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# Large Scale Mining Activities and the Livelihood of Adjacent Communities in Tanzania: A Case of Geita Gold Mine

**by**

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# ABSTRACT

This study assessed the contribution of GGM on the livelihood of local communities in Geita District. Specifically, it aimed at assessing the effectiveness of corporate social responsibility implementation in Geita District; determine the extent to which GGM has contributed on socio-economic development in the study area; to examine the effects of environmental problems associated by GGM activities on people's well-being; and to examine the nature of interaction between GGM and the impacted village communities. The study employed a cross sectional design in which, both qualitative and quantitative methods of data collection. A total of 128 households were involved in the study. Data were collected using checklists, questionnaires, FGDs, personal observations as well as documentary reviews. Descriptive and inferential statistics were used to describe the results. The findings revealed minimal contribution from GGM. However, significant contributions were observed in the education and health sectors. This was due to the construction of Nyankumbu girls' secondary school, 37 classrooms at Geita and Nyakabale primary schools; 5 teachers' houses and 46 desks. Construction of Nyakabale clinic; support on cleft palate surgery and Moyo wa huruma orphanage centre were all revealed. Respondents also acknowledged the construction of 2 outpatient buildings; the HIV/AIDS and Malaria prevention and control programmes. However, direct observation indicated further that, with respect to the effectiveness of corporate social responsibility implementation, GGM could not register to have clear, measurable and time bound set goals aimed at improving community livelihoods. Similarly, most of the respondents in all surveyed villages reported minimal direct and indirect socio-economic accrued benefits to their livelihood. Likewise, majority were accessing water from traditional water points. As a result, there were some incidences of water borne diseases and skin rashes. This was mainly associated by pollutions emanating from mining activities as reported by respondents. This indicates that, apart from what GGM has already contributed, much more needs to be done since majority of the respondents experienced little changes that have been noted so far to their livelihoods after its investment. This calls for concerted efforts to ensure that, the prevailing situation is reversed if the sector is to contribute sustainably to the living conditions of the rural poor. The study recommend that, the government, investors and other stakeholders should ensure thorough cost benefit analysis on socio-economic and environmental implications in order to safeguard the interests of impacted village communities. The aim is to ensure safe and ecologically friendly mining activities and sustain a win - win situation in the Tanzanian mining sector. This has to be done in line with the Tanzanian Mineral policy 2009 and the mining Act 2010 to enhance the potential contribution from the sector. This will help to improve trust among stakeholders and minimize conflicts over land use in most mining sites in Tanzania.

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# ABBREVIATIONS AND ACRONYMS

| | | |
|---|---|---|
| AIDS | - | Acquired Immune Deficiency Syndrome |
| AMREF | - | African Medical and Research Foundation |
| DALDO | - | District Agricultural and Livestock Development Officer |
| DCDO | - | District Community Development Officer |
| DHO | - | District Health Officer |
| EMS | - | Environmental Management System |
| FDI | - | Foreign direct investment |
| FGDs | - | Focus Group Discussions |
| GDP | - | Gross Domestic Product |
| GGM | - | Geita Gold Mine |
| HBS | - | Household Budget Survey |
| HH | - | Households |
| HIV | - | Human Immunodeficiency Virus |
| ILFS | - | Integrated Labor Force Survey |
| ISO | - | International Organization for Standardization |
| LSMCs | - | Large Scale Mining Companies |
| MDGs | - | Millennium Development Goals |
| MEM | - | Ministry of Energy and Minerals |
| MKUKUTA | - | Mkakati wa Kukuza Uchumi na Kuondoa Umaskini Tanzania (Swahili for the National Strategy for Growth and Reduction of Poverty) |
| MNMA | - | Mwalimu Nyerere Memorial Academy |
| NBS | - | National Bureau of Statistics |
| NGOs | - | Non- Governmental Organizations |
| PHDR | - | Poverty and Human Development Report |
| REPOA | - | Research on Poverty Alleviation |
| SL A | - | Sustainable Livelihood Approach |
| SNAL | - | Sokoine National Agricultural Library |
| SML | - | Special Mining License |
| SPSS | - | Statistical Package for Social Sciences |
| TB | - | Tuberculosis |
| TIC | - | Tanzania Investment Center |
| UNDP | - | United Nations Development Programme |
| UNESCO | - | United Nations Education Scientific and Cultural Organization |
| URT | - | United Republic of Tanzania |
| USD | - | United States Dollars |
| VOP | - | Views of the People |

# CHAPTER ONE: INTRODUCTION AND BACKGROUND

Recent years have seen an increasing interest in attracting foreign direct investment (FDI) especially in developing countries. Since the early 1980s, the policy environment worldwide has been far more conducive to the growth of foreign direct investment and a number of countries have been adopting significant liberalization measures towards attracting the same investment (Rugumamu, 2005). As a result, the growth of the foreign direct investment in the third world has been extremely rapid. In Africa, FDI inflows reached USD 18 bin in 2004, compared with USD 14 bin in the previous year. Much of the FDI has been targeted at Africa's resource rich mining industries in form of large scale mining companies (LSMCs) which often generate low tax revenues and carry high environmental and social costs (UNCTAD, 2005). Due to such increased growth of LSMCs, UNCTAD acknowledged Tanzania and Ghana as examples of countries which have experienced a boom in LSMCs particularly in their gold industries. However, both Tanzania and Ghana receive as little as 5 percent of the value of their gold exports compared to South Africa and Botswana. The latter two countries have benefited from the mining sector by encouraging companies to do more of the value-adding processing of gold domestically rather than sending them abroad (UNCTAD, 2005).

Large scale mining activities undoubtedly, can induce development in previously underdeveloped areas and contribute positively to the socio-economic development of the rural areas where mining activities take place. As part of the international corporate social responsibility, mining can bring significant benefits to such communities as construction of roads, health, educational facilities, creation of jobs and other economic opportunities (ICMM, 2006). For example, among the potential benefits obtained by local communities from the Misima Mine in Papua New Guinea, are social services which include; improved health care and education, improved infrastructure, improved water supplies and raised level of skills in work force (Davis, 1995). In Tanzania, the mining companies' investment in social development is registered by the Ministry of Minerals and incorporated into the calculations of the total revenue contributions of the sector under donations (Lange, 2006). The donations to community development by largest mines in the period 1992 to 2002 were USD 17 million in the whole period. USD 12 million (70%) was spent on water and roads (Lange, 2006).

However, in recent years, there has been a growing public outcry that, African countries with potential mineral resources benefit little from the growing mining sector. The hopes that LSMCs could play the leading role in African development, and Tanzania in particular have not been realized. As a result, poverty in African countries continues to deepen, with the rural population being the mostly affected ones (UNCTAD, 2005). For example, for all the positive aspects of mining, surface

mining of gold have the possibility of affecting the sensitive environments, lifestyles of indigenous people; can be responsible for both benefits and damage the existing balance between people and the environment (Darimani, 2005).

Mining not only, contributes to forest and environmental degradation, changes in water tables, air pollution and other serious ecological impacts but also indigenous people living adjacent to the mines benefit least from the positive mining effects (Lobonne and Gilman, 1999). Some of the environmental effects might be irreversible (Chachage, 1995; Knight, 2001). Worse still, mining takes away large tracks of agricultural land from farmers, but does not provide adequate jobs to offset subsequent employment in agriculture, the sector that is the foundation of the rural majority (Fisher, 2007). Awudi (2002) observed that the gains from the mining sector in the form of increased instruments are mostly achieved at significant environmental health and social costs to people. This is because mining activities account for serious consequences on the environment, locally and globally (Kitula, 2006). This situation has accelerated for the occurrence of a number of existing conflicts in mining sites reported from North Mara, Buzwagi, Buhemba, Mererani and Geita. This situation has compelled the Tanzanian government to review all mining contracts (Tambwe, 2008).

As the case in other African countries, Tanzania has been attracting investors in the mining of gold and other gemstones especially in Kahama, Tarime and Geita districts; less has been documented regarding socio-economic benefits accrued by local communities. These include provision of education facilities, employment, water, road network improvements, provision of soft loans to local people and health services. Nevertheless, such large scale mining industries come with some negative environmental effects that impact on the livelihoods of the communities including polluting water resources, displacement of people from their fertile lands to allow mining operations.

Due to continued persistence of these problems, the 1997 Tanzanian Mineral Policy was partly designed to address among other things, the need to raise significantly the contribution of the mineral sector in the national economy, create gainful, secured employment; and provide alternative source of income particularly for the rural population as well as environmental protection and management (URT, 1997). This brings contradicting information on the balance sheet on whether communities benefit from such investments. This study was set to determine the effects of large-scale mining on the livelihoods of local communities in Geita District. This was reflected by assessing the socio-economic contribution of GGM and ascertains its environmental implications on community livelihoods. The study also effects to the adjacent communities in the district.

## 1.1 Statement and Significance of the Problem

In the late 1980s, Tanzania made a U-turn in its economic policy and permitted the private sector to participate in the mining operations to enhance its potential contribution to the economy (Lange, 2006; Kulindwa et al., 2003). From then, the gold mining sector has been growing rapidly than any other FDI supported sector (2005). Such developments in the mining sector, led to the establishment of various legislations with the aim of improving the revenues from the sector. For example, the Tanzania's 1997 mineral policy identifies the creation of employment opportunities in the mineral sector and the sector's role in the diversification of the rural economy as key challenges addressed by the policy (URT, 2009). In addition, the 2010 mining Act provides for compliance with international standards regarding protection and rehabilitation of the environment in mining areas. Both the 1997 mineral policy and the 1998 mining Act seeks to secure improved training opportunities, credit facilities, extension services and formal regulation, thus enhancing the capacity of the sector to alleviate poverty and improve social economic development in rural areas.

Despite its extensive elaboration in the policy and Acts towards enforcement, the situation on the ground is quite different when it comes to implementation. Various studies have shown that, mining areas have turned into conflict areas (Lugoe, 2012; Lange, 2006). This situation poses critical questions which remain unanswered. For example, is it because the policies have failed to translate the mineral wealth into tangible benefits for majority of the rural population? The quality of living standards of people in areas surrounding the mines continues to deteriorate. For example, the macroeconomic picture given by the Tanzania investment centre takes a very different picture when looked from bottom up. This has led to a growing resentment with regard to the real benefits accrued especially by local communities. This tension has been aggravated by the fact that, most mining contracts are secret to the public. This comes with displacement of people and destruction of livelihoods leading to food insecurity due to unfair compensation and forceful relocations. This study was intended to explore and generate new information on the extent of socio-economic contributions and environmental effects associated by large scale mining in Geita District. This was important because there has been continued minimal socio-economic contributions and persistence of negative environmental impacts. The environmental effects in the lives of the people reported recently in North Mara Gold Mine clearly signify the continued existence of such negative effects. The information was therefore necessary in order to find out appropriate mechanisms to improve the livelihoods of adjacent communities and the country at large.

## 1.2 Research Objectives of the Study

### 1.2.1 General objective

The general objective was to determine the contributions of large-scale mining companies on the livelihoods of local communities in Geita District.

### 1.2.2 The specific objectives

The specific objectives were:

i. To explore the effectiveness of corporate social responsibility in Geita District;

ii. To assess the extent to which GGM has contributed on socio-economic development of local communities in the study area;

iii. To examine the effects of environmental problems associated by GGM activities on people's wellbeing;

iv. To examine the interaction between GGM and the impacted village communities in the study area.

## 1.3 Research questions

1) How well is the corporate social responsibility implemented in Geita District?

2) How has the GGM contributed to the socio-economic development of local communities in the study area?

3) What shocks and stresses are associated with mining activities in Geita District?

4) How is the nature of interaction between GGM and the impacted village communities in the study area?

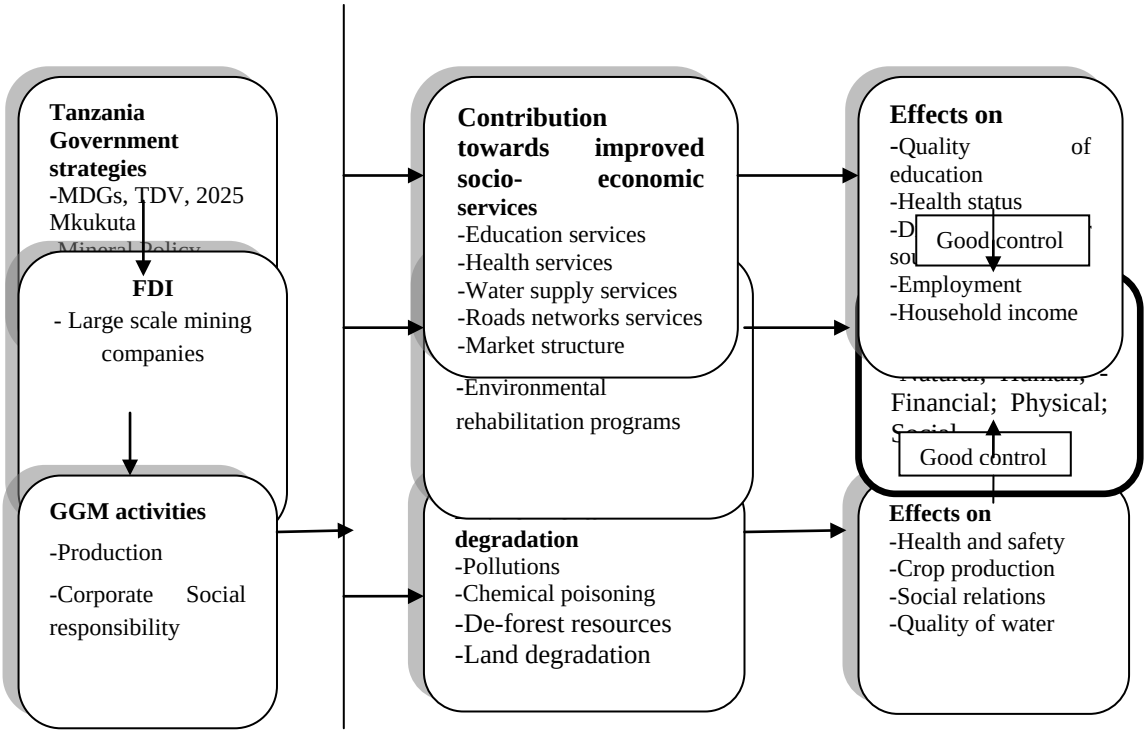
## 1.4 Conceptual Framework for the Study

The conceptual framework guiding this study has been developed (created) with a reflection of the DFID sustainable livelihoods framework (SLF) (Ashley et al., 1999; DFID, 2000; Ellis, 2000; 1998). It has been argued that, a better understanding of the impact that gold mining companies has on local livelihoods can be gained through the livelihood analytical framework. Livelihoods are understood as a collection of

activities performed on daily basis with the aim of meeting basic needs such as food, housing and securing monetary income. These activities include production of crops, rearing livestock, making handcrafts, seasonal and permanent wage labor as well as remittances. It is the interaction of livelihoods strategies with the natural environment in a particular spatial identity called region (De Haan, 2000a). This framework has been developed on the basis of the objectives, literature review and the methodology in order to meet the intended purpose of assessing the socio-economic and environmental effects of large-scale mining on the livelihoods of local communities by showing the existing relationship. Fig.1 shows that large-scale mining activities affect the livelihoods of the local communities in different ways depending on the legal requirements guiding their operations, the national policy and other strategies within which they operate. Large scale mining activities are expected as part of their social obligations to significantly contribute towards improved livelihoods of local communities. This can be done through the provision of supports in socio-economic services such as support to education and health facilities, water supply services, road-network services and market structure for locally produced products. In turn, this may lead to qualitative education, improved health status, reduced distance to water sources, increased employment opportunities, and increased household income thereby contributing to poverty alleviation.

However, large scale mining activities if not well controlled can accelerate environmental degradation. This may have direct negative effects on the livelihoods of adjacent population. The biggest concern regarding large scale mining activities are on the issues of social conflicts, pollutions, land degradation, and de-forestation. In this regard, mining activities account for serious negative consequences to the lives of local communities and the nation at large. In this way, they negatively contribute to the livelihoods assets. This is due to the risks on health and safety, poor crop production, and contamination of water sources leading to poor social relationship. However, the adoption of better environmental management systems and sustainable conservation measures is assumed to positively contribute towards improved livelihood assets of local communities.

**Figure 1: Conceptual framework; Assessment of GGM influence on communities' livelihoods**




## 1.5 The Livelihood Analytical Framework (LAF)

The livelihood analytical framework developed in this study has been adopted from the study by Nyankweli (2012). It has been argued that, a better understanding of the impact that gold mining companies has on local livelihoods can be gained through the livelihood analytical framework. Livelihoods are understood as a collection of activities performed on daily basis with the aim of meeting basic needs such as food, housing and securing monetary income. These activities include production of crops, rearing livestock, making handcrafts, seasonal and permanent wage labor as well as remittances. It is the interaction of livelihoods strategies with the natural environment in a particular spatial identity called region (De Haan, 2000a).

Livelihoods are secured through a set of assets and resources called capitals; multiple capitals are combined in different strategies, thus generating different type of livelihoods. The actual combination differs per each case, but there are several commonly distinguished types as human capital (labour, also including skills, experience, creativity); natural capital (land, water, forests, pastures and minerals); physical capital (food, stocks, livestock, equipment, tools and machinery); financial capital (money in a savings account at a bank, loan or credit); social capital, referring to the quality of relations among people and institutions such as government, NGOs, CBOs, CSOs and the mining companies. Following the concept of entitlement (Sen., 1981), as claimed by (Chambers and Conway, 1992 and access (Blaikie, et al.,

1994, it important for actors to have the ability to use capitals at reasonable costs when needed and desired. Land can be rented, water and forests can be communally owned, a plough can be borrowed or hired; food can be obtained but the main issue remains on securing access to capital.

It has further been argued that, livelihood can be considered sustainable when the outcome of the processing of different capitals is meaningful in terms of providing adequate well-being and viable in terms of protecting people against shocks and stresses. Both of these impact the five forms of capital. Shocks and stresses can ultimately result from economic hardship, war, diseases and rapid population growth. It is emphasized that, livelihoods do not only depend on access to capitals but also on how the use of these capitals is framed in the wider social, economic, political and cultural contexts (Dreze and Sen., 1989). In this way, livelihoods are increasingly becoming diverse, as individuals and households pursue multiple occupations in multiple areas (De Haan and Zoomers, 2003).

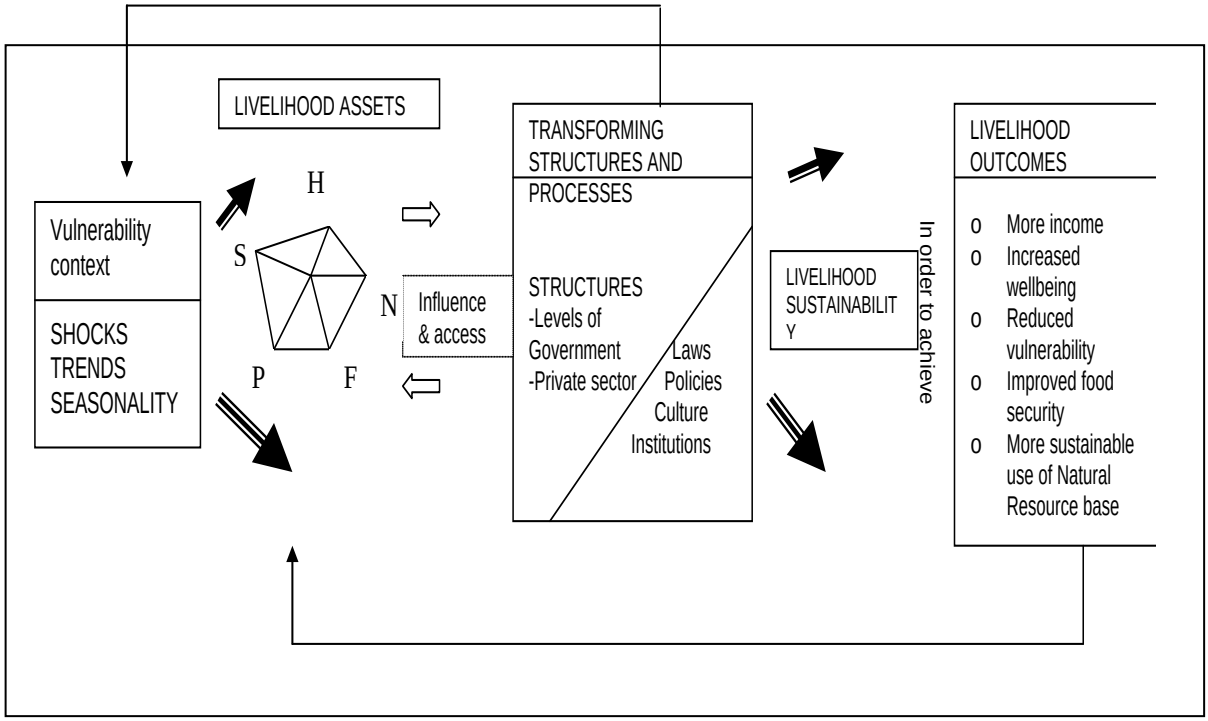
Livelihoods analysis enables exploration of the social-ecological systems or the relationship between people and their environment (Ingold, 2000). Such analysis relates to choices and strategies, capacities that people have to enhance their quality of life and their capabilities to confront their social-ecological conditions and improve their well-being. Such analysis sheds lights on the limitations that households and individuals may face in realizing their livelihood choices in changing contexts. It further helps in highlighting the diversity and heterogeneity of livelihood strategies at local level and illuminates their relations with macroeconomic policies. It is understood that, the gold mining industry is complex and dominated by multinational companies. However, this according to Nyankweli (2012) does not mean that, it is automatically causes disruption of livelihood and non-sustainable pathways of local livelihoods. But rather, the mining benefits can be harnessed and utilized to improve community's abilities to cope with and shape appropriate livelihoods strategies.

For example, in the context of the mining companies operations, this could be done by providing employment opportunities and implementing corporate social responsibility (CSR) initiatives, gold mining companies can enhance community access to better health services, education, safe water supply and improved infrastructures. This in turn, improves household income and thus diversified rural livelihoods. This complex web-of assets, access, capacity and capability offers the households and local institutions layers of resilience that enable them to deal with waves of adversity (Glavovic et al., 2002). Resilience implies the capacity of a system to deal with disturbances, ultimately reorganizing in order to retain the same functions, structure, identity and feedbacks prior to the disturbance (Walker et al., 2004). In this study on the large scale mining activities and the livelihoods of local

communities in Tanzania, we look on how local livelihoods might be affected by the operations of large scale mining activities. To achieve this, focus was placed on the socio-economic actors living adjacent to the mines. With the help of the sustainable livelihood approach, we assessed on household's dependence on mineral resources (mining) and see how livelihoods might be affected or influenced by mining operations and policies. This framework allows both social and cultural issues, economic and political issues to be considered equally.

Ellis (2000) summarized livelihoods as a set of assets (natural, physical, human, financial and social) activities and access (mediated by institutions and social relations). The combination of assets, activities and access enables or hinders) household to develop various livelihood strategies and each has different outcomes. A livelihood strategy refers to plans or techniques for securing means for living and it is influenced by a given cultural context. Livelihood strategies include nurturing social networks and engaging in community level work which builds social capital and enables diversity to be secured and sustained as shown in the Figure below (Sen, 1999).

**Figure 2: The Sustainable Livelihood Framework (DFID, 2000)**



# CHAPTER TWO: LITERATURE REVIEW

## 2.1 An Overview

The last decade and a half has witnessed a dramatic growth in mining activity in many developing countries. The relationship between large scale mining and development appears to be "Contentious" because mining has so often delivered adverse social, environment and economic effects for the many, but only significant gains for the few. It is ambiguous because of the abiding sense, among local populations as much as development professionals that just may be mining could contribute much more. Mining has also been associated with obviously unsustainable patterns of development and growth. In the coexistence of such divergent feelings about mining and its human and environmental impacts lay the seeds of much conflict (Rosser, 2006; Aspinall, 2007; Ross, 2008).

Much social science production on mining has been dominated by debates over the "resource curse," a thesis that gained momentum in the early 1990s in an attempt to explain two decades of poor economic performance in mineral-rich countries (Auty, 1993, 2001; Sachs and Warner, 1995). However, mining in most cases remain important to the economic development of highly industrialized countries such as United States, Sweden, and Canada in which their development was primarily based on proper use of their natural resources. It is anticipated that, mineral revenues would ultimately provide a base for economic development in developing countries. In practice however, this has not been the case for most third world countries (Auty, 2001). Despite huge foreign direct investment in Africa's mining sector, there is still no any significant change that enables the translation of mineral wealth into building the productive capacity of individual African states and the local communities adjoining mineral resources (Fraser, 2006; Darimani, 2005).

## 2.2 Natural Resources Abundance and Economic Development

There has been an extensive body of theoretical and empirical literature on the contribution of mineral resources in economic development. The schools of thought are divided between those who argue that mineral resources are a pest; others consider mineral resources as a gift that has the potential to drive growth and reduce poverty in developing countries (Auty, 2001). The debate on mining, extraction and development has generated its fair share of catchy terms: "resource curse," "Dutch disease," "greed and grievance." Indeed, it is perhaps because of their potential political resonance that these terms have been challenged. Thus, while some speak of "the well-documented 'resource curse'" (Collier and Hoeffler, 2004; 2005) others argue that the evidence for the curse is largely an artefact of indicator choice (Brunnschweiler and Bulte, 2008; Aspinall, 2007). For its part, the industry seeks to

reframe the debate in terms of the “resource endowment” rather than “curse” (ICMM, 2006).

As these debates have unfolded, there appears to have been convergence among the views of critics and boosters. Auty seems to see more scope for escaping the curse (2001; 2008), while Pegg (2006) “accepts the fact that mining is potentially a great source of wealth which could generate tremendous economic benefits for poor countries” (our emphasis). Meanwhile among the proponents of mining, the World Bank publishes material suggesting “those countries with substantial incomes from mining performed less well than countries with less income from mining” (Poteete, 2009). Authors who have criticized the idea of the resource curse now conclude that perhaps mining ought not to be promoted everywhere in the same way (Davis, 1995). However, the World Bank Group has continued to support programmes that reform investment and mining codes, ease profit repatriation, reduce and fix tax and royalty rates, and support basic geological surveying in order to generate more base data on the basis of which companies can make decisions as to where to invest in more detailed exploration (Bury, 2005; Campbell, 2003; 2006; Hilson and Yakovleva, 2007).

Literature shows further that, poor management of earnings from valuable natural resources results in a syndrome known as Dutch Disease, characterized by real exchange rate appreciation, high labour costs, and structural imbalances in economic development. Dutch Disease undermines long-term economic performance in resource dependent economies resulting in a ‘resource curse.’ Botswana’s experience illustrates the argument. Botswana has not entirely avoided symptoms of Dutch Disease, but has kept them largely in check despite the fragility of state institutions when diamonds were discovered. A broad and stable political coalition during the first decades of independence encouraged adoption of pro-growth policies and institutions. Rather than lock the country into a persistent development trajectory, these institutions left room for changes in political coalitions. As political coalitions change, economic policies and performance are also likely to change (Poteete, 2009).

One important question one may ask is whether or not valuable natural resources can facilitate economic and political development? Poteete (2009) using the experience from Botswana, argues that the evidence is not promising. Several studies find a negative correlation between natural resource abundance and sustained economic growth known as the resource curse (Auty, 2001). In the context of Tanzania, although the country is certainly well endowed with a wealth of minerals; gold, copper, zinc, diamonds and tanzanite, and that, the government wants to capitalize on these natural riches, in which apart from contributing to the national economy, increasing the GDP and foreign exchange earnings (Mwalyosi,

2004). A major objective of the mining sector policy in Tanzania is also, to alleviate poverty in the country by creating gainful and secure employment in the mineral sector and provide alternative sources of income particularly for the rural population and to ensure environmental protection and management , but still, Tanzania is yet to realize this objective (URT, 1997; Mwalyosi, 2004).

## 2.3 Large Scale Mining Activities and the Livelihoods of Local Communities

### 2.3.1 Contribution to socio-economic development

Large-scale mining operations invest substantially in local community development through providing training, public services such as education and health; public goods such as clean water, transport, energy and infrastructures such as schools, health centres, water supply systems. It is assumed that all mining can be accompanied by the growth of small and micro-enterprise activities, providing supplies and related services to mining companies, miners and their families leading to generation of substantial further incomes (World Bank, 2005). Also, large mining companies are expected to create employment for the adjacent communities directly in both, the construction and operating phases, indirectly through input demand, and even more indirectly through the so-called multiplier effects of the demands for goods and services by their employees. Large mines also provide foreign exchange earnings and tax revenues at national, regional and local levels (Holden, 2007).

However, studies done by McMahon and Remy (2001) in developed and developing countries of Latin America confirmed that sustainable mining activities are closely related to the local participation of the neighbouring communities in the decisions affecting them. The sustainable mining activities through increased participation of the local communities were present in Canada and less evolved Latin American experiences. Most importantly, the Canadian cases illustrated the importance of the participation of government in the process, and the establishment of a trilateral dialogue. It was critical that the three main stakeholders i.e. the community, company and government all have direct communication with each other, in addition to a formal three-way dialogue where other stakeholders also participate**.** McMahon and Remy (2001) revealed further that, in the first years of the mining operations, the adjacent local community members filled the lower skilled jobs and provided unsophisticated services to the mine.

In many developing countries however, this has not been the case. Governments have been formulating their mineral development policies without reference to or consultation with the communities that are likely to be affected, while company practice has been to assume that striking a deal with government is enough

(Akabzaa, 2000). For instance, a study made in Ghana revealed that, from the inception of Ghana's economic policy changes in 1983 to date, the mining sector has witnessed a considerable investment boom and increased production particularly in the gold sector. However, despite of this boom, there is a growing unease with regard to the actual benefits accruing by the adjacent local communities and to the country in general (Akabzaa and Darimani, 2001; Eggert, 2001).

Similarly, in Tanzania, there is limited institutional capability to manage the social and economic implication of sudden growth of investment in remote area. If any local income from mining is mainly through auxiliary activities only such as sale of food, operating restaurants and sale of soft drinks (Mwalyosi, 2004). Communities have been the least regarded and historically been neglected in policy and other discussions related to mineral development. They have been considered as being at the receiving end of mineral development. As a result, negotiations and discussions have been primarily between governments and mining companies and have not involved those whose lives and livelihoods are impacted directly and usually adversely by mining operations (McMahon, 2000).

This situation over time has resulted in unacceptably high incidences of poverty among rural populations adjoining mineral resources such as gold, necessitating the need for further research to assess the effects of large-scale mining activities to the livelihoods of adjacent communities in which Some important questions will be answered as it is not well known as to who is benefiting from the direct, indirect, and multiplier effects of the opening of a large mine? Are there provisions for local and indigenous communities? Are there any commitments "to buy locally"? Are there any attempts of training local residents for skilled or semi-skilled positions? Also, there is need to know as to what are the general effects on wages and incomes in the local area? Is it likely that the prices of some basic goods increased dramatically, causing hardship to those community members not receiving benefits from the new economic conditions? And/or is it that the income distribution effects of the mine are likely to be substantial and have potentially serious effects. Lastly but not least, is on the issue of taxes and royalties among different levels of governments as an important factor in determining the geographic and end-use distribution of the benefits and costs of the mine. All these questions necessitate the need for further research in order to determine the effects of large-scale mining activities on the livelihoods of adjacent communities in Geita district.

### 2.3.2 Effects of large-scale mining activities on the Environment

Over the past few decades, environmental protection has emerged from a point of obscurity to one of the important issues of our time. Both at the international and national planes, the dominant theme of the environmental protection movement are

the achievement of sustainable development (Pallangyo, 2007). However, it has been difficult for the mining sector to argue that it can be good for growth arguing its case on environmental grounds is even more of a challenge. At a global level, figures collected by advocacy groups suggest significant environmental impacts, and others note that “the discovery, extraction and processing of mineral resources are widely regarded as the most environmentally and socially disruptive activities undertaken by business” (Jenkins and Yakovleva, 2006; Chan, 2004).

Although there does not seem to be any hard evidence that large-scale mining companies seek pollution havens in which to conduct their operations and that, with some exceptions, they use the same technology in developing countries that they do in their home countries, and they often supersede the local environmental standards. However, there have been a number of large incidents in recent years which mining critics eagerly point out (McMahon and Remy, 2001). Mining activities have been associated with serious environmental destruction. Although the mining industry occupies a relatively small part of the land surface, it does have significant and often irreversible impacts (Knight, 2001; Lange, 2006). By its nature, mining has permanent environmental impacts in that a non- renewable natural resources is exhausted (WRM Bulletin, 2003). Environmental degradation can occur during all the phases of a mining project, exploration, disposal of waste rocks and over burden, ore processing and plant operations, and tailings (processing waste) management (Boocock, 2002).

Some of the environmental problems caused by mining activities include; diversion of rivers, water siltation, landscape degradation, deforestation, and destruction of aquatic life habitat, widespread pollutions, and chemical poisoning. Deforestation for example, is usually intense in the vicinity of mining settlements, which translates into a loss of biodiversity and consequently a change in the nutritional habits of the adjacent local population (Rhett, 2007; Kitula, 2006; Labbone and Gilman, 1999). Mining is also associated with large-scale destruction of agricultural lands and mountains, which leads to severe erosion, siltation, desertification and even flattening of mountains (Tauli- Corpuz, 1997).

Experience from Tarkwa in Ghana shows that, almost all villagers’ water sources are polluted due to mining operations. The major pollutants were increased sediments, mining reagents and spent chemicals. Spillages and leakages of hazardous cyanide solution and mineral processing wastewaters have been sources of chemical pollution and contamination of nearby water bodies resulting in skin rashes (Jones, 2001; Fisher, 2006; Dansereau, 2007). Awudi (2002) adds that, cyanide and mercury leakage or spillage and improper disposal of mine wastes, can be deadly to humans and can poison ground water, farming land and the resources in water bodies on which the livelihood of the majority of adjacent local people

depends for their survival. Since most of the water resources in mining areas are used as sources of drinking water for inhabitants and livestock, pollution of water sources by cyanide and mercury can be a burden to the women and children who collect it for the household and livestock of adjacent rural communities.

As in most developed countries, experiences from Canada show that there has been a strong trend towards stricter environmental regulations and better environmental performance. In particular, there is a heavy emphasis on mine closure and rehabilitation. Companies usually have to set up environmental funds, especially when tailings must be stored into perpetuity. Comprehensive environmental reviews that include detailed analysis of social and cultural factors must be undertaken and they are generally functioning well. There is also a trend towards cooperative monitoring of environmental management programs, especially in aboriginal areas (Holden, 2007).

Similar observations were revealed by McMahon and Remy (2001) who found out that, there were few negative environmental effects in Latin America due to the fact that large scale mining companies were using the same technology that they do in their home countries, and they often supersede the local environmental standards and All the mines made significant efforts to minimize environmental damage and when minor incidents occurred, the companies responded quickly. Fraser (2006) reported that environmental management practices in Bolivia were based on principles of zero discharge and systematic monitoring. The zero discharge principle means that effluents are not discharged from the production process. Ore is crushed, milled and put in solution, then circulated from water tanks to the processing plant and back. Sterile solids from the plant are pumped to the tailings dam where they are separated from liquids by gravity. The water from the dam is recycled back to the plant. In this way, water loss occurs only through evaporation. However, the study by Awudi, (2002) reported that mining companies in Ghana were not using up-to-date environmental practices compared to their home countries. Similar observation was reported in Tanzania by Kitula (2006) who commented that new mining technology that uses fewer chemicals during extraction and processing, and regulate mine waste into a non-harmful form before it is discharged to waste ponds should be developed.

Although the overall objective of the Tanzania National Environmental Policy is to ensure sustainable and equitable use of resources without degrading the environment or risking health or safety; to prevent and control degradation of land, water, vegetation, and air which constitute the essential life support systems in order that all Tanzanians may live in safe, productive and aesthetically pleasing surroundings; to raise public awareness; to promote individual and community participation. But still environmental problems emanating from mining activities are

persistently on the increase affecting more particularly local communities adjacent to mining operations (Pallangyo, 2007; URT, 1997). Obviously, when mining is the topic, the environment is never far behind. In the analysis of any potential mining operation, whether the benefits of the mine are greater than the environmental costs is often the first question asked. This contradiction needs to be addressed through generation of new information through this study.

### 2.3.3 Effects of large-scale mining activities on social-cultural issues

McMahon and Remy (2001) argued that, it is not just socio-economic and environmental implications to livelihoods of adjacent communities that pose a concern with respect to mining operations. There are equally grave social and cultural repercussions to mining operations, particularly when indigenous populations are affected. For instance, high influx of new workers may lead to social problems due to a lack of adequate housing and infrastructure, prostitution. Moreover, workers from other regions of the country or abroad usually bring different lifestyles and patterns of behaviour and arouse local resentments (Hill, 2008; Chan, 2004). Sometimes, large-scale mining companies comply with national rules and regulations of the mining sector but they being reluctant to go beyond compliance because this is not a legal binding requirement (Mwalyosi, 2004). The mining companies argue that they pay all the required taxes and loyalties to the government and therefore it is the government's responsibility to return some of the mining revenues back to the local communities for development. It is obvious that improving the social services and livelihoods of the neighbouring communities is a pre-requisite for sustainable mining (Mwalyosi, 2004).

### 2.3.4 The Interaction between local communities and the mining companies

Traditionally, good relations with the local community have not been an important part of the mining culture in the developing countries. For its part, the local community tends to view mining activities as isolated and oriented toward a purely economic end. The community is apprehensive about being excluded from the benefits produced by the mining project and requires information about the status of the project. In turn, the mining industry is conscious that its activities are costly, risky and require huge investments in exploration in order to determine if a deposit is worth exploiting. Given the uncertainty of success, the mining company has little interest in establishing relations with the community until the project is well underway. In this scenario, community relations have traditionally not been a company's first priority. Thus, a situation of fear and mistrust arises from the lack of communication and comprehension between the mining industry and the community (Chan, 2004; McMahon, 2000).

## 2.4 The Mining Situation in Geita District

Since the inception of large scale mining in Geita District particularly GGM, a lot of complaints have been raised from the adjacent communities regarding the minimal socio-economic benefits accrued by the local community and adverse environmental effects to their livelihoods. While GGM acknowledges to have done a lot to improve the livelihoods of the local people around the mine and beyond, communities also continues to complain on the loss of livelihoods and unmet promises since the opening of its activities of GGM in year 2000. Promises encouraged communities around the mining areas that efforts would be made to compensate the disrupted livelihood assets of the surrounding communities and to support further in areas like health and education facilities, employment opportunities, water supply projects, encouragement of local business through spill over and multiplier effects, and improvements of infrastructures. This encouraged people living around mining areas to have higher livelihood expectations before mining starts.

However, the returns from the promises to the communities have persistently been minimal to the extent that the company seems to have failed to match with the expectations of the rural communities surrounding its operations since many complaints continue to be aired to the extent that the government set a Bunge task force to probe the problem. This confusing discussion called for the needs of researchers to assess the contribution of GGM leading to improved livelihoods of the people around the GGM. Thus, this study has been done by establishing a detailed balance sheet of what livelihood have been disrupted by the GGM and how has the GGM extended its support to cushion the negative effects into a positive livelihoods. With this regard, scientific information is lacking on which to base the arguments on how to remedy the situation which is persistently on the increase in Tanzania. It is for this reason that; the proposed study is relevant to determine the effects of large-scale mining on the livelihoods of adjacent communities in Geita district.

# CHAPTER THREE: RESEARCH METHODOLOGY

## 3.1 Description of the Study Area

This study was conducted in Geita District, Geita Region. Both, Geita Region and Geita District were purposively selected as Geita Gold Mine (GGM) which is situated within in order to examine its contribution on community livelihoods. The study area has been chosen because it is one of the most important mining areas in Tanzania due to its large deposits of precious gold. GGM is one of the 25 operations in 11 countries and in 4 continents owned by AngloGold Ashanti, which makes Tanzania the third largest producer in Africa, after South Africa and Ghana. As the area is also facing many resentments and resistance from the community due to its mining activities, it is expected to act as representative of many other mining areas facing similar situation like North Mara Gold Mine, Bulyanhulu Gold Mine, Mwadui Diamond Mine and others of the same kind in Tanzania.

## 3.2 Research Design

A research design provides a framework for the collection and analysis of data (Bryman, 2008). It establishes the structure that connects the research questions to the gathering of empirical data, and ultimately, to the conclusions drawn (Yin, 2003). This study employed a cross-sectional design which involved collection of data at a single point in time. This type of study design utilizes different groups of people who differ in the variable of interest, but share other characteristics such as socioeconomic status, educational background, and ethnicity. The design was considered as the most appropriate for descriptive purposes and determination of relationship between variables. This was so because the study was set to make comparison of the livelihood status between villages close to GGM (Mgusu and Mpomvu) and villages away from GGM (Ikulwa and Nyabubele) respectively. This was done in order to determine whether or not GGM has significantly contributed to communities adjoining its operations.

## 3.3 Research Approach

The research may be qualitative or quantitative depending on the nature of the study (Kothari, 2004; Kombo and Tromp, 2006). As regard to this study, both quantitative and qualitative approaches were used. The quantitative approach was employed to generate data in quantitative form. On the other hand, qualitative approach was used to generate subjective assessment of attitudes, opinions and behavior. It was particularly used to explain some of the observed phenomena that could not be explained quantitatively. This approach emphasized on the quality of entities, processes and meanings that cannot be experimentally examined or measured in

terms of quantity, amount, intensity or frequency. It explored attitudes, behavior and experiences through such methods as interviews or focus groups. It was therefore useful in getting an in-depth opinion from the participants. The need to combine both approaches was due to the study's focus on people's livelihoods, perceptions and values in order to be able to assess how large scale mining operations have affected people's well-being in the study area.

## 3.4 Sample Size and Sampling Process

### 3.4.1 Unit of analysis

Scientific research on Africa, often considers the household as the basic unit of social analysis. Households are defined as spatial units characterised by shared residence and daily production, primarily cooking and eating. Madulu (1998) further described the household as a unit comprising a person or group of persons who live together in the same homestead but not necessarily common housekeeping arrangements and answer to the same head of the household. In this study, the sampling unit was a household of the local communities in Geita District. One of the reasons for the choice was the fact that, it was the main unit of the people who might in one way or another be affected by the activities of large scale mining. It was assumed that, mining activities are more likely to affect the livelihoods of households' individuals who are much more close to its operations.

### 3.4.2 Determination of sample size

A total of 128 households were sampled for the study. Household survey was conducted in the selected villages. Names of the selected households were drawn from individual village register which acted as a sampling frame. The sample size (n) was computed depending on the total number of the households (N) in each village. Boyd et al. (1981) formula was used to determine sample size for the study as shown in Table 1 below.

n= C/100 x N
Where C= figure greater than or equal to five percent of village household population.
N= the total number of households in the village.
n= the number of selected households.

Based on the Boyd et at. (1981) formula, the sample size of Households surveyed in each village for the study was as shown in the Table 1 below:

Table 1: Total Households

| Ward | Village | Total hhs (N) | Percent of hhs surveyed | Number of hhs surveyed (n) |
|---|---|---|---|---|
| Mtakuja | Mgusu | 451 | 7.5 | 34 |
| | Mpomvu | 404 | 7.5 | 30 |
| Ihanamilo | Ikulwa | 689 | 5 | 34 |
| Kasamwa | Nyabubele | 394 | 7.5 | 30 |
| Total | | **1938** | **6.6** | **128** |

**Source: Geita District Council (GDC), 2006.**

It should be noted here however that, due to high households' population in Ikulwa village compared to other villages, the number of households selected was 5% of the total Households. This was less than 7.5% of the total Households selected in other villages like Mgusu, Mpomvu and Nyabubele. This was due to the need of having equal representation of Households in villages close to GGM (Mgusu and Mpovu) and those situated away from GGM (Ikulwa and Nyabubele). However, according to Boyd et al. (1981) a random sample should at least constitute 5% of the total population for it to be representative.

### 3.4.3 Sampling process and techniques

Both non-probability and probability sampling procedures were used. Non probability (purposive) sampling was used to select Mtakuja Ward due to its proximity to GGM. The reason for its selection was on grounds that; the area has been reported to experience some complaints from the community regarding issues on environmental degradation, water pollutions and displacements due to their proximity to GGM mining operations. Also, two more wards of Kasamwa and Ihanamilo were purposively selected because they are situated away from GGM for comparison purposes. Probability sampling (simple random sampling) was used to select villages within each ward selected for the study.

Moreover, random sampling was also used to select the households within each village as the population in the respective areas, which were homogeneous in nature. A list of villages' registers of the selected villages was obtained from the district office in which households were randomly drawn for the study. Random sampling is an appropriate strategy, when one wants to generalise from the sample studied to a large population. Non probability (purposive) sampling was also used to select key informants. This technique is useful when sample element and locations are chosen to fulfill certain criteria or characteristics or have attributes understudy. In addition, village leaders helped in the selection of community members to focus group discussions. Emphasis was given to those community members who could express a range of views regarding socio-economic and environmental effects associated by large scale mining activities to their livelihoods. The aim was to uncover hidden issues in the community.

## 3.5 Methods of Data Collection

Different methods were used to collect both primary and secondary data. The use of different methods was done in order to ensure validity and reliability, suitability and adequacy of data. It was assumed that, no single technique is necessarily superior to any other while a combination of two or three methods would make data highly reliable. With the use of different methods, the researchers expected to get information on GGM's socio-economic contributions to the neighbouring communities. These include roads built, education and health services support, market for local produces and support in agriculture, type of employment offered by GGM to the local people. Other information was collected regarding the environmental effects on people's wellbeing due to mining operations.

### 3.5.1 Participant observation

In this method, information was obtained by observing what was really happening and experienced by the people in the study area. It is a technique that involved systematic selection, watching and recording behaviour and characteristics of living being or phenomena. In the field, direct observations were made on issues pertaining to socio-economic and environmental effects of large scale mining in the areas understudy. Such issues included social development services, land degradation, waste rock-handling, access to housing, child-labour, rate of crime and others of the same kind. The method assisted in supplementing information needed as it allowed the sharing of life experience of the group being observed. Researchers were also able to get an opportunity to experience directly what community members were experiencing, feeling and hence be able to record the natural behaviour of the people and verify the truth of the statements made by informants in the context of a schedule. This was useful as it assisted to add depth to our understanding of people, society and the landscape. It also helped researchers to add rich sources of data as well as explanations which further help on our analysis.

### 3.5.2 Focus group discussions

This method involved several interviewees at the same time. It included one group of women and another group composed of men selected from each village understudy. This means that, two groups were obtained from each village, making a total of eight (8) groups were consulted. This was done to ensure equal representation and gender balance. Each focus group was composed of 10 members for the purpose of effective discussion. However, different age groups, status and geographical locations were considered so as to best as possible reflect all the different segments within the population of a village to get diverse views of community members. This division was seen as convenient in allowing everyone to take part in the discussions.

This was useful as it enabled researchers to understand the real situations happening within the communities surrounding mining operations. Researchers were also able to generate data through the interaction between informants and see how people responded to each other's views rather than just the responses themselves. It also helped to gain insights into how local people see and express their general livelihood situation, their general attitudes, values and norms in relation to natural resource utilization in the mining sector, what kind of ideas and suggestions they would have for possible remedies. In totality, this method provided useful information on the local context for each village and study area as a whole.

### 3.5.3 Structured and semi-structured interviews

The research interview is a prominent data collection strategy in both qualitative and quantitative research (Bryman, 2008). While a structured interview has a formalized limited set of questions, a semi structured interview is more flexible allowing us to bring up new questions during the interview as a result of what the interviewee answer. In every selected village, structured interviews were conducted with key informants. Key informants were primarily obtained from district officials, GGM staffs, village leaders including influential people and elders. Key informants are described as members who are particularly knowledgeable and reliable about factual matters in a community. Key informants not only provided the researcher with the practical details related to the activity, but they also provided some secondary information related to GGM operations for comparative purposes with other sources.

On a village level, structured interview guide was prepared in advance and used to interview local resource persons at household level in all selected villages. This assisted in generating factual and overall overview of the situation in the respective village. It was conducted in form of face to face interview by using a questionnaire to gather information from selected households. Some of the information collected was on sources of income, land use rights, access and ownership of land, dominant economic activities to mention but some. The method was used as quantitative data collection tool which normally helped the researcher in cross-checking the information obtained from other sources. Above all, it was useful in exploring the socio-economic contributions and environmental effects due to GGM interventions in their area. This offered information of importance for the other parts of the study and more on the local context.

### 3.5.4 Documentary review

The assumptions behind the use of this method were to complement on the first-hand information obtained through interview, questions and observations. It was used to collect secondary data in which reports and other relevant information from various documents such as books, journals and official reports available. This was done by visiting both published and unpublished documents from REPOA, University of Dar es Salaam Library, Tanzania Investment Centre, the Ministry of Energy and Minerals, GGM and electronic sources in the internet. The method was very useful especially in determining the validity and reliability through complying with what other methods of data collection have revealed.

## 3.6 Data Processing and Analysis

### 3.6.1 Qualitative data analysis

Qualitative data were handled using thematic techniques and be organized using key themes that emerged from the discussions held with respondents and other stakeholders. Such data were then analyzed using content and structural functional analysis. In this way, the recorded dialogues with respondents were broken down into the smallest meaningful units of information, values and attitudes of respondents. Structural functional analysis was used to explain the way social facts related to each other within a social system and the manner they relate to the physical environment. Data from focus group discussions were summarized by picking the main issues and conclusions reached by the group members. Generally, qualitative data provided clear and systematic responses by respondents on key issues of research interest such as change of land use, cost living, nature of the employment opportunities offered by the company, crop choices, respiratory diseases, income disparities, child-labour, prostitutions, local governance like community participation, business development services and the environmental control.

### 3.6.2 Quantitative data analysis

Both descriptive and inferential statistics were performed for quantitative data. The analysis was done using Statistical Package for Social Sciences (SPSS version 12.0) software. Frequency distribution tables were generated to summarize the data. A t-test was performed to test for any significant differences between the close and distant villages.

## 3.7 Ethical Considerations

In this study, ethical issues were accorded high priority in a sense that needed information was obtained on the consent of respondents. The researcher informed the subjects about their expected roles in the study and its benefits. After the study had finished, the researcher also ensured participants on the need to provide to the stakeholders with complete details about the study outcomes. Also consideration was placed on issues related to the socio-economic implications resulting from the operations of large scale mining on local communities adjacent to GGM.

# CHAPTER FOUR: RESULTS AND DISCUSSION

## 4.1 Socio-Economic Characteristics of Respondents

### 4.1.1 Sex of respondents

With respect to this variable, assumptions were made that, in many cases, female-headed households are poorer than male-headed households. For example, the female headed households might be widowed or divorced and as a result, the labour smaller. The selected sample within villages close to GGM comprised of 54.3% female and 45.7% males. During interview, a respondent reported to engage in various economic activities in a year, out of the total number of female respondents (both close villages combined), a large percent (80%) engaged in Petty business, 66.7% in Trade, 45% in Farming, 42.8% as casual labourers and 36.8% in Mining activities. While male respondents were 63.2% engaged in mining activities also Casual labour (57.2%), Farming (55%), Trade (33.3%) and Petty business (20%).

Within the villages away from GGM, male respondents were 74.9% and female 25.1%. By sorting out the composition of various economic activities (both away villages combined), almost all male respondents were engaged in Trade and Public employment and Livestock keeping. Apart from this 70.7% integrated farming, casual labour (50%), and Petty business (28.6%). Female respondents were much more engaged in Petty business (71.4%), in casual labour (50%), and farming (29.3%). This implies that, mining engaged was not gender biased since it involved both males and females, though male were engaged in large number. However, mining was not practiced as an economic activity by respondents in the away villages as due to low access as were located far from the mines. Moreover, there was lack of permanent housing for workers from distant villages. Of all the economic activities performed by the majority of male respondents in villages away from GGM, Trade and Public employment and Livestock keeping were the dominant economic activities while majority of the female respondents were primarily engaged in Petty business.

**Table 2: Sex and economic activities distribution in the study area**

| Sex | Village | Farm | Petty | Trade | Causal | Mining | L/stock | Empl | Overall |
|---|---|---|---|---|---|---|---|---|---|
| Male | Mgusu | 10.0 | 6.7 | 33.3 | 28.6 | 42.1 | - | - | 45.7 |
| | Mpomvu | 45.0 | 13.3 | 0.0 | 28.6 | 21.1 | - | - | |
| Female | Mgusu | - | 66.7 | 66.7 | 42.8 | 26.3 | - | - | 54.3 |
| | Mpomvu | 45.0 | 13.3 | - | - | 10.5 | - | - | |
| | Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | | | 100.0 |
| Male | Ikulwa | 26.8 | 28.6 | 100 | 30 | - | 50 | 100 | 74.9 |
| | Nyabubele | 43.9 | - | - | 20 | - | 50 | - | |
| Female | Ikulwa | 9.8 | 71.4 | - | 50 | - | - | - | 25.1 |
| | Nyabubele | 19.5 | - | - | 0 | - | - | - | |
| | Total | 100.0 | 100 | 100 | 100 | | 100 | 100 | 100.0 |

### 4.1.2 Age of respondents

Assumptions were made that, younger households tends to get more resources from the environment than older households. This can be explained by younger households engage more in the mining activity. Other households may also lack the physical strength that is often acquired. Table 2; presents age categories of the respondents, the productive age category (41 – 60) were dominant and comprised of the majority in both close (67.5%) and away (58.3%) villages. In closer villages, all respondents within this age were traders, and who in large number (72.2%) integrated mining as a temporal activity. While in the away villages, all respondents in this age category engaged in Trade as well as public service employment, of them 51.2% were small scale farmers, Livestock keepers (50%) and Petty business (28.6%).

Next to this, follows a 20 to 40 years age category comprising of 30.9% respondents in the away villages and 23.3% respondents in the villages close to GGM. This age was highly engaged in Petty business (71.4%) in the away villages and Petty business in the villages close to GGM, though it also integrated 27.8% mining. Other respondents were aged above 60 years, 10.8% within away villages from which majority were livestock keepers (25%) and 20% casual labourers, 19.5% small scale farmers. While in the villages close to GGM, were low (9.2%), within this percentage the majority (25%) were farmers and none in mining. Mining seems to be practiced by a wide range of age (20 – 60) as seen in the table and particularly in the villages close to GGM which were also presumed to have families.

**Table 3: Age ane economic activities distribution in the study area**

| Age | Village | Farming | Petty | Trade | Causal | Mining | Livestock | Empl | Overall |
|---|---|---|---|---|---|---|---|---|---|
| <20 | | - | - | - | - | - | - | - | - |
| 20 - 40 | Mgusu | 0 | 40 | 0 | 14.3 | 5.6 | | | 23.3 |
| | Mpomvu | 20 | 0 | 0 | 14.3 | 22.2 | - | - | |
| 41 - 60 | Mgusu | 5 | 26.7 | 100 | 42.9 | 61.1 | - | - | 67.5 |
| | Mpomvu | 50 | 26.7 | 0 | 14.3 | 11.1 | - | - | |
| > 60 | Mgusu | 5 | 6.7 | 0 | 14.3 | 0 | - | - | 9.2 |
| | Mpomvu | 20 | 0 | 0 | 0 | 0 | | | |
| Total | | 100 | 100 | 100 | 100 | 100 | | | 100 |
| <20 | | - | - | - | - | - | - | - | - |
| 20 - 40 | Ikulwa | 2.4 | 71.4 | 0 | 50 | | 0 | 0 | 30.9 |
| | Nyabubele | 26.8 | 0.0 | 0 | 10 | | 25 | 0 | |
| 41 - 60 | Ikulwa | 26.8 | 28.6 | 100 | 10 | | 50 | 100 | 58.3 |
| | Nyabububele | 24.4 | 0.0 | 0 | 10 | | 0 | 0 | |
| > 60 | Ikulwa | 7.3 | 0.0 | 0 | 20 | | 0 | 0 | 10.8 |
| | Nyabububele | 12.2 | 0.0 | 0 | 0 | | 25 | 0 | |
| Total | | 100.0 | 100.0 | 100 | 100 | | 100 | 100 | 100.0 |

### 4.1.3 Marital status of respondents

Results indicate that, majority of respondents (79.4%) in the away villages were married and almost all were Traders, livestock keepers and small scale farmers. Marriage was also carried by the majority (54.2%) in the villages close to GGM where out of them 71.5% were casual labourers, 68.4% engaged in mining, 65% farmers, 33.45% Petty business and 33.3% Traders. A good social capital in Mining was observed since there were about 10.5% who were single and widowed with a few (5.3%) of the divorced involved in this activity. Mining was found to be an important contributor to income in households with families since it was largely adapted by a large number of the married. Again, no residents in the distant villages were involved in mining activities.

**Table 4: Marital status and economic activities distribution in the study area**

| Marital status | Village | Farming | Petty | Trade | Causal | Mine | Lives | Emp | Overall |
|---|---|---|---|---|---|---|---|---|---|
| Married | Mgusu | 10 | 26.7 | 33.3 | 42.9 | 42.1 | - | - | 54.2 |
| | Mpomvu | 55 | 6.7 | 0 | 28.6 | 26.3 | | | |
| Single | Mgusu | 0 | 13.3 | 66.7 | 0 | 10.5 | - | - | 22.8 |
| | Mpomvu | 10 | 13.3 | 0 | 0 | 0.0 | - | - | |
| Widow | Mgusu | 0 | 13.3 | 0 | 28.6 | 10.5 | - | - | 14.9 |
| | Mpomvu | 10 | 6.7 | 0 | 0 | 5.3 | - | - | |
| Separated | Mgusu | 0 | 20.0 | 0 | 0 | 0.0 | - | - | 7.0 |
| | Mpomvu | 15 | 0.0 | 0 | 0 | 0.0 | - | - | |
| Divorced | Mgusu | 0 | 0.0 | 0 | 0 | 5.3 | - | - | 1.1 |
| Total | | 100 | 100.0 | 100 | 100 | 100.0 | | | 100.0 |
| Married | Ikulwa | 26.8 | 42.9 | 100 | 33.3 | - | 50 | 100 | 79.4 |
| | Nyabubele | 51.2 | 0.0 | 0 | 22.2 | | 50 | 0 | |
| Widow | Ikulwa | 2.4 | 0.0 | 0 | 44.4 | | 0 | 0 | 8.6 |
| | Nyabubele | 4.9 | 0.0 | 0 | 0 | | 0 | 0 | |
| Single | Ikulwa | 0 | 42.9 | 0 | 0 | | 0 | 0 | 8.0 |
| | Nyabubele | 4.9 | 0.0 | 0 | 0 | | 0 | 0 | |
| Separated | Ikulwa | 4.9 | 14.3 | 0 | 0.0 | | 0 | 0 | 3.6 |
| | Nyabubele | 2.4 | 0.0 | 0 | 0.0 | | 0 | 0 | |
| Divorced | Ikulwa | 2.4 | 0.0 | 0 | 0.0 | | 0 | 0 | 0.4 |
| Total | | 100 | 100 | 100 | 100 | | 100 | 100 | 100.0 |

### 4.1.4 Education level of respondents

Here, assumptions were also made with respect to this aspect. It was assumed that, better educated households tend to have access to a wide range of income opportunities and would thus not find it rewarding to get involved in mining activities. Results show that, the majority had completed STD VII in both villages close to GGM (61.4%) and away (56.3%) villages as a medium level of education in the study area. A large number (34%) of those with STD VII level of education in closer to GGM

villages were in mining activities while those (64.3%) in away villages were mostly in small scale farming. Below this level were those with no formal education and a few completed STD IV considered to have the lowest level of education in the study area. These occupied 21.1% and 14% in villages close to GGM, 28% and 6.3% in away villages respectively. Most of those with this level of education were in small scale farming in both premises to GGM. The highest level of education in villages close to GGM, comprised of the minority who completed Form II (1.8%) and Post-Secondary Education (1.8%), while in the away villages 4.7% had completed Form II and Form IV. Most of those who completed Form IV and Post-Secondary Education were in small scale farming and mining for those who completed Form II (Table 4 a & b) respectively. Therefore, mining considered all levels of education in the study area (closer villages) whereby STD VII were in large percent and very few form II and other residents completely had no formal education.

**Table 5 (a): Education level of respondents in closer villages**

| Variable | Description | Village | | |
|---|---|---|---|---|
| Education level | Source of income | Mgusu | Mponvu | Total percent |
| No formal education N=12(21.1) | Farming | 1 (11.1) | 2 (66.7) | 3 (38.9) |
| | Petty business | 4 (44.4) | 1(33.3) | 5(38.9) |
| | Mining (Temporary) | 3(33.3) | | 3(16.7) |
| | Causal labor | 1 (11.1) | | 1 (5.5) |
| Completed STD IV N=8(14) | Farming | - | 2 (66.7) | 2(33.3) |
| | Trade | 2(40) | - | 2(20) |
| | Mining (Temporary) | 2(40) | - | 2(20) |
| | Petty business | | 1(33.3) | 1(16.7) |
| | Causal labor | 1(20) | | 1(10) |
| Completed STD VII N=35(61.4) | Mining (Temporary) | 8(44.4) | 4(23.5) | 12(34) |
| | Farming | | 9(52.9) | 9(26.4) |
| | Petty business | 7(38.9) | 2(11.8) | 9(25.4) |
| | Causal labor | 2(11.1) | 2(11.8) | 4(11.4) |
| | Trade | 1(5.6) | | 1(2.8) |
| Completed Form II N=1(1.8) | Mining (Temporary) | | 1 | 1(50) |
| Post-secondary education N=1(1.8) | Farming | | 1 | 1(50) |

**Table 5 (b): Education of respondents in distant villages**

| Variable | Description | Village | | |
|---|---|---|---|---|
| Education level | Source of income | Ikulwa | Nyabubele | Total percent |
| No formal education N= 18(28) | Farming | 3(33.3) | 9(100) | 12(66.6) |
| | Petty business | 3(33.3) | | 3(16.7) |
| | Causal labor | 3(33.3) | | 3(16.7) |
| Completed STD IV N= 4(6.3) | Farming | | 3(75) | 3(75) |
| | Livestock keeping | | 1(25) | 1(25) |
| Completed STD VII N= 36(56.3) | Farming | 11(50) | 11(78.6) | 22(64.3) |
| | Causal labor | 4(18.2) | 2(14.3) | 6(16.2) |
| | Petty business | 4(18.2) | | 4(9.1) |
| | Livestock keeping | 2(9.1) | 1(7.1) | 3(8.1) |
| | Trade | 1(4.5) | | 1(2.3) |
| Completed Form II N =3(4.7) | Farming | 1(50) | 1(100) | 2(75) |
| | Causal labor | 1(50) | | 1(25) |
| Completed Form IV N =3(4.7) | Farming | | 2(100) | 2(50) |
| | Employee | 1(100) | | 1(50) |

### 4.1.5 Household size and adaptability to different Income generating activities

The size of household was considered as significant if the household members were of a productive age. If the household consists of many adult members it could then be interesting to include it a variable. Results indicate that, most of households had large household sizes (≥7 members), by which households in the distant villages were in larger percent (62.5%) followed by villages close to GGM (49.1%). Within distant villages, 72.5% households were highly adapted to small scale farming while those in villages close to GGM were highly adapted to small scale farming (32.3%) and mining (31.1%). The medium household size (4-6) comprised of 39% households in close and 23.4% in away villages, out the total percent, still mining was coped by a large number of households (38.8%) as a main income generating activity in closer villages while small scale farming (41.7%) in distant villages. Small household size (1-3) comprised of 14.1% households in distant villages and 11.9% households in villages close to GGM, from which the majority were in small scale farming with a few (14.3%) mining in villages close to GGM. From these results, it can be argued that, mining is a very potential among all activities within villages close to GGM since it appears to have a contribution in total household income among different household sizes.

**Table 6 (a): Income generating activities adapted by different household size (Closer villages)**

| Variable | Description | Income activity | Village | | Total percent |
|---|---|---|---|---|---|
| | | | Mgusu | Mponvu | |
| Household size | Small (1-3) | Farming | | 2(100) | 2(50) |
| | N=7(11.9) | Petty business | 3(42.9) | | 3(21.4) |
| | | Mining | 2(28.6) | | 2(14.3) |
| | | Trade | 1(14.3) | | 1(7.1) |
| | | Causal labor | 1(14.3) | | 1(7.1) |
| | Medium (4-6) | Mining | 6(40) | 3(37.5) | 9(38.8) |
| | N=23(39) | Petty business | 6(40) | 1(12.5) | 7(26.2) |
| | | Farming | | 4(50) | 4(25) |
| | | Causal labor | 3(20) | | 3(10) |
| | Large (≥7) | Farming | 1(9.1) | 10(55.6) | 11(32.3) |
| | N=29(49.1) | Mining | 5(45.5) | 3(16.7) | 8(31.1) |
| | | Petty business | 2(18.2) | 3(16.7) | 5(17.4) |
| | | Causal labor | 1(9.1) | 2(11.1) | 3(10.1) |
| | | Trade | 2(18.2) | | 2(9.1) |

**Table 6(b): Income generating activities adapted by different household sizes (Distant villages)**

| Variable | Description | Income activity | Village | | |
|---|---|---|---|---|---|
| | | | Ikulwa | Nyabubele | Total percent |
| Household size | Small (1-3) | Farming | 4(50) | 1(100) | 5(75) |
| | N=9(14.1) | Causal labor | 3(37.5) | 0 | 3(18.8) |
| | | Petty business | 1(12.5) | 0 | 1(6.2) |
| | Medium (4-6) | Farming | 1(16.7) | 6(66.7) | 7(41.7) |
| | N=15(23.4) | Causal labor | 3(50) | 2(22.2) | 5(36.1) |

| Variable | Description | Income activity | Village | | |
|---|---|---|---|---|---|
| | | | Ikulwa | Nyabubele | Total percent |
| Household size | Small (1-3) | Farming | 4(50) | 1(100) | 5(75) |
| | | Trade | 1(16.7) | 0 | 1(8.3) |
| | | Employee | 1(16.7) | 0 | 1(8.3) |
| | | Livestock keeping | 0 | 1(11.1) | 1(5.6) |
| | Large (≥7) | Farming | 10(50) | 19(95) | 29(72.5) |
| | N=40(62.5) | Petty business | 6(30) | 0 | 6(15) |
| | | Livestock keeping | 2(10) | 1(5) | 3(7.5) |
| | | Causal labor | 2(10) | 0 | 2(5) |

## 4.2 Effectiveness of corporate social responsibility implementation in the area

Based on field survey observation, documentary review and discussions with GGM key informants, the study discovered that there were no specified set goals for community development. In addition, the GGM planning processes was found not participatory with the targeted communities or beneficiaries. As a result, some community members were completely not aware of what GGM was doing in the area. The community seemed not participating to its activities as GGM was implementing activities which appeared not on the top priorities of the community hence, the implication of the importance of participatory approach. For example, almost every visited village were in high demands of water and health services which in most cases were located very far to the community. However, with respect to the discussions with GGM informants, GGM also complained against the acknowledged community's negative perception for what GGM was doing for the community. In the education sector for example, there was construction of Nyankumbu Girls Secondary school. The main target was to increase enrollment of primary school pupils and meet the accommodation for secondary schools education in Geita District. The rest of the sectors of water, health, roads and environment had no clearly defined goals and strategies to support the community.

A good example was mostly cited on part of the environmental pollutions like water, air and noise, no control measures were made known to the community. Since some of important elements in setting goals were missing to enable the researcher assess them, it was not easy for GGM to attain the goals and its sustainability. This was attributed by the fact that, the goals were not clear and some were not even set as discussed earlier in terms of the magnitude of attainment within a specified time limit. The measurement and time set to attain such goals could there; this could automatically motivate the GGM to struggle in achieving such measurement within a specified time set by the company. In this way, the reputation of GGM would also automatically be attained and accepted by the surrounding communities thereby creating good social relationship.

However, the GGM revealed that most of goals have been attained, but we look further to commit ourselves into sustainable projects that are vital for social and economic development not only for Geita residents but our country as well. GGM normally has a 10 years plan in accomplishing goals set for community development adhering to the MDGs and Tanzania vision 2025. We have committed a lot to do to the community close to us. But, we cannot accomplish every individual needs. We work for sustainable projects of which they will be beneficial to the community once the mine is closed. For sure, it is not known to most of local people even educated ones here at Geita what GGM is doing to the community around us. There is high expectation to people around here and everyone needs to either be employed by GGM or GGM give him/her something. Look at the multiplier effect for GGM being here. Based on this argument, one may come up with a question that, why the local community does not know what the GGM is doing for the community including the educated ones? GGM needs to have goals that are measurable, time bound that can be implemented in a joint venture with the entire targeted community as well as the leaders.

## 4.3 Contribution of GGM on Socio-economic Development of Local Communities

### 4.3.1 Contribution of GGM on social services

Overtime, the presence of GGM was anticipated to bring some changes to the existing social services, but this was not proved positive by almost all residents in both premises to GGM. Most of respondents evidenced that, GGM has not contributed any change to the existing number of dispensaries, Secondary Schools, Primary Schools as well as quality of roads and water supply in the study area. It was only a very small percent (1.6%) of respondents in the away villages evidenced a slight increase in the number of Primary Schools, (Table 6).

**Table 7: Responses of GGM contribution on social services**

| Social services | Proximity to GGM | No change | Decreased | Increased |
|---|---|---|---|---|
| No of dispensaries | Close villages | 100.0 | 0.0 | 0.0 |
| | Away villages | 98.4 | 1.6 | 0.0 |
| Secondary school | Close villages | 98.4 | 1.6 | 0.0 |
| | Away villages | 100.0 | 0.0 | 0.0 |
| Primary school | Close villages | 98.4 | 1.6 | 0.0 |
| | Away villages | 98.4 | 0.0 | 1.6 |
| Quality of roads | Close villages | 90.5 | 9.5 | 0.0 |
| | Away villages | 98.4 | 1.6 | 0 |
| Availability of water | Close villages | 73.4 | 26.6 | 0.0 |
| | Away villages | 98.4 | 1.6 | 0.0 |

Moreover, the need to provide support in education emerged as a priority concern in all surveyed villages. Distance to schools and inadequate number of secondary schools were felt to be more acute in the study area. The Targets for achieving Universal Primary Education (UPE) had been set annually but rarely had been fully realized. The obstacles against target realization had been many like lack of adequate construction materials and lack of teaching staff. Discussions with GGM key informants, the study discovered that GGM has been able to construct 39 classrooms for primary schools and provision of 46 desks. In case of secondary schools, GGM has managed to construct 25 classrooms at kamena secondary school; Bukwimba Secondary school; Katoro secondary school; Kamhanga secondary school; Busolwa secondary school; Kalangalala secondary school; Mpomvu secondary school and construction of Nyankumbu Girls Secondary school to its completion level. However, the status of conditions and availability of primary and secondary schools in the area have not changed as was reported by 98% of the respondents from both close and away villages from GGM (See Table 6).

### 4.3.2 Comparison on income groups between close and distant villages

In efforts to determine whether GGM has contributed on income among the households in the study area, assessment was made on whether there were major differences in the livelihood status between households close and distant from GGM area of operation. A general assessment on poverty levels showed that, most of those who were close to GGM were well full as compared to distant villages. Though in both sites, the majority of the respondents were poor, but less in villages close to GGM (73.2%) than in distant villages (87.5%). Results also indicated that, the medium (14.2%) and less poor groups (12.6%) were more in villages close to GGM, as compared to distant villages where they were 7.9% and 4.7% respectively. Percentages and income classifications are shown in Table 8 below.

**Table 8: Distribution of income groups by location**

| Income groups | Close Villages | | Total |
|---|---|---|---|
| | Mgusu | Mpomvu | |
| Poor | 69.7 | 76.7 | 73.2 |
| Medium | 15.2 | 13.3 | 14.2 |
| Less poor | 15.2 | 10.0 | 12.6 |
| | **Distant villages** | | |
| | Ikulwa | Nyabubele | **Total** |
| Poor | 85.3 | 89.7 | 87.5 |
| Medium | 8.8 | 6.9 | 7.9 |
| Less poor | 5.9 | 3.4 | 4.7 |

### 4.3.3 Livelihood strategies among income groups between villages close and away

Results indicate that, there were more livelihood strategies in close villages than in distant villages particularly in the less poor and poor groups in which mining was the only activity that excluded distant villages from close villages in annual income contribution. Majority in these income groups engaged in mining (60% less poor and 30.9% poor). It could be seen that, the less poor group in villages close to GGM, were engaged in three different strategies (Mining, and Trade) while the distant in only two different strategies (Farming and Trade). The poor group in villages close to GGM engaged in five different strategies (Mining, Farming, Petty business, Casual labor and Trade) while in the distant villages only four different strategies (Farming, Petty business, casual labor and Livestock keeping). Generally, results indicate that, there were more livelihood opportunities in villages close to GGM than in distant villages, mining being exceptional, Table 9.

**Table 9 (a): Livelihood strategies among income groups (Closer villages)**

| Income groups | Economic activity | Village | | | | Overall | |
|---|---|---|---|---|---|---|---|
| | | Mgusu (N=63) | | Mpomvu(N=63) | | | |
| | | USD | % | USD | % | USD | % |
| **Less poor** | Mining | 3615.43 | 20 | 2142.47 | 100 | 2878.95 | 60 |
| | Petty | 2822.00 | 60 | - | | 1411 | 30 |
| | Trade | 8034.28 | 20 | - | | 4017.14 | 10 |
| **Medium** | Mining | 990.89 | 60 | 803.43 | 25 | 897.16 | 42.5 |
| | Farming | 964.11 | 20 | 803.43 | 50 | 883.77 | 35 |
| | Petty | 937.33 | 20 | 937.33 | 25 | 937.33 | 22.5 |
| **Poor** | Mining | 356.33 | 39.1 | 184.25 | 22.7 | 270.29 | 30.9 |
| | Farming | - | | 357.77 | 50 | 357.77 | 25 |
| | Petty | 309.89 | 30.4 | 234.33 | 18.2 | 272.11 | 24.3 |
| | Casual | 219.60 | 21.7 | 562.40 | 9.1 | 391 | 15.4 |
| | Trade | 442.00 | 8.7 | - | | 221 | 4.3 |

*Average annual income; Mgusu (331.96USD *, 974.83 USD**, 3615.43USD***), Mpomvu (334.69USD*, 836.90 USD**, 2142.47USD***), Ikulwa (149.00 USD*, 2771.83USD**, 4017.14USD***), Nyabubele (309.66USD*, 1700.59 USD**, 5624USD***)*

**, ** and *** indicate Poor group, Medium group and Less poor group respectively.*

**Table 9(b): Livelihood strategies among income groups (Distant villages)**

| Income groups | Economic activity | Village | | | | Overall | |
|---|---|---|---|---|---|---|---|
| | | Ikulwa (N=63) | | Nyabu (N=63) | | | |
| | | USD | % | USD | % | USD | % |
| **Less poor** | Farming | 4017.14 | 50 | 5624 | 100 | 4820.57 | 75 |
| | Trade | 4017.14 | 50 | - | | 2008.57 | 25 |
| | | | | - | | | |
| **Medium** | Farming | - | | 1700.59 | 100 | 851.00 | 50 |
| | Employee | 3133.37 | 50 | | | 1566.69 | 25 |
| | Petty | 2410.28 | 50 | | | 1205.14 | 25 |
| **Poor** | Farming | 165.53 | 44.8 | 204.54 | 84.62 | 185.03 | 64.7 |
| | Petty | 145.96 | 20.7 | - | | 72.98 | 20.7 |
| | Casual | 121.52 | 27.6 | 502.14 | 7.69 | 311.83 | 17.6 |
| | Livestock | 160.69 | 6.9 | 361.54 | 7.69 | 261.12 | 7.0 |

### 4.3.4 Annual income between villages close and away from GGM

The difference in annual income obtained from various economic activities was compared between the areas taking into consideration the income groups (Poor, Medium and Less poor). Among these income groups, a T-test between the close and distant villages indicated a significant difference within the medium and less poor groups ($p<0.05$). Results indicate that, the average annual income within the medium group in distant villages was significantly greater (2431.70USD) than in villages close to GGM (913.53 USD). This tells that, the medium group was better-off in the distant villages than in close villages. A contrast was observed in the less poor group; those in close villages were earning a significant greater annual income (13386 USD) than those in distant villages (4552.80USD). This was due to the presence of mining that excluded distant villages. Therefore it can be simply concluded that, the "rich" or less poor are in villages close to GGM. Moreover, no difference in the poor group was significantly indicated by the test between the close and distant villages ($p>0.05$). Regardless of livelihood strategies, the poor group earned a relatively equal amount of annual income in both areas, i.e. a poor person in villages close to GGM, was the same as a poor person in distant villages.

**Table 10: Annual income between close and distant villages**

| Income groups | t | diff. | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% C I of the Difference | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower | Upper |
| Poor | -1.185 | 67.682 | .240 | -143.84320 | 121.40246 | -386.11866 | 98.43226 |
| Medium* | -3.784 | 4.098 | .019 | -1518.18128 | 401.21983 | -2621.72372 | -414.63883 |
| Less poor* | 2.586 | 6.294 | .040 | 8832.76016 | 3415.48243 | 569.20926 | 17096.31105 |

***** indicates significant difference **(**$p<0.05$)

### 4.3.5 Natural assets and support programs between close and distant villages

The study also observed the importance of comparing the close and distant villages on natural assets (land) so as to document the significant difference. Under this case, size of residential land and cost of saleable land were the variables considered for measuring the changes after GGM in both areas. Results of a T-test indicate that, there was a significant difference in size land per acre as well as cost of land per ($p<0.05$). There was more average size of residential land (7.7acres/hh. i.e. 0.9 acre per person) than in villages close to GGM (1.2acre/hh. i.e. 0.2 acre per person)., thus making the villages close to GGM to be highly populated as compared to distant villages. With regard to the cost of land, results show that, there was a significant increase in the cost of land for about 3,188,294.74 TSH per acre in close villages as compared to distant villages.

**Table 11: T-test, Size and cost of land between close and distant villages**

| Variable | t | diff. | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% CI of the Difference | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower | Upper |
| Size of land (acre)* | -2.559 | 102 | .012 | 6.5 | 2.54 | 1.46 | 11.55 |
| Cost of land (Tsh)* | 1.975 | 86 | .05 | 3.1883E6 | 1.61435E6 | 2.0931E4 | 6.398E6 |

***** indicates significant difference **(**p<0.05)

Further analysis was done to rank the support provided by GGM based on people's opinion. This was done by comparing the responses between villages close to GGM and those situated away from the mines. In close villages results indicate that, GGM has a noticeable support on wage employments as it employs 48.4% of close villagers, water projects (28.1%), construction of roads (17.2%) and on trainings as 14.1% of beneficiaries get trainings provided by GGM. Some of supports were noticed to a very small percent of the close community; these include construction of schools (4.7%) market for staple food crops (3.5%), farm implements, farm implements, teachers' salaries, construction of dispensaries, construction of houses for teachers, supply of medication (3.1%), market for livestock by-products (1.8%), cash crops (1.7%), sold items (1.6%) as well as supply of farm inputs (1.6%). There was completely no support provided by GGM on livestock as it evidenced by all respondents (Table 1) below. It can generally be observed that, to a large extent GGM has much support on wage employments, water projects, construction of roads and trainings in close villages.

**Table 12 (a): Response on support programs by GGM in close villages**

| Supports in Close villages | Response | |
|---|---|---|
| | No | Yes |
| If GGM supports wage employments | 51.4 | 48.4 |
| If GGM supports water projects | 71.9 | 28.1 |
| If GGM supports construction of roads | 82.8 | 17.2 |
| If GGM supports trainings | 85.9 | 14.1 |
| If GGM supports in construction of schools | 95.3 | 4.7 |
| If GGM is the main market for staple food crops | 96.5 | 3.5 |
| If GGM supports farm implements | 96.9 | 3.1 |
| If GGM contributes to teachers' salaries | 96.9 | 3.1 |
| If GGM supports construction of dispensaries | 96.9 | 3.1 |
| If GGM supports construction of houses for teachers | 96.9 | 3.1 |
| If GGM supports supply of medication | 96.9 | 3.1 |
| If GGM is the main market for livestock by-products | 98.2 | 1.8 |
| If GGM is the main market for cash crops | 98.3 | 1.7 |
| If GGM supports farm inputs | 98.4 | 1.6 |
| If GGM supports market for selling items | 98.4 | 1.6 |
| If GGM supports Livestock | 100 | 0 |

Different observations were observed in villages away from, results from people's opinion indicated that, GGM had no much support to distant villages, a very small percent of respondent noticed support on wage employments (4.7%), market for staple food crops, market for livestock, livestock by-products and market for cash crops (3.1%). Also on trainings and sold items (1.6%) but completely no support on

farm inputs/implements, livestock, construction of dispensaries, supply of medication, construction of teachers houses, teachers' salaries, water projects and construction of roads (Table 2).

**Table 13: Response on support programs by GGM in distant villages**

| Supports in distant villages | Response | |
|---|---|---|
| | No | Yes |
| If GGM supports wage employments | 95.3 | 4.7 |
| If GGM is the main market for staple food crops | 96.9 | 3.1 |
| If GGM is the main market for livestock | 96.9 | 3.1 |
| If GGM is the main market for livestock by-products | 96.9 | 3.1 |
| If GGM is the main market for cash crops | 96.9 | 3.1 |
| If GGM supports trainings | 98.4 | 1.6 |
| If GGM supports market for selling items | 98.4 | 1.6 |
| If GGM supports farm implements | 100 | 0 |
| If GGM supports farm inputs | 100 | 0 |
| If GGM supports Livestock | 100 | 0 |
| If GGM supports construction of dispensaries | 100 | 0 |
| If GGM supports supply of medication | 100 | 0 |
| If GGM supports construction of teachers houses | 100 | 0 |
| If GGM contributes to teachers' salaries | 100 | 0 |
| If GGM supports water projects | 100 | 0 |
| If GGM supports construction of roads | 100 | 0 |

## 4.4 Effects of Environmental Problems Resulting from GGM Activities on the Community

### 4.4.1 Environmental problems associated by GGM activities

Environmental impact was considered to be of great importance in this study as it was the main aspect to be assessed for any investment. Each problem to the environment in the presence of GGM was compared between the close and away villages using ranking scores for its seriousness. The responses by most of respondents in Table 7 below show that the impacts of GGM activities to the environment were very high in the villages close to GGM and no influence in the away villages. A very high influence of GGM activities on Water pollution (48.4%); Air pollution (32.8%); Noise (26.6%); Forage destruction (20.3%); Forest resource destruction (17.2%) and Land pollution (14.1%) was reported by most of respondents in villages adjacent to GGM. While no influence of GGM activities on Forage destruction (76.2%); Forest resource destruction (71.4 %); Land pollution (66.7%); Water pollution (41.3%); Noise (44.4%); and Air pollution (33.3%) was reported by most of respondents in the away villages. From these results it can generally be observed that, GGM activities are highly detrimental to the environment especially in villages adjacent to GGM. Even the GGM staffs admitted that it had been difficult to control environmental problems resulting from blasting which cause noise pollution, dust pollution, vibrations, cracks of houses and others. These

problems were reported to be the causative agents of various diseases related to respiratory like TB, and skin rash diseases.

**Table 14: Ranking scores on environmental problems**

| Pollution | Proximity to GGM | No influence | Very low | Low | High | Very high |
|---|---|---|---|---|---|---|
| Water pollution | Close villages | 7.8 | 18.8 | 3.1 | 21.9 | 48.4 |
| | Away villages | 41.3 | 19.0 | 6.3 | 9.5 | 23.8 |
| Air pollution | Close villages | 7.8 | 25.0 | 7.8 | 26.6 | 32.8 |
| | Away villages | 33.3 | 25.4 | 11.1 | 14.3 | 15.9 |
| Noise | Close villages | 12.5 | 25.0 | 17.2 | 18.8 | 26.6 |
| | Away villages | 44.4 | 31.7 | 4.8 | 12.7 | 6.3 |
| Forage destruction | Close villages | 21.9 | 23.4 | 18.8 | 15.6 | 20.3 |
| | Away villages | 76.2 | 6.3 | 3.2 | 11.1 | 3.2 |
| Forest resources | Close villages | 21.9 | 28.1 | 15.6 | 17.2 | 17.2 |
| destruction | Away villages | 71.4 | 6.3 | 0.0 | 9.5 | 12.7 |
| Land pollution | Close villages | 26.6 | 21.9 | 20.3 | 17.2 | 14.1 |
| | Away villages | 66.7 | 11.1 | 3.2 | 12.7 | 6.3 |

### 4.4.2 The influence of GGM on social-cultural aspects

The impact of new foreign culture as a result of GGM investment had most effect on marital status in the study areas. Negative impacts were mostly observed on the cost of living and increase of disease incidences by the married, but this was the difference between the close and distant villages. In distant villages a larger percent of the married (76.4%) realized an abrupt increase in cost of living than in villages close to GGM (59 %,). This situation was due to low livelihood diversification strategies among the income groups in the distant villages as compared to villages close to GGM (Table 7) above. Increase in disease incidences such as STD's was highly (78.5%) reported to have effect on the married in villages away from GGM as compared to villages close to GGM (63.5%). Table 5: below presents the arguments in percentages reported by the rest of marital status in the study areas. It can be seen that, as it was getting away from GGM the impacts were highly reported to be adverse due to low awareness and sensitization on risks and low livelihood strategies.

**Table 15 (a): Impact of new foreign culture in close villages**

| Description | Village | | Total percent |
|---|---|---|---|
| | Mgusu | Mpomvu | |
| Marital status | Argument with the increase in cost of living after GGM | | |
| Married | 10(50) | 17(68) | 27(59) |
| Single | 3(15) | 3(12) | 6(13.5) |
| Widow | 3(15) | 3(12) | 6(13.5) |
| Separated | 3(15) | 2(8) | 5(11.5) |
| Divorced | 1(5) | | 1(2.5) |
| | Argument with the increase of disease incidences after GGM | | |
| Married | 13(59.1) | 19(67.9) | 32(63.5) |
| Widow | 3(13.6) | 4(14.3) | 7(14) |
| Single | 3(13.6) | 3(10.7) | 6(12.2) |
| Separated | 2(9.1) | 2(7.1) | 4(8) |
| Divorced | 1(4.5) | | 1(2.3) |

Table 16: Impact of new foreign culture in distant villages

| Marital status | Village | | Total percent |
|---|---|---|---|
| | Ikulwa | Nyabubele | |
| | Argument with the increase in cost of living after GGM | | |
| Married | 19(63.3) | 17(89.5) | 36(76.4) |
| Widow | 4(13.3) | 1(5.3) | 5(9.3) |
| Single | 3(10) | 1(5.3) | 4(7.6) |
| Separated | 3(10) | | 3(5.0) |
| Divorced | 1(3.3) | | 1(1.7) |
| | Argument with the increase of disease incidences after GGM | | |
| Married | 15(62.5) | 17(94.4) | 32(78.5) |
| Widow | 5(20.8) | 1(5.6) | 6(13.2) |
| Separated | 3(12.5) | | 3(6.3) |
| Divorced | 1(4.2) | | 1(2.1) |

## 4.5 Interaction between GGM and Impacted Village Communities

Discussions with GGM informants, the study revealed that community participation is one of the GGM's key targets in facilitating community sustainable development. However, as one informant revealed that although community participation is one of our key elements in facilitating community development but mind you that,

*Most of communities within our country do not provide enough contribution to investors. This is from Governmental level down to the lower level. It is therefore hard to make things happen if the policies within our country do not provide enough room for all people to participate in development. Talking about Geita community, they do not understand and accept what GGM is doing for community development. Every individual wants him/her self to benefits from the company being here. Mind you, the community participation is very minimal due to the poor perception of community around here. With less they have, we used to give them chances to contribute ideas or anything that will be vital. Awareness done for them was necessary for the implementation of community sustainable Development projects.*

From the above quoted words, it was clear that community participation to development projects set for them was minimal. This situation was similar to what was observed directly during field survey. This was also justified by the observed negative perception and attitude from the impacted community towards the presence of GGM in the district as revealed above by GGM officials. Discussions with GGM informants indicated further that, they work closely with local communities and district authorities in the formulation and implementation of development projects. It was revealed that, all development projects rely on the adoption of a participatory approach to ensure sustainability. However, the responses from the community on the nature of interaction with the impacted communities were reported completely negative. This was much more attributed by the negative environmental effects

generated by mining activities and lack of community participation on proposed development projects.

**Photo 2: A woman from displaced families due to GGM expansion in Geita**

# CHAPTER FIVE: SUMMARY OF KEY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Summary of Key Findings

From the socio-economic activities discussed above, households in the areas understudy were engaged in a variety of different livelihood strategies such as Mining, Farming, Petty business, Trade, Casual labor, Public employment and Livestock keeping. However, the main area of interest in this study is the influence of mining in the adjacent communities brought about by GGM. With respect to the influence of GGM mining activities on local livelihoods, results show that, though mining involved males as majority, it was not gender biased as it includes some females as discussed above. Mining covered a wide range of age (20-60 years) that included youths and adults especially the most productive age group (41 – 60) that were presumed to have families is the highest contained within this range, while the remaining included youths aged between 20 to 40 years. With these results, mining seems to be helpful to households with extended families of different sizes as it is supported by the majority of the married ones being engaged in mining. No matter how education levels of adjacent residents are, mining considered all level from high to low. For example, results indicate that, Mining considers those with STD VII (70%); no formal education (15%); STD IV (10) and Form II (5%) by which STD VII were in large number. All of these influences were realized in the close villages and neither in away villages. It can be concluded that, mining has a good social capital as it considers youths and adults of both sex with different marital status and education levels.

Assessment on the extent to which the activities of GGM have contributed on socio-economic development of local communities in the study area was anticipated to some changes on existing social services by which, a total failure was realized by almost all residents in both premises to GGM. GGM has not brought any change to the existing number of dispensaries, Secondary Schools, Primary Schools as well as quality of roads and water supply in the areas. It is only a very small percent 1.6% of respondents in the away villages who evidenced a slight change in the number of Primary Schools. On examining the effects of environmental problems associated by GGM activities on people's wellbeing, a very high influence of GGM activities on Water pollution; Air pollution; Noise; Forage destruction; Forest resource destruction and Land pollution were reported by most of respondents in the close villages. While no influence of GGM activities on the environment was reported by most of respondents to cause these effect in the away villages. Under this case, it can be generally concluded that, GGM activities were highly detrimental to the environment especially in villages close to GGM.

Efforts were also made in assessing whether there were some differences in the livelihood of households between villages close and away from the GGM area of operation. The areas of interest under this objective focused on poverty levels, livelihood strategies, and annual income among income groups, also natural assets and risks of new foreign culture. The general observation was that, most of those who are close to GGM are well full (less poor) as compared to those in distant villages. This was evidenced by the presence of mining activities in the close villages. In addition, there were more livelihood strategies in close villages than in distant villages particularly in the less poor and poor groups by which mining was the only activity that excluded distant villages from close villages in annual income contribution.

Villages close to GGM seemed to have more livelihood opportunities than in distant villages. The less poor group in close villages was earning a significant greater annual income than in distant villages due to the presence of mining. Moreover, no difference in the poor group was significantly indicated between the close and distant villages regardless of different livelihood strategies practiced. The poor group earned a relatively equal amount of annual income in both areas, i.e. a poor person in close villages was on the same status as a poor person in distant villages. With regard to natural assets (land), there was more land size in distant villages than in close villages that led them to easily adapt small scale farming in large number; though land was available still the cost per acre was relatively low as compared to villages close to GGM. The impact of new foreign culture as a result of GGM investment had the most effect on marital status in the study areas. Negative impacts were mostly realized on the cost of living and increase of disease incidences by the married in distant villages. As it was getting away from GGM, the impacts were highly reported to be adverse due to low awareness and sensitization on risks and also low livelihood strategies.

## 5.2 Conclusions

Based on the study results, the following conclusions can be made. The contributions of GGM to the livelihoods of adjacent communities were complex discern. It was difficult to see as to what precisely were GGM's true benefits accrued by surrounding communities. There was contradicting information from what GGM revealed as its plans for community development and what was revealed by the community as the actual situation. For example, the GGM's core value to the community adjacent its operation is for the community to be better off for GGM having been there. In order to achieve that, GGM acknowledged to have done a lot to improve the community livelihoods around the mine due to its significant contribution in social services improvement projects especially on education and health sectors. It was also meant to ensure that surviving ecosystem through

environmental rehabilitation is attained. However, as observed in areas understudy, GGM could not have clear, measurable and time bound set goals for improving social services facilities and addressing environmental problems which could lead to improved communities' livelihoods. As a consequence, the GGM contributions were not that much significant. There was minimal contribution acknowledged by the people especially when the given supports were compared to the time spent in operation and has been done so far for the community. As a result, the community members were complaining on the adverse effects experienced to their livelihoods. The following were identified as the resulting negative effects which in fact seemed to outweigh the positive ones. They included appropriation of land and displacement of villages; a reduction in agricultural and pastoral activities; environmental pollutions leading to increased incidences of diseases such as water borne and skin rashes. Others were revealed on Housing blockages due to intensive blasting; social change and high cost of living. These have tended to affect negatively the livelihoods of adjacent communities as the majority were primarily dependent on agriculture. These problems affected much more the livelihood of communities who were close to GGM than those who were living far away from GGM. This suggests therefore that, together with what GGM had contributed, much more needs to be done as part of corporate social responsibility requires. This must be accompanied with effective community participation as this frequently one of the sources of the community being unaware of what GGM was actually doing for them.

## 5.3 Suggested Recommendations

To address the effects of large-scale mining activities on the livelihoods of adjoining communities, five recommendations can be made from this study:

1. The government should ensure that effective consultations are made with affected communities at all stages when undertaking cost-benefit analysis on social and environmental costs before granting production licences to mining companies.

2. The Government and mining companies must make sure that first priority is given for the provision of essential development projects, social services and encouragement of local businesses to sustain the livelihoods of local communities near mining activities.

3. The process of compensations should take into account both the loss of livelihoods and the costs of relocating communities, which include having to construct new housing for the affected communities and provision of other essential social amenities.

4. Awareness creation on part of the community should be conducted especially on the central focus of foreign investors. This will help community members to reduce what has come to be named by investors as compensation syndrome and over expectations from foreign investments.

### 5.3.1 Recommendation for Further Research

One relevant issue was identified by this study for further research. It was found critical for other researchers to determine if there is a direct relationship between large scale mining activities and the increased incidences of diseases like TB and Skin rashes to communities adjoining mines. This is due to the fact that many complaints were raised from the community that, there is high level of such diseases mainly because of mining operations by GGM. This was especially so pervasive in villages close to the mines.

### 5.3.2 Recommendations for policy implications and feedback

This study was in line with the Millennium Development Goals number 1 and 7 which call for eradication of extreme poverty, hunger and ensuring environmental sustainability. In Tanzania, development is guided by the New Development Vision 2025 which intends to attain high quality livelihood in a sense of achieving quality and good life for all with high level of human development. While the Mineral Policy of Tanzania (2009) recognizes the need for sustainability of mining through integration of environmental and social concerns into the mineral development programmes, most of the large-scale mining companies are reluctant to go beyond compliance level because this is not a legal binding requirement. This has resulted into the current government agenda of reviewing all the mining contracts with the intention to enhance a win-win situation. As regards to the argument above, sustainable mining is seen as that which balances the protection of the flora and fauna and the natural environment with the need to reduce or eliminate the adverse environmental effects of mining; improve health and safety conditions in mining areas; and address social issues affecting women, children and local communities for social and economic development. The researchers will ensure that the results of the work are made available and accessible to communities, Geita Gold Mine management and government officials through conducting workshops and provision of the findings manuals for better conduct practices, decisions and policy making for sustainable development.

# REFERENCES


Akabzaa, T. and Darimani, A. (2001). Impact of mining sector investment in Ghana: A study of the Tarkwa mining region. *International Journal of Earth Sciences* 91:723 - 745.

Akabzaa, T. M. (2000). *The Environmental and Social Impacts of the Mining in the Wassa West District in Ghana*. Third world Network-Africa, Accra, Ghana.

Ashley, C. and Carney, D. (1999). *Sustainable Livelihoods: Lessons from Early Make?* DFID, London.

Aspinall, E. (2007). The construction of grievance: Natural resources and identity in a separatist conflict. *Journal of Conflict Resolution* 51(6): 950 - 972.

Auty, R. (2008). From mining enclave to economic catalyst: Large mineral projects in developing countries. *Brown Journal of World Affairs* 13(1): 135 - 145.

Auty, R.M. (2001). Resource abundance and economic development. *Journal of Economic Growth* 8: 155 - 194.

Awudi, G. (Ed.) (2002). The role of FDI in the mining sector of Ghana and the environment, friends of the earth Ghana. *Resource Policy Journal* 28(3): 95 - 104.

Babbie, E. P. (1990). *Survey Research Methods*. Wadsworth Publishing Company inc. Belt month, California.

Bailey, K. D. (1994). *Methods of Social Research.* Free press, New York.

Boocock, N. C. (2002). Environmental impacts of foreign direct investment in the mining sector in Sub Sahara Africa. *Journal of Environment and Development* 11(2): 149 - 174.

Brunnschweiler, C. and Bulte, E. (2008). Linking natural resources to slow growth and more conflict. *Science* 320: 616 - 617.

Bugress, R. G. (1984). *The Research process in Educational Setting*: *Ten case studies*. The Falmer Press. London.

Bury, J. (2005). Mining mountains: neoliberalism, land tenure, livelihoods and the new Peruvian mining industry in Cajamarca. *Environment and Planning* 37(2): 221 - 239.

Campbell, B. (2003). Factoring in governance is not enough: Mining codes in Africa, policy reform and corporate responsibility. *Minerals and Energy* 18(3): 2 - 13.

Campbell, B. (2006). Good governance, security and mining in Africa: *Minerals and Energy* 21(1): 31 - 44.

Carney, D., (Ed.) (1998*). Sustainable Rural Livelihoods: What Contributions can we Experiences*. Department for International Development, London.

Chachage, C. S. L. (1995). Mining and Environmental Issues under SAPS in Tanzania: Examples from three Case studies. In: *Proceedings of the Policy Reforms and the Environment in Tanzania*. (Edited by Bagachwa, M.S.D and Limbu, F). 23-27 October 1995, Dar es Salaam, Tanzania.

Chan, C. Z. (2004). *The Impact of Gold Mining on Women, Communities and Environment in Burma's Kachin State*. Kachin Students and Youth Union press, Burma.

Collier, P. and Hoeffler, A. (2004). Greed and grievance in civil war. *Oxford Economic Papers 5*6(4): 563 - 595.

Collier, P. and Hoeffler, A. (2005). Resource rents, governance, and conflict. *Journal of Conflict Resolution* 49(4): 625 - 633.

Dansereau, S. (Ed.) (2007). *Beyond Governance and Sustainability in South African Mining*. *Resource Curse, Green PR or Development?* Proceeding Review of African Political Economy Conference on State Mining and Development in Africa. University of Leeds Centre for African Studies, London, 13 – 14 September, 2007.

Darimani, A. (2005). *Impacts of Activities of Canadian Mining Companies in Africa*. Third world Network-Africa, Accra, Ghana.

Davis, G. A. (1995). Learning to love the Dutch disease: Evidence from the mineral economies. *World Development* 23(10): 1765 - 1779.

DFID. (2000). *Sustainable Livelihoods Guidance Sheets*. Department for International Development, London, UK.

Eggert, G. R. (2001). Mining and economic sustainability: National economies and local communities. *Natural Resources Forum* 24(1): 49 - 52.

Ellis, F. (1998). Household strategies and rural livelihood diversification. *Journal of Development Studies* 35(1): 1 - 38.

Ellis, F. (2000). The determinants of rural livelihood diversification in Developing Countries. *Journal of Agricultural Economics* 51(2): 289 - 302.

Boyd, H.K., Westfall, R. and Stasch, S.F. (1981). *Marketing Research Texts and Cases*. Richard D. Illinois, USA. 813pp

Fisher, E. (2007). Occupying the margins: Labour integration and social exclusion in artisanal mining in Africa. *Development and Change* 38(4): 735 - 760.

Fraser, B. (2006). Peruvian mining town must balance health and economics. *The Lancet* 367(9514): 889 - 890.

GDC, (2006). *A short brief of the Geita District*. Government Printer, Mwanza, Tanzania.

Geita Gold Mine (2008). *Annual Country Report Tanzania.* Dar es Salaam Printers, Dar es Salaam, Tanzania.

Hill, C. (2008). *Mining, Gender and Sustainable Livelihoods*; *Women and Mining: The Role of Gender Analysis.* Oxfam, Australia.

Hilson, G. and Yakovelva, N. (2007). Strained relations: A critical analysis of the mining conflict in Prestea, Ghana. *Political Geography* 26(1): 98 - 119.

Holden, W. J. D. (2007). Mining amid armed conflict: Nonferrous metals mining in the Philippines. *Canadian Geographer* 51(4): 475 - 500.

ICMM (2006). The challenge of mineral wealth using resource endowment to foster sustainable development. International council on mining and metals, London. *Earth Negotiations Bulletin* 5(238): 1 - 16.

Jenkins, H. and Yakovleva, N. (2006). Corporate social responsibility in the mining industry: Exploring trends in social and environmental disclosure. *Journal of Cleaner Production* 14: 271 - 284.

Jones, J. Y. (2001). The socio-economic and environmental impact of mining reforms. *Natural Resource Forum* 26(1): 3 - 13.

Kitula, A. G. N. (2006). The environmental and socio-economic impacts of mining on local livelihoods in Tanzania: A case study of Geita District. *Journal of Cleaner Production* 14: 3 - 4.

Kothari, C. R. (2007*). Research Methodology, Methods & Techniques*. New age International (P) Ltd Publishers.

Kothari, C. R. (2009*). Research Methodology, Methods & Techniques*. New age International (P) Ltd Publishers.

Krishnaswami, O.R and Ranganatham, M. (2006). *Methodology of Research in Social Science.* Himalaya Publishing house, Mumbai.

Knight, D. (2001). Tanzania gold mine pollution causing death. *The Journal of Cleaner Production* 9(2): 95 - 189.

Labonne, B. and Gilman, J. (1999). *Towards Building Sustainable Livelihoods in the Artisanal Mining Communities: Social and Labour Issues in Small-scale Mines*. International Labour Organisation, Geneva.

Lange, S. (2006). Benefit streams from mining in Tanzania. A case from Geita and Mererani. *The Journal of Cleaner Production* 14(22): 397 - 404.

McMahon, G. (Ed.) (2000). *Socio-Economic and Environmental Effects of Large Mines on the Community*: Proceeding of Center for Energy, Petroleum & Mineral Law and Policy workshop, World Bank. New York, 5-9 June, 2000.

McMahon, G. and Remy, F. (2001). *Large Mines and the Community*: *Socio-Economic and Environmental Effects in Latin America, Canada, and Spain.* IDRC/ World Bank, Washington, DC.

Mwalyosi, B. B. R. (2004). Impact Assessment and the Mining Industry: Perspectives from Tanzania IAIA'04, Vancouver, Canada. [http://www.aia.org/Non Members/Conference/] site visited on 12/03/2008.

Pallangyo, D. M. (2007). Environmental law in Tanzania: How far have we gone? *Journal of Environment and Development* 3(1): 28 - 39.

Pegg, S. (2006). Mining and poverty reduction: Transforming rhetoric into reality. *Journal of Cleaner Production* 14(3-4): 376 - 387.

Poteete, R. A. (2009). Is development path dependent or political? A reinterpretation of mineral-dependent development in Botswana. *Journal of Development Studies* 45(4): 544 - 571.

Rhett, B. (2007). Mining operation in Peru: Environmental impact of mining in the rain forest. *Earth Sciences Research Journal* 10(2): 105 - 116.

Ross, M. (2008). Mineral Wealth, Conflict, and Equitable Development. In: *Institutional Pathways to Equity: Addressing Inequality Traps*. (Edited by Bebbington, A., Dani, A. and Walton, M.), World Bank, Washington DC. pp. 193-216.

Rosser, A. (2006). Escaping the resource curse. *New Political Economy* 11(4): 557 - 570.

Rugumamu, S. M. (2005). *Globalization Demystified*: *Africa's Possible Development Futures.* Dar es Salaam University Press, Dar es Salaam.

Rwegoshora, H. M. M. (2006). *A Guide to Social Science Research Methods*, Mkuki na Nyota Publishers, Dar es Salaam.

Semboja, H. H., Selejio, O. and Silas, J. (2007). *Partnerships for Economic Development and Poverty Reduction*: The Mwadui Community Diamond Partnership in Tanzania, Dar es Salaam.

Senga, M.A. (2007). *Accumulation by dispossession and displacement:* Some Reflections from Epanko Mines in Ulanga district, Morogoro. MA dissertation, University of Dar es Salaam.

Singleton, R. A., Straits, B.C. and Straits, M. M. (1993). *Approach to Social Research*. Oxford University Press, London.

Tambwe, A. (2008). Tanzania losing out on minerals. The African News Paper, Issue No.3225. p. 1-2.

Tauli-Corpuz, V. (1997). The Globalization of Mining and its Impact and Challenges for Women. [http://www.twnside.org.sg/bookstore. htm] site visited on 24/06/2009.

UNCTAD (2005). *Prospects for Foreign Direct Investment and the Strategies of Transnational Corporations, 2004-2007*. United Nations Conference on Trade and Development, Geneva.

URT (1997a). *The Mineral Policy of Tanzania.* Ministry of Enegy and Minerals. Dar es Salaam, Tanzania.

URT (2004). *Vulnerability and Resilience to Poverty in Tanzania: Causes, Consequences, and Policy Implications. Tanzania Participatory Assessment Report*. Mkuki na Nyota Publishers Ltd, Dar es Salaam.

URT (2005). *The United Republic of Tanzania: National Strategy for Growth and Reduction of Poverty (NSGRP)*. Vice President's Office, Dar es Salaam.

URT (2006). *Macroeconomic Policy Framework for the Plan/Budget 2006/07-2008/09.* Ministry of Planning, economy and Development, Dar es Salaam.

URT (2007). *Poverty and Human Development Report.* REPOA, Dar es salaam, Tanzania.

Uwoya, P. (2006). Natural resources accounting in Tanzania: Mineral accounting. *Journal of Development Economics* 6: 163 - 202.

World Bank (2005). *Study on Growth and Environmental Links for Preparation of Country Economic Memorandum (CEM) in Tanzania*: *Final Report Part 3, Issue No.2*. World Bank, New York.

WRM Bulletin (2003). Mining and mining related issues. *Journal of Human Environment*. 35(7): 469 -