given as concession. Even though there had been various activities to lessen the negative impact of this mine on the women in the district, including compensations, relocations, training programmes, infrastructure and scholarships, these have not sufficed to ameliorate the plight of the women. Even though the study did not establish the extent of livelihood loss of the women in monetary terms, the discussions show that this amount is way higher than the total amount spend by the company on scholarships, micro credits and business start ups.

The study concludes that the social and economic effects of the NGGL mine in Asutifi North District on women has been largely negative and it has put the very survival of households in jeopardy.

Recommendations

The study recommends that because women's needs are different from men, the mining company should re-define their community projects to target specific gender needs. Women generally expressed needs that directly ensured the survival and development of the household unit. More secured and regular sources of income are preferred to one-off cash compensation. Programmes on health improvement, access to lands for farming, scholarships for wards and support to trade are a few of the projects that directly benefit women.

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