

CHANGING LIVELIHOODS IN RESPONSE TO MINING: EVIDENCE FROM THE ASUTIFI DISTRICT OF GHANA

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Abstract

Radical reforms and liberalisation in Ghana's mining sector have stimulated increased investment with new multi-national mining companies coming on board as well as the rehabilitation of old mines. The cumulative effects are the intensification of mining activities and the expansion in operations across the mining zones in the country. With most rural livelihoods being heavily dependent on natural capital, expansions in mining operations means rural livelihoods would be substantially challenged. This study assesses peoples' response to the changes in their major livelihoods as a result of loss of land to mining in the Asutifi District, and the role of stakeholders in ensuring livelihood security for the people. Using interview schedules, in-depth interview guides and observation, data for the study were gathered from 217 randomly selected household respondents and 10 purposively selected key stakeholders drawn from five settlements that are mostly affected by mining activities in the district. The study found that there have been significant changes in the livelihoods of the people since the introduction of mining in the district. Prominent among these changes in the livelihoods is the shift from agriculture to trading due to loss of agricultural land to mining. The relevant stakeholders have not been able to collaborate effectively to ensure livelihood security. The study recommends the adoption of a comprehensive national policy that promotes the interest of residents of mining-fringe communities and a revision of the country's mineral and mining laws as a means to secure and sustain the livelihoods of residents living in mining-fringe communities.

Key words: Ghana, Surface Mining, Livelihoods, Mining-fringe Communities

Introduction

Since the 1990s, efforts have been made to gain better understanding of rural livelihoods, and to introduce rural development strategies as a way of reducing poverty (Ellis, 2000). Drawing from Chambers and Conway (1992: 23), Carney (1998: 7) has described livelihood as “comprising the capabilities, assets (including both material and social resources) and activities required for a means of living, and has said that a livelihood is sustainable when it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets, while not undermining the natural resource base”. Hence, livelihood is said to be sustainable if it responds to the social, economic and cultural needs of people.

Peoples’ ability to pursue different livelihood strategies is dependent on the material, social, tangible and intangible assets that are available to them. Three broad clusters of livelihood strategies are available to rural households in developing countries. These are agricultural intensification or extensification, livelihood diversification and migration (Carney, 1998:2). Thus, for rural people the range of options open to them is to either gain more of their livelihood from agriculture through the process of intensification, or diversify to off-farm income earning activities, or seek a livelihood elsewhere.

In developing countries, particularly in Africa, livelihood insecurity is a major concern (World Bank, 2005). These nations are confronted with poverty, famine and malnutrition. Their conditions are aggravated by indebtedness and diseases such as HIV/AIDS. For example, poverty and deprivation are more pronounced in rural areas of Ghana (Abane, 2008). Data from the Ghana Statistical Service (2008) indicate that 70 percent of the poor in Ghana live in rural areas where they have limited access to basic social services, safe water, all-year motorable roads and electricity. For these people, even acquiring a piece of land to eke out a living is a huge task (Abane, 2008).

Although there is agreement on the mineral potential of the country, there is much disagreement about the importance of the contribution of mining to Ghana’s national economic development (Akabzaa, 2009). The debate is even more intense with respect to the contribution of surface mining activities to poverty reduction efforts, particularly in local communities directly impacted by surface mining activities, where poverty is pervasive (Hilson & Nyame, 2006; Akabzaa, 2009). One school of thought strongly contends that the industry is contributing substantially to national development and poverty reduction in Ghana. Mining companies,

governmental agencies promoting mining, mining sector consultants, some academics, some government officials and traditional rulers share this opinion. They argue that the country's mining sector has been a star performer and plays a cardinal role in the national economy, particularly as a result of policy reforms in the sector since 1986 (Akabzaa, 2009). They have often pointed to increased foreign direct investment (FDI) flows to the sector, rising annual mineral output and value of mineral exports, increased exploration activities and the threefold increase in the number of operating mines, as compelling evidence to support the sector's contribution to the national economy (Jonah, 1987; Aryee, 2001). In 2010, the sector accounted for more than 30 per cent of gross foreign exchange earnings, with gold as the most important subsector, accounting for over 90 per cent of the total value of mineral exports (Minerals Commission, 2011).

Another school of thought holds the view that the mining sector has not contributed in any meaningful way towards national development. Indeed, there are a growing number of sceptics who argue that despite the commendable trends in the transformation of the mining industry, the sector has not resulted in integrated development and increased social well-being or livelihood security, nor has it reduced vulnerability of poor communities (Akabzaa and Darimani, 2001; Agbesinyale, 2003; Aryeetey, Osei & Twerefou, 2004). Indeed, the negative environmental impact of surface mining in particular, the growing redundancies associated with the privatisation of state-owned mining companies, the growing incidence of conflicts between mining communities and their chiefs on one hand and mining companies on the other hand, echoes the growing disquiet about the effects of the mining sector on the population (Darimani, 2006).

While mining projects provide support to the national economy in the form of employment and revenue generation, they can have a decisive negative impact on the communities in which or near which the mines are located. This is particularly so with surface mining that involves the alienation of large tracks of land and the use of chemicals that tend to affect the natural environment, upon which most rural dwellers depend on for their livelihood.

Since the early 1990s, the mining industry has been shaped by the Breton Woods Institutions, particularly the World Bank Group (WBG), the International Monetary Fund (IMF), major multinational mining companies and their home governments. The World Bank Group and IMF, in particular, have played a critical role in Ghana's policy shift from state intervention

in the economy to a system that has allowed market forces to determine resource allocation. This is indeed the thrust of the structural adjustment thesis that has ensured the reorientation of development policies that consign the state to providing an enabling environment for market driven and private enterprises-led economic growth (Akabzaa and Darimani, 2001). The conditionality of structural adjustment lending that include trade and exchange rate reforms, the review of national investment priorities, privatization of public-sector enterprises, and fiscal policy reforms, as asserted by Songsoore (2003) has left no important sector of Ghana's economic life untouched.

Ghana's mining sector was one of the favoured sectors targeted for these reforms, and has continued to see even more reforms since 1983. The Bretton Wood Institutions have systematically acted to reduce the role of the state in mineral resource management, devising effective strategies to deal with what may be perceived as risks associated with state dominance in the mineral resources exploitation through specific mining sector reforms (Hilson & Nyame, 2006). These reforms include changes in mining legislation to make the sector attractive to foreign investment, increasing fiscal liberation of the mining sector, strengthening and reorientation of government support institutions for the mining sector, privatisation of state mining assets, and other mining sector legislative changes (World Bank, 1992). Indeed, the World Bank through its Structural Adjustment Programme (SAP) has compelled poor mineral-endowed African nations including Ghana to revise and "re-revise" their mining legislation to provide the most favourable business environment for prospective investors (Akabzaa, 2009).

The reforms in the Ghanaian mining industry have not been specific innovations for Ghana. Indeed, they reflect global neo-liberal thinking that seek to increase the power and leverage of multinational corporations and proscribe the power of the state, with the World Bank and IMF acting as effective conduits for the delivery of these goals (Akabzaa, 2009). Consequently, neo-liberalisation has opened the flood gates for mining companies to pour into Ghana, engage in large scale surface mining and the subsequent onslaught on the environment and livelihoods of residents of mining-fringe communities has ensued.

Rural livelihood strategies worldwide are often heavily reliant on natural resource base. For rural dwellers therefore, agricultural production and direct dependence on forest and water resources in the form of farming, fishing, hunting and gathering provide the main source of livelihood (Ellis, 2000). However, mining, particularly surface mining which covers large tracts

of land including forest and farmlands pose threats and uncertainties to the livelihoods of rural dwellers. This is particularly so in Latin America, Africa and Asia, where governments have allowed mining companies to take over large tracks of land and forests without due regard to the people who depend on them for their livelihoods (Todoro & Smith, 2009). The situation is even worse in Sub-Saharan Africa where mining operations have virtually rendered rural dwellers landless as they continue to lose control of their traditional natural resource commons including forests and farmlands to the mining sector (Armstrong, 2008). In Ghana, gold mining operations in the Tarkwa area alone displaced 14 settlements with a total population of over 30,000 people between 1990 and 2006 (Akabzaa & Darimani, 2001). Besides, Newmont's Ahafo Ahafo Mine, a surface gold mining project has already adversely impacted the local small-farming settlements with nearly 10,000 people already been displaced during the first phase of the project which began in 2000 (Armstrong, 2008). In the case of Tanzania, some 13,000 villagers were forcibly displaced in the Geita district where large scale mining operations took over large tracks of farmlands and forests (Kitula, 2006).

In 2002, Newmont Ghana Gold Limited (NGGL), a gold mining company began full time operations in the Asutifi District which is one of the deprived districts in the Brong Ahafo Region of Ghana. The district has limited access and in some cases no access to social amenities such as educational infrastructure, health facilities, good road networks and pipe-borne water (Ghana Living Standards Survey [GLSS] (2008). The company employs the open cast method in its operations. A large portion of the company's concession falls within some settlements, farmlands and forest reserves in the district. The activities of the company have reduced the natural asset on which the people depend for their livelihoods. For example, more than 7500 hectares of farmlands have been taken away by the mining company (Newmont, 2005).

The implication from the above is that, with most rural livelihoods being heavily dependent on natural capital, expansions in mining operations means rural livelihoods would be greatly affected. In the light of the above observation, this study sought to assess peoples' response to the changes in their major livelihood assets as a result of loss of land to mining in the District and the role of stakeholders in ensuring livelihood security for the people.

The rest of the study is structured as follows. The next section is designated to the theoretical perspectives in respect of livelihoods and mining. Section three looks at the methods

and data used. Section four presents the results and discusses the key findings as informed by the literature. The final section of the paper looks at the conclusion and policy implications.

Theoretical Perspectives

A number of frameworks or models such as the Sustainable Rural Livelihoods framework by the Institute for Development Studies (University of Sussex), CARE's Household Livelihood Security Model, Oxfam's Food Security Assessment Model, Ellis Livelihood Framework for micro-policy analysis or Rural Livelihoods, Sustainable Livelihood framework for the Pacific Islands and DFID's Sustainable Livelihood Framework (Carney, 1998:11; Drinkwater & Rusinow, 1999:2; Cahn, 2006: 45) have been used to analyse livelihoods from various perspectives.

The present study was guided by DFID's Sustainable Livelihood (SL) framework (Fig. 1) which captures variables such as livelihood assets, livelihood strategies and outcomes. The framework views the individual as possessing some form of assets (knowledge, health, culture, etc) that can be harnessed to achieve positive livelihood outcomes. Again, unlike the other livelihood frameworks that make food security the central theme in livelihood studies, the SL-Framework goes beyond food security to examine issues of power structures, and the role of institutions in providing livelihood security (DFID, 1999; Cahn, 2002).

The SL-framework (Fig.1) views people as operating in a context of vulnerability (an external environment in which people exist) where causes such as seasonal price variations, migration, resource exploitation and dependence on rain-fed agriculture can all impact on livelihoods and continue to trap people within the vicious cycle of poverty (Chambers and Conway, 1992). Within the vulnerability context, people have access to certain assets (capitals) or poverty reducing factors, usually termed 'coping strategies' which are the means by which poor people respond to adverse or worsening conditions. These livelihood assets include financial, human, natural, physical and social capitals which are grouped together to form the asset pentagon in the SL-framework. The asset pentagon was developed to enable information about peoples' assets to be presented visually and thereby bring to life important interrelationships between peoples' access to different livelihood assets to contrive a living (Carney, 1998).

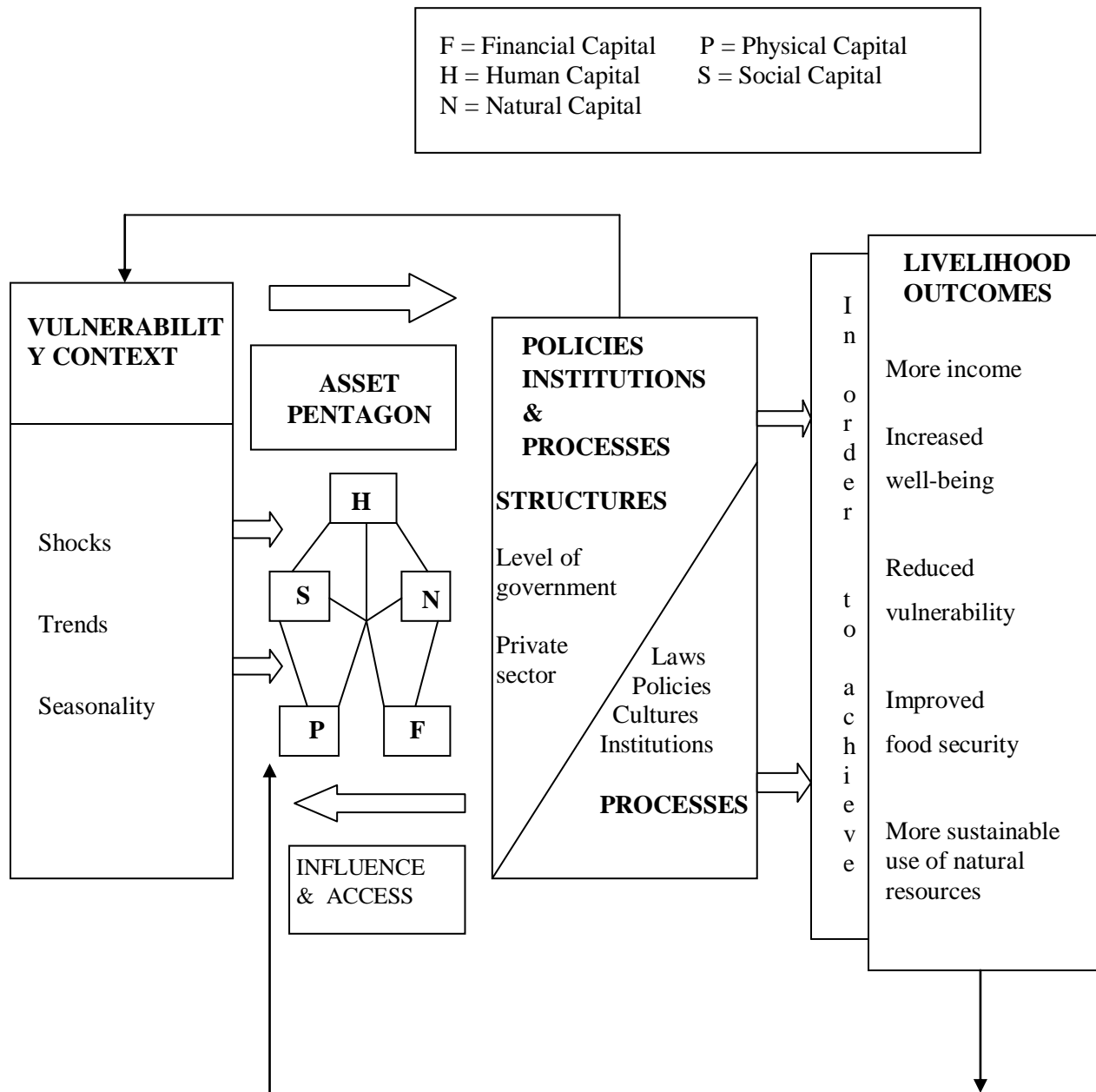


Figure 1: Sustainable Livelihoods Framework

Source: Department For International Development (DFID, 1999)

Peoples' livelihoods are also shaped by policies, institutions and processes (PIPs) that operate from local to international and from public to private levels (Ellis, 2000). PIPs determine access to the various types of capital; grant or deny people access to assets; help to cushion the

impact of external shocks and; provide social safety nets to reduce vulnerability. Besides, policies, institutions and processes can restrict people's livelihood choices and also impact directly on livelihood outcomes. In the context of surface mining by NGGL in the Asutifi District, the roles played by key stakeholders such as central government, decentralised departments (District Assembly, Ghana Chamber of Mines, etc) various NGOs and other private organisations can either significantly increase people's sense of well-being or make them vulnerable (Addo, 2008). Depending on their livelihood assets (strategies), the vulnerability context in which they operate, and their access to policies, institutions and processes, people choose livelihood strategies that will provide them with preferred livelihood outcomes. These outcomes could be positive, negative or both.

The SL-approach is people-centred and is designed to be participatory (DFID, 1999). It identifies what people have and their capacity to actively shape their future. Essentially, the SL-Framework puts people at the centre of development as a way of enhancing the effectiveness of development assistance (Cahn, 2002). However, for the purpose of this study, the SL-Framework was modified since it did not capture information on background characteristics especially the socio-cultural, economic and environmental factors of a locality which influences the livelihood assets possessed by people (Marqueen, 2001).

Research Methodology

The research design used was the mixed method. This involved triangulation of both quantitative and qualitative methods of data collection concurrently. Triangulation focuses on collecting and analysing both qualitative and quantitative data in a single study (Creswell, 2003). Besides, Mertens (2003) has opined that the application of multiple sources of evidence in a study helps one to have a better understanding of the research problem by converging numeric trends from quantitative data and specific details from qualitative data. Indeed, the complex nature of livelihood strategies that people adopt in the construction of their livelihoods (Ellis, 2000) and the variety of stakeholders involved in providing livelihood security, call for the use of mixed approach to data collection. Hence, both interview schedule (quantitative method), and in-depth interview and observation (qualitative methods) were used to collect data from the field.

The study area is the Asutifi District in the Brong-Ahafo Region of Ghana (Figure 2). In respect of development, the district is mainly rural and one of the most deprived in the Brong

Ahafo Region (GLSS, 2008). About 31% of the people in the district live below the poverty line and 15 percent live under conditions of extreme poverty (ghanadistricts.com, 2011). Five settlements in the district, namely Kenyasi No.1, Kenyasi No.2, Gyedu, Ntotroso and Wamahinso were purposively selected for the study (see Figure 2). These settlements were selected because they were located either within or around the concession of the mining company. Besides, all the five settlements have forest reserves which serve as wind breaks and also help to reduce the loss of vegetation. These reserves equally fall within the concessions of NGGL where large scale surface mining is being carried out (Forestry Commission, 2005).

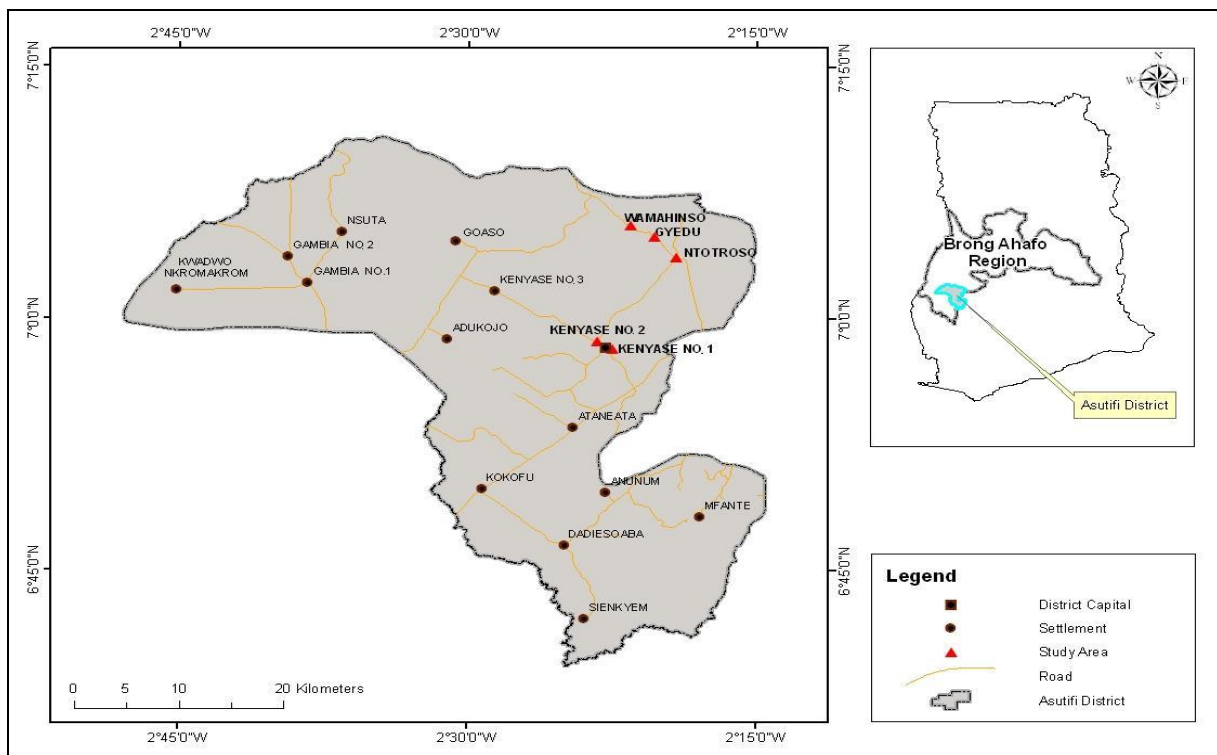


Figure 2: Map of the Asutifi District showing the study settlements

Source: Cartographic Unit, Department of Geography and Regional Planning, UCC (2009).

In all, 227 respondents comprising 217 household respondents and 10 key informants were selected for the investigation. The sample size was obtained using the Fisher, Laing, Stoeckel, and Townsend (1998) formula which took into consideration the total number of people and households in the selected settlements. The household respondents were selected

using the systemic sampling technique. A sample interval was calculated using the total number of houses in the five settlements.

Based on the sample interval for each settlement, respondents in the various housing units were selected for the study. Thus, after a random start, every housing unit that correspond with the sample interval for each community was selected. For houses with more than one household, the lottery method was applied to select one household. This procedure was done repeatedly until the sample assigned to each community was exhausted. The purposive sampling technique was used to select key informants from the District Assembly, NGGL, MOFA NGOs, and opinion leaders from the five communities. These respondents were selected on the basis of their level of expertise in livelihood activities and the role they play in enhancing the livelihood of the people.

Both primary and secondary data were collected for the study. Primary data were collected through the use of interview schedules, observation and in-depth interview. Data basically focused on the background characteristics of respondents, their livelihood activities, evidence of changes in their livelihoods as a response to the mining operations and the role of stakeholders in ensuring livelihood security for the people. Observation checklist was employed to facilitate personal observations of the physical environment, especially the activities of the mining company and the livelihood activities of the people. Finally, secondary data relevant to the study were obtained from published books, journals, newspapers, articles, reports, the internet, as well as from conference and working papers. The Statistical Package for Service Solutions (SPSS Version 16.0) was used to generate frequencies, percentages and cross-tabulations from the interview schedules while the in-depth interviews were categorised and analysed manually based on emerged themes.

Results and Discussion

Background Characteristics of Respondents

There is a consensus in the livelihood discourse that the background characteristics of rural populace influence the type of livelihood strategies they pursue (Ellis, 2000; Scoones, 1998; Omosa, 2003). The socio-demographic variables covered included age, sex and level of income of respondents. Males constituted the dominant group (60.4%) as against 39.6% females. The age of respondents ranged from 20 to 90 years with the mean age being 44 years. As

indicated in Table 1, females dominated in the age cohorts 20-29 and 50-59. However, the number of males exceeded that of females in the age cohort 60 and above.

Table 1: Age distribution of respondents by sex

Age (years)	Sex (%)		N
	Male	Female	
20-29	9.2	20.9	30
30-39	29.0	30.2	64
40-49	28.2	20.9	55
50-59	9.9	16.3	27
60+	23.7	11.7	41
Total (%)	60.4	39.6	100
Number	131	86	217

Source: Fieldwork, 2010

The predominant ethnic group in the study area was the Akan (68.7%), followed by the Mole-Dagbani (18.4%). Other ethnic groups present in the area were Ewe (8.8%), Ga (2.3%) and Guans (1.8%). The relatively high proportion of the Mole-Dagbani in the district reflects migration patterns of people from northern Ghana who serve as a source of labour for farming activities in the area. Age cohorts 30-39 and 20-29 were the dominant age cohorts among the migrant population and formed 53 percent and 38 percent respectively. Considering that these two age cohorts are youthful, it implies that most of the people that moved to the study communities were the young ones who are often attracted by the employment opportunities that come along with the operation of surface mines.

In terms of sex composition of the groups, more than half of the Akans (56.4%) and Mole-Dagbanis (70%) were males, a finding that corroborates the 2008 Ghana Living Standards Survey Report (GLSS Round 5) that the Asutifi District is composed mainly of the Akan and the Mole-Dagbani ethnic groups (Ghana Statistical Service, 2008). On the whole, males (60.4%) were dominant in the migrant population. With respect to economic activities, the findings indicated that a significant proportion of the migrants were engaged in farming (68.5%), while the rest were involved in trading (14%), mining (10%) and civil/ public service (7.5%). Thus, for

the various ethnic groups that migrated into the Asutifi District farming was found to be the dominant occupation of most of them, prior to the introduction of surface mining by NGGL. As indicated by Tanle (2010), the majority of the migrants that move into the Brong Ahafo Region are mostly found to be engaged in farming since most of them are unskilled labourers and hence serve as cheap source of farm labour.

Analysis of respondents' monthly income (Figure 3) revealed that, 30 percent of them earn less than GH¢ 50 a month while 40.1% earn between GH¢ 51 and GH¢300. Only 0.9% of the respondents earn more than GH¢ 500. The income distribution supports Armstrong's (2008) claim that most of the residents in mining-fringe communities earn low incomes. Thus, the few residents who earn above GH¢ 500 were found to be those employed by NGGL and other mining-support companies (8.3% of the respondents), as staff of mining companies and often earn wages that are far above average monthly incomes of other community members not engaged by mining companies (Hilson & Nyame, 2006).

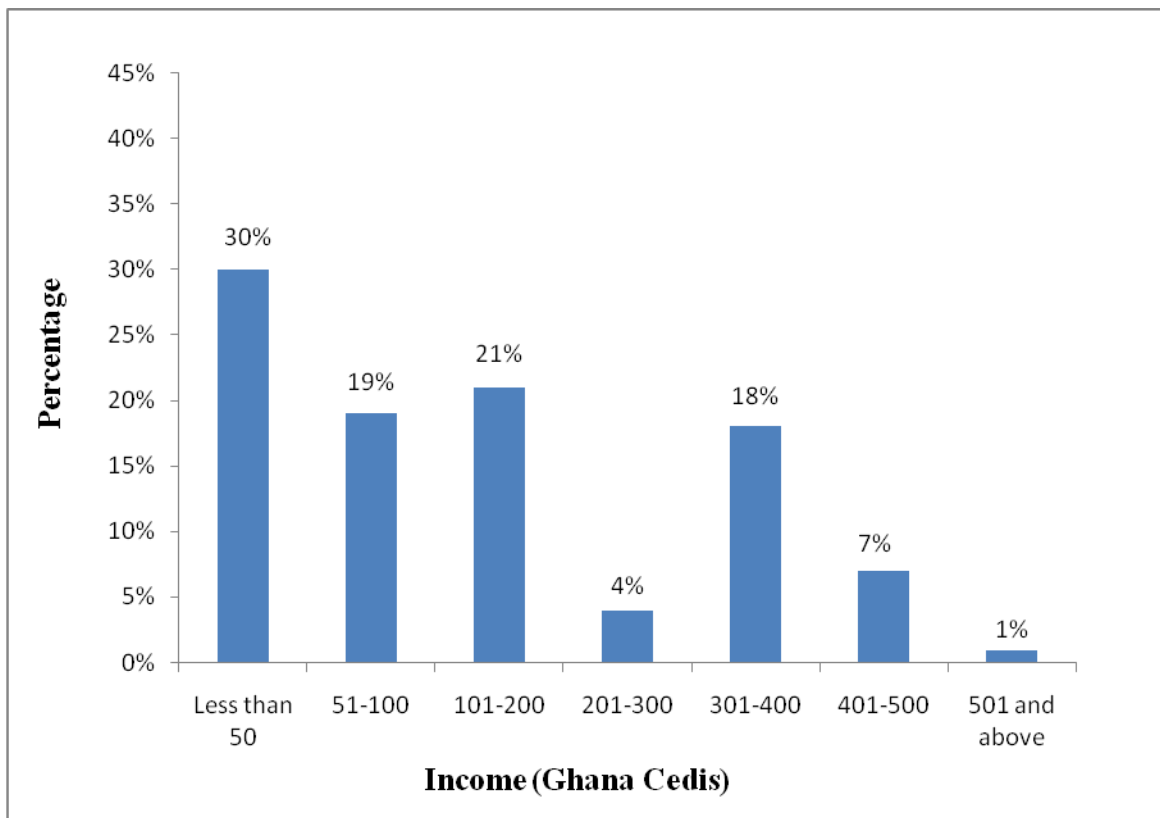


Figure 3: Monthly income distribution of respondents

N=217

Source: Fieldwork, 2010

Changing Livelihoods in Response to Surface Mining

The study found significant changes in the livelihood activities of respondents in the mining-fringe communities. For example 70 percent of the household respondents admitted that there has been a change in their livelihood activities following the introduction of surface mining by NGGL. In the context of the SL-Framework, surface mining which involves the alienation of large tracks of land is considered as a shock to the communities located in and around the concessions of NGGL. Under such circumstances, the people are exposed to a shock and thus become vulnerable. However, given that the people have access to other assets (inferring from the asset pentagon in Fig. 1) they shift to different livelihood activities to escape from the vulnerability context.

Therefore, the study sought to ascertain the direction of change in livelihood activities of the people. This was done by comparing the main economic activities of respondents prior to the operations of NGGL and after it had started to operate in the Asutifi District as indicated in Figure 4.

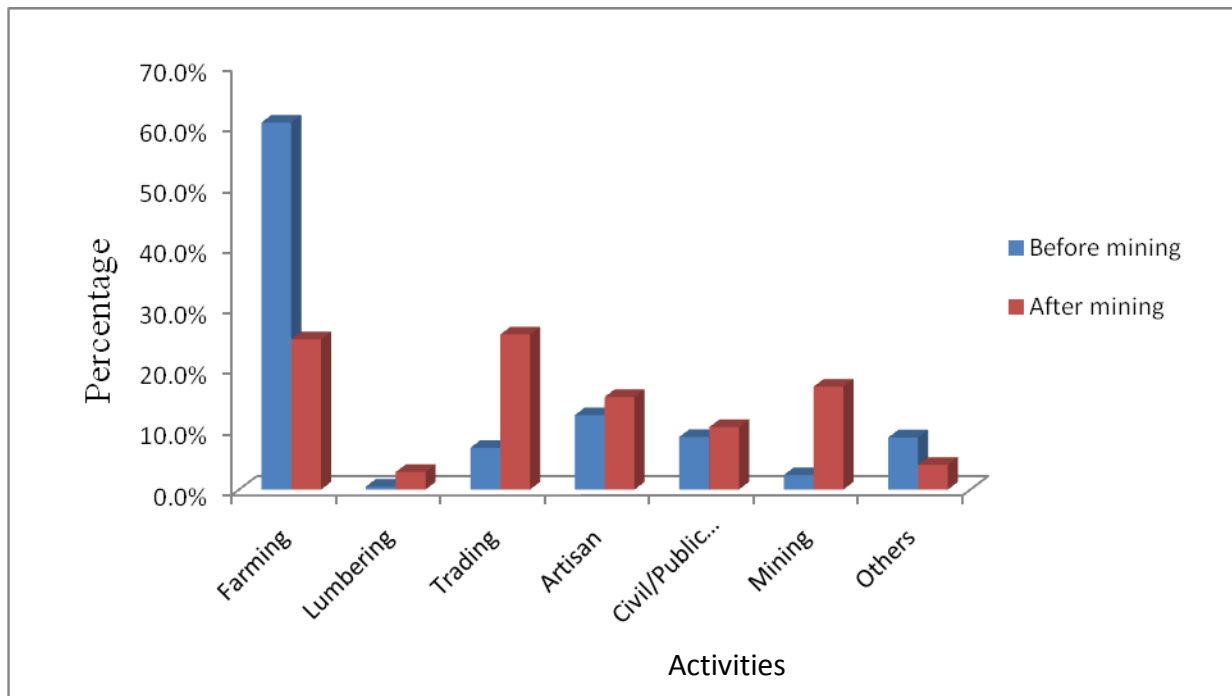


Figure 4: Livelihood activities before and during mining

N=152

Source: Fieldwork, 2010

As Figure 4 shows, the change in livelihood activities was more pronounced in farming where the proportion reduced from about 61 % before the introduction of mining by NGGL to 25 %. This means that following the operations of NGGL, the percentage of people now engaged in farming is 25%, which is a marked reduction compared to the 61% prior to mining. Safo-Kantanka et al (2006) had earlier predicted that, with the advent of mining activities in the Asutifi District, most of the people were likely to shift from farming to other economic activities. Again, the proportion of people engaged in trading saw a nearly four-fold increase, from 6.9% before the mining activities began to 25.6% at the time of the survey. Thus, more people engaged in trading after the introduction of mining. This also corroborates the observation of Akabzaa (2009) that people in mining-fringe communities in Ghana shift from other livelihood activities to trading as a way of utilising the numerous business opportunities offered by mining operations.

In respect of trading, it was found that a significant proportion of the respondents (75%) that shifted from other livelihood activities to trading were females compared to males (25%), a finding that confirms the assertion by Kitula (2005) that in many mining communities in Africa, females often pursue trading as a major livelihood option particularly so when other options are difficult to pursue. Personal observation revealed that in all the study communities, females dominated in most of the commercial activities such as sale of water, food, drinks, and food stuffs. It was also found that more than half (53%) of respondents that shifted to trading were migrants. Most of these people indicated they had come from other mining-communities in Ghana such as Obuasi, Tarkwa, Prestea, Konongo and Babiani (where mining operations have been taking place earlier) to establish their businesses in the communities in the Asutifi District where NGGL had began operations. Apparently, these people have experiences in conducting trading in mining areas and so have seized the opportunities that came along with the operation of surface mines in the Asutifi District by engaging in trading.

Residents who were engaged in mining also increased from 2.4% to 17.0%, giving a further indication of a change in livelihood resulting from intensification of mining activities in the district. It must be pointed out that not all those engaged in mining were employed by NGGL. Hence, the study disaggregated respondents engaged in mining in terms of formal and informal sectors and the results showed that a significant proportion of those that shifted into mining (68%) were involved in the informal sector that is *galamsey* operations. Further analysis

showed that nearly sixty percent (59%) of the respondents that moved into mining as a livelihood activity were within 30-39 age cohorts. This group of people are considered matured adults who are breadwinners of the family and hence have to take up mining as a source of employment that will help them earn income to cater for the needs of their families. It was observed that most of the respondents that took up mining were migrants (66%) and largely were of the Mole-Dagbani ethnic persuasion who have migrated from mining-communities elsewhere in Ghana to the Asutifi District to take up the opportunities that come along with Newmont’s surface mining activities, a finding that confirms the assertion by Tanle (2010) that mining-fringe communities attracts migrants who tend to engage in mining-related activities as a means of earning a living.

As established in the livelihood discourse, farming is the major economic activity undertaken by most rural residents (Brycesson, 1999; Ellis, 2000). Akabzaa and Darimani (2001) have observed that the large scale alienation of land for surface mining operations forces farmers to change to other livelihood activities. The present study found that reduction in farm size (42.5%) and high cost of farmlands (31.5%) were the key reasons that accounted for a shift from farming to other livelihood activities (Table 2).

Table 2: Reasons for changing from farming to other livelihood activities

Reasons	Frequency	Percentage
Reduction in farm size	56	42.7
High cost of farmlands	41	31.3
Distance to farms prolonged	13	9.9
Difficulty in accessing farms	9	6.9
Other reasons	7	5.3
Opportunities offered by mining	5	3.9
Total	131	100

Source: Fieldwork, 2010

With reduced farm sizes and increased rents charged on land, those who could not bear with the situation had to shift to other livelihood activities. A 48 year old male Assembly Member for one of the study communities corroborated this finding in an interview:

*The taking over of large tracks of land by NGGL has reduced the size of farms.
The land that is left for farming is fragmented as more people struggle for the*

same piece of land. The situation is causing most of the farmers to change from commercial farming to subsistence farming. Others have gone outside to rent farmlands in very far places to enable them do commercial farming.

According to Armstrong (2008), the well-being of rural communities is reduced in the face of stress or shocks that emanate from situations in which they have little or no control. Residents of Asutifi living in and around the concessions of NGGL have little or no control over the operations of the company. Hence, they are less likely to improve their well-being, particularly when the change in their livelihood activities is the result of an external condition, that is, large scale surface mining by a multi-national company.

The study revealed that more than two-thirds (73.3%) of respondents who shifted from farming to other activities as a result of the reduction in their farm sizes were females. Majority of the female respondents (88.8 %) complained of difficulty in accessing farmlands as compared to their male counterparts (11.2 %). The Chi-square statistic was used to ascertain whether significant differences existed between males and females in terms of access to land. The result showed no significant differences ($\chi^2 = 0.266$; $p = 0.606$) with respect to respondents' sex and their access to farmlands to construct livelihood activities. Thus, the ability to obtain land was similar for males and females, a situation which could be attributed to the culture of the people that makes access to land almost equal for males and females. However, the generalisation for sex with respect to gaining access to land should be done with caution since the study did not achieve equal representation for males and females.

The role of stakeholders in ensuring livelihood security

Stakeholders in Ghana's mining sector include government ministries and public sector mining support organisations, other allied institutions, district assemblies, mining companies, NGOs, traditional authorities, mining-fringe community members and opinion leaders. A major role of these stakeholders is to provide livelihood security for residents in mining-fringe communities by ensuring that the activities of mining companies do not impose negative consequences on the residents. In assessing the role of stakeholders in ensuring livelihood security for the people, more than 90 percent of the household respondents complained of lack of support from the central government and other public sector mining support organisations to

mitigate the negative impacts of mining on their livelihoods. Respondents were concerned about the apparent lack of support from both the local government (District Assembly) and traditional leadership on matters relating to the negative impacts of the mining on the various communities. Respondents in Ntotroso in particular, complained of lack of transparency regarding the use of royalties and other funds given to the community by NGGL. A 37 year old female Assembly Member complained about the corrupt practices of the local political and traditional leaders. This is what she had to say:

Some of the chiefs are aligned to the mining company and fail to channel the grievances of affected people to the officials of the company. Even some of the chiefs have been given contracts by NGGL. The leaders in the Assembly are not trustworthy. I am a member of the Assembly but I do not know the amount of royalties paid by NGGL, neither do I know how much has been spent and on what projects. How can I be accountable to the people in my electoral area? The leadership here do not represent the people, they represent their own interests.

However, the chiefs and local authorities indicated that they have provided adequate support to residents of the mining-fringe communities and have also utilised royalties and other revenue obtained from Newmont's operations. Specific to royalties, the chiefs and traditional leaders indicated that their share of royalties received from the central government is used to maintain the stool house and run the day-to-day activities of the various traditional councils. A chief on one of the study communities said:

Concerning this royalty thing, I have been wrongly accused by my subjects for collecting huge sums of money from NGGL. This is not true. In fact, if you look at the manner in which royalties from mining are disbursed, the amount given to chiefs and the traditional authorities is very small. Besides, the mining company pays royalties to the central government who then give us our share and it is meant to maintain the stools. Some people think NGGL just walk to us with a sack containing cash and say "nananom, this is your share of the profit we got from the gold mining". I think there is the need to educate the general public on the law governing the distribution of royalties so that people will understand the whole process and stop such baseless allegations.

It also emerged that information on the activities of the mining company such as its total concession, schedules for blasting rocks and movement of heavy duty machinery was inadequate. When respondents were asked whether they had access to information concerning the activities of NGGL that had a bearing on their well-being, more than 70 percent answered in the negative. For instance, some farmers at Ntotroso said they did not know the entire concession of the mining company and as such had suffered intermittent seizures of their farms. The situation, according to an opinion leader, had created fear and anxiety among the farmers since farmlands could be taken over by the company at any time without prior notice. In response to the above assertion, NGGL indicated that public notice boards have been erected at strategic points where information regarded its operations is pasted for residents of the various communities to take note and act accordingly.

Notwithstanding the response from NGGL, some of the respondents suggested that NGGL should provide the community with clear demarcation lines that show lands that fall within the concessions of the company. This will guide residents to identify which lands to farm on and prevent subsequent seizure and consequent destruction of their crops. However, the Mineral and Mining Act 703 does not oblige mining companies to compulsorily disclose information concerning their activities to the public. Besides, section 20 of Act 703, requires individuals and institutions that want information in the form of records, reports, documents and publications from a mining company in respect of its operations to pay for such information. This, together with the cumbersome and bureaucratic procedures involved in seeking information from mining companies served as a disincentive for the residents of mining-fringe communities and prevented them from doing so. Consequently, they continued to live in fear and anxiety; and only waited for Newmont to take up their farms anytime without prior notice.

Though residents had been educated by the Health unit of Newmont on how to ensure safety and good health as a result of the negative impacts of mining operations on the environment, lack of alternatives compelled residents to resort to unsafe practices that could impact negatively on their well-being. A case in point is Kenyasi No. 1 where residents said they were asked not to harvest rain water for domestic use due to pollution from the mining activities but the company or the local government had not provided them with alternative source of water. As a result, some of the respondents confirmed that they continued to depend on rain water for

domestic purposes. This has a long term health implication which can further heighten livelihood insecurity for the affected people and their dependants.

It must be emphasised that NGGL have undertaken a number of projects aimed at reducing vulnerability and also ameliorating the negative impacts of its operations on residents of mining-fringe communities. These projects were in the form of construction of school buildings, health facilities and community information centres and provision of pipe-borne water for some of the communities. Most of these projects were undertaken as part of the company's social responsibility towards the development of communities located in and around its concessions. A representative of NGGL asserted that the company through its Alternative Livelihood Programme (ALP) have enhanced the livelihoods of residents of mining-fringe communities in the Asutifi District. He said:

Since NGGL began the Livelihood Enhancement and Empowerment Programme (LEEP) for communities in the mine concession in 2005, it has brought enormous benefits to the communities particularly in areas such as agriculture, micro enterprises, micro-credit management and supply of inputs for selected income-generating activities. The agricultural training aspect has equipped farmers with skills and knowledge in farming and other livelihood activities like animal rearing, including poultry, grass cutter and pig rearing, and soap making. Other benefits include routine medical outreach programmes, HIV/AIDS peer educators programme and micro-credit and micro-enterprises training.

Even though residents were happy with the LEEP initiative, most of them (67.6%) expressed dissatisfaction with the short nature of the training. It was revealed during the field survey that training for beneficiaries lasted between two and three weeks, a period that was relatively short for the acquisition of any meaningful skill. It is worth noting that the provision of physical infrastructure by NGGL in the form of school buildings, health facilities, and clinics can impact positively on the human capital stock of the people. In the same vein, training provided by NGGL through its Livelihood Enhancement and Empowerment Programme (LEEP) could enhance the human and natural assets of the people by providing them with alternative livelihood activities that could lead to positive outcomes.

It also came to light that regulatory bodies such as the Minerals Commission, Forestry Commission and Environmental Protection Agency (EPA) were not functioning effectively, at least from the perspective of the respondents. By its mandate, the Minerals Commission prepares mineral policy, promotes mineral development, advises government on mineral matters and

serves as a liaison between the government and the mining industry. The EPA is supposed to protect the country's natural resources as well as the health and welfare of the people by ensuring environmentally sound resource extraction. The Forestry Commission is responsible for the management of the country's forest to ensure a balance between mineral extraction and sustainable forest resources.

However, the study found that the EPA did not have an office in the Asutifi District; neither did it have any of its officers attached to the mining company. The only office of the EPA was located in Sunyani, the regional capital of the Brong Ahafo Region which was bedevilled with logistical constraints (as indicated by an official of the agency), and thus could not perform effectively and efficiently. The District Forestry Commission also complained of inadequate staff and logistics such as vehicles to carry out its duties effectively. Hence, the Commission was not even aware that one of the five forest reserves in the district, the Bosomkese Reserve, was encroached on by NGGL where its sixth open pit was being developed at the time of the survey. Indeed, the ability of these agencies to enforce environmental quality standards and other regulatory measures is undermined.

The intensification of mining activities in the study area and the apparent weaknesses on the part of stakeholders to safeguard the livelihood of the people were matters of concern for most of the people. When respondents were asked to indicate their level of satisfaction on the roles being played by the various stakeholders in respect of livelihood enhancements and opportunities, about 85 percent said they were not satisfied at all. Less than six percent expressed high satisfaction with the roles of the stakeholders (Table 3).

Table 3: Assessment of stakeholders' roles in providing livelihood security

Level of satisfaction	Frequency	Percent
Satisfied	13	5.9
Not satisfied	184	84.9
Undecided	20	9.2
Total	217	100.0

Source: Fieldwork, 2010

When the stakeholders were asked to comment on their roles in ensuring that people attained sustainable livelihood in the face of the adverse impacts of the mining activities, most of them disclosed that they had specific roles to play but were quick to add that they could not

perform their roles effectively because of poor logistics, and inadequate human and financial resources. With respect to human resources and logistics, only the representative from NGGL said that his institution was sufficiently resourced; the rest conceded that their institutions were seriously handicapped in terms of human resource and logistics. For example a 52 year-old male official said:

The total staff strength of my institution is not satisfactory. I need more than 10 workers but as you can see we are only three. The only car available for official duties has broken down. Sometimes we rely on the services of hired taxis for our operation which is very costly. Hence, we are not able to perform our duties up to expectation.

Some of the stakeholders attributed the inability to perform their roles effectively to the policies and laws governing mining exploration in Ghana. Some institutional heads noted that the existing policies and laws give so much power to the mining companies to the detriment of the people. A 45 year old female head of an institution lamented that:

The laws on mining give too much power to the mining companies. For example, NGGL is not obliged by law to disclose its profits to us. The confidentiality clause in the Environmental Audit Reports has also allowed the company to destroy the environment with impunity. As it stands now, we cannot do much to ensure that the company follows laid down procedures unless we review the mining laws.

The above finding is an indication that the current policies and regulations governing mining present serious challenges to the various stakeholders in their quest to ensure compliance by mining companies. The existing policies have limited the capacity of some stakeholders such as the Forestry Commission and the EPA to negotiate on issues that affect the livelihood of mining-fringe communities. In the event that the various institutions are weak or suffer some limitations, as observed in the Asutifi District, livelihood security becomes a problem. The consequences are that the well-being of the people cannot be guaranteed and vulnerability will be increased. Eventually, residents in mining-fringe communities may be compelled to undertake livelihood activities that are not sustainable.

Conclusions and Policy Implications

This paper has established that there has been a substantial shift in the livelihood activities of the people in the Asutifi District and the activities of NGGL was the main driving force behind the current trend of events. The introduction of surface mining has led to a restructuring of livelihoods from farming to trading and mining which were hitherto marginal livelihood activities. The main reasons for the shift from farming to trading were reduced farm sizes and high cost of farm land due to the introduction of large scale surface mining by NGGL. Stakeholders in the mining sector have not been able to provide livelihood security to the people due to constraints in the form of human resource, logistics and finance.

The paper concludes that traditional occupations like agriculture particularly farming has been displaced through surface gold mining activities carried out by NGGL. Besides, surface mining itself has caused residents in mining-fringe communities to shift from agriculture towards trading and mining as alternative livelihood strategies. Notwithstanding the positive contributions of NGGL towards livelihood enhancement, the downside of its operations on the people raises doubts about the positive benefits that accrue to residents of mining-fringe communities.

In line with the above conclusion, some key recommendations are made. There is the need for a comprehensive national policy that promotes the interest of residents of mining communities. Government policies that promote local content in mining and offer special support to residents in mining fringe communities should be encouraged. Such policies should focus attention on residents living in mining-fringe communities by providing them with the financial support in the form of credit guarantees and financial management training. In so doing local residents can actively participate in the mining sector by supplying goods and services to mining companies and mining-support companies. This would ensure provide livelihood security for residents in mining fringe communities.

There is the need to take a second look at Ghana's mineral and mining laws. These laws as they stand now have not been able to address very well the needs of mining-fringe communities. Critical areas that need to be revisited should include information disclosure and disbursement of royalties and environmental impacts. Serious questions have been raised about transparency and accountability with respect to the disbursement of royalties that accrue from mining operations to beneficiaries at the local level as well as on information disclosure and the

negative environmental impacts of surface mining on local communities. Thus a comprehensive review of the existing laws on mining that address these concerns will inure to the benefit of residents of mining-fringe communities and ultimately ensure that they pursue livelihood strategies that are sustainable.

In respect of the Asutifi district, the paper recommends that the local communities should be economically empowered by improving their financial capital base. Credit schemes such as Microfinance and Small Loans Scheme (MASLOC) which operate within the ambits of the Assembly should be expanded to benefit more people in the district. The Assembly, Commercial Banks, NGOs, NGGL and other private financial institutions should establish micro-finance schemes so that the people can access funds to expand their economic activities and attain a greater well-being. In addition, there should be effective co-ordination among public sector mining support institutions, NGGL and other stakeholders such as the District Assembly, traditional authorities, opinion leaders and members of the communities affected by the operations of NGGL. A joint committee consisting of these stakeholders should be formed to deal with issues related to the operations of NGGL. Such collaboration will promote transparency, accountability and ensure that the interests of mining-fringe communities are given prominence in the planning and execution of surface mining projects.

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