

**INFLUENCE OF MINING RELATED FACTORS ON THE LIVELIHOODS
OF RESETTLED COMMUNITIES IN KENYA: THE CASE OF TITANIUM
MINING IN MSWAMBWENI DIVISION, KWALE COUNTY, KENYA**

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DECLARATION

This project is my original work and has not been presented for any award in any other university.

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Sign.....

Date.....

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This research project has been submitted for examination with my approval as university supervisor.

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DEDICATION

This research project is dedicated to my Mother Mwanamisi Shawish, Dad Sudi Shaffi and friend Engineer Chamia Mutuku for continuous encouragement and support while I was undertaking the course.

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TABLE OF CONTENTS

	Page
DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	x
ABSTRACT.....	xi
CHAPTER ONE	1
INTRODUCTION.....	1
1.1 Background of the Study	1
1.2 Statement of the Problem.....	4
1.3 Purpose of the Study	5
1.4 Objectives of the Study.....	6
1.5 Research Questions	6
1.6 Research Hypothesis	6
1.7 Significance of the Study	7
1.8 Delimitation of the Study.....	7
1.9 Limitation of the Study	7
1.10 Assumptions of the Study	8
1.11 Definition of Significant Terms	9
1.12 Organisation of the Study	9
CHAPTER TWO	10
LITERATURE REVIEW	10
2.1 Introduction.....	10
2.2 Influence of Displacement and its effects on the livelihood of the resettled communities	10
2.3 Influence of Compensation on the Livelihoods of Communities	13
2.4 Influence of Resource Distribution and the Livelihoods of Communities	16

2.5 Influence of Environmental Degradation on the Livelihoods of resettled Communities	18
2.6 Theoretical Framework.....	24
2.7 Conceptual Framework.....	25
2.8 Summary of Literature.....	26
CHAPTER THREE.....	27
RESEARCH METHODOLOGY	27
3.1 Introduction.....	27
3.2 Research Design.....	27
3.3 Target Population.....	27
3.4 Sampling Size and Procedures.....	28
3.4.1 Sample size	28
3.5 Methods of Data Collection.....	29
3.6 Validity and Reliability of Research Instruments.....	30
3.6.1 Validity of instruments	30
3.6.2 Reliability of instruments.....	30
3.7 Data Collection Procedures.....	31
3.8 Data Analysis Techniques.....	31
3.9 Ethical Considerations	32
CHAPTER FOUR.....	34
DATA ANALYSIS, PRESENTATION AND INTERPRETATION.....	34
4.1 Introduction.....	34
4.1.1 Response Rate.....	34
4.2 Demographic Information	34
4.3 Influence of Displacement on the Livelihoods of Resettled Communities	37
4.4 Influence of Compensation on the Livelihoods of the Resettled Communities	41
4.5 Influence of Economic Resource Distribution on the Livelihoods of Resettled Communities	45
4.6 Effect of Environmental Degradation on the Livelihoods of the Resettled Communities	50
4.6.1 Respondents' Assessment on how Mining Projects have influenced on their Livelihoods	54

4.6.2 Hypothesis Testing.....	57
CHAPTER FIVE	59
SUMMARY, CONCLUSION AND RECOMMENDATIONS	59
5.1 Introduction.....	59
5.2 Summary of Findings.....	59
5.2 Conclusion of the study	62
5.3 Recommendations.....	63
5.4 Suggestion for Further Research.....	64
REFERENCES.....	65
APPENDICES	71
Appendix I: Letter of Transmittal.....	71
Appendix II: Questionnaire for Community Members	72
Appendix III: Focus Group Discussions Questions	78
Appendix IV: Research Permit Letter	79

LIST OF TABLES

Table 3.1 Target population	28
Table 3.2 Operational definition of variables	33
Table 4.1 Response rate	34
Table 4.2 Distribution of respondents by gender.....	35
Table 4.3 Marital status of respondents	35
Table 4.4 Distribution by Household.....	36
Table 4.5 Education level of participants	36
Table 4.6 Effect of displacement on the livelihoods of resettled communities	38
Table 4.7 Effect of displacement on livelihoods of resettled communities.....	39
Table 4.8 whether residents were satisfied with displacement process	40
Table 4.9 Effect of compensation on the livelihoods of the resettled communities	42
Table 4.10 Effect of compensation from mining on livelihoods of resettled communities	43
Table 4.11 Influence of economic resource distribution on the livelihoods of resettled communities	45
Table 4.12 Effect of environmental degradation on the livelihoods of the resettled communities	50
Table 4.13 Influence of mining environmental degradation activities on livelihoods	52
Table 4.14 Effect of mining activities on environment	52
Table 4.15 Respondents' suggestions on improvement of livelihood.....	56
Table 4.16 Hypothesis testing result.....	57

LIST OF FIGURES

Figure 1.1 Conceptual framework	25
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LIST OF ABBREVIATIONS

CSR	Corporate Social Responsibility
FGDs	Focus Group Discussions
GDP	Gross Domestic Product
GGM	Geita Gold Mine
IQ	Intensive Quotient
MMSD	Mining, Minerals and Sustainable Development
NEMA	National Environmental Management Authority
SPSS	Statistical Package for Social Sciences
TNC	Transnational Corporation
URT	United Republic of Tanzania
WHO	World Health Organisation
WRM	World Rainforest Movement

ABSTRACT

The purpose of the study was to investigate the influence of mining activities on livelihoods of resettled communities. The focus was on mining projects in Msambweni division in Kwale County. Substantial research has not been affected to determine how mining activities have influenced the livelihoods of residents in Msambweni. The study was guided by the following research objectives: to determine the effect of displacement, compensation on the livelihoods of resettled communities, economic resource distribution and environmental degradation on the livelihoods of the resettled communities in Msambweni division Kenya. The study employed a descriptive research design technique. The target population for the study involved participation of 381 households resettled in Mivumoni and Kinondo locations of Msambweni division in Kwale County. The sample size for the study involved 114 respondents who represented 30% of the target population. The respondents for the study were chosen through stratified random sampling and purposive sampling methods. The instruments used were questionnaires for household members and focus groups discussion for community members. The questionnaires and interviews were tested for validity and reliability prior to data collection. Data collected was analysed using qualitative and quantitative methods. Quantitative data was analysed with the help of SPSS while qualitative data was analysed using themes and sub-themes. The data analysed is presented in tables, pie charts, graphs and narrations. Result of the study showed that mining activities have negatively affected the livelihoods of residents in Kinondo and Mivumoni locations. Computed Karl Pearson correlation statistics revealed that displacement ($r=0.118$ and $p=0.28$), compensation ($r=0.158$ and $p=0.147$), economic resource distribution ($r=0.172$ and $p=0.114$) and environmental degradation ($r=0.067$ and $p=0.541$) had no significant influence on the livelihoods of resettled communities. The displacement process was not conducted fairly, the residents were not compensated for their crops, houses and other facilities adequately, they did not receive employment opportunity, their new areas were not favourable for agriculture, the social amenities (health centres and schools) were constructed far apart from where they settled, market centres for agricultural produce were not available, air, noise and water pollution had significantly increased and the standard of living had deteriorated. The study suggests that there is need for re-evaluating the whole resettlement process, EIA audit need to be conducted on the influence of mining activities on the local population and schools, roads, market centres and health centres need to be built. To address economic resource distribution, the mining company need to be compelled to ensure that it fulfil the pledges it made to the locals on the provision of employment opportunities to sons and daughters of displaced families in a more fair and transparent manner.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

To achieve rapid economic development, many countries resort to various activities to exploit natural resources. One such activity is mining. Consequently, mining is an important economic activity which has the potential of contributing to the development of areas endowed with the resource. Mining is a major economic activity in many developing countries (Kitula, 2006) particularly in rural sub-Saharan Africa (Andriamasinoro & Angel, 2012). However, mining as an industrial activity, takes place on the natural environment, disturbing areas around where it occurs (Tom-Derry, *et al.*, 2012).

In North America, raw mineral production in 1998 was valued at approximately US\$ 70 billion. The industry employs approximately 1 million people (Mbendi Profile, 2005). In Peru, the mining sector accounts for 50% of the country's annual export earnings. During 1993, the mining industry's contribution to the Peruvian economy was represented by \$240m paid in taxes; \$400m spent on local purchases; \$280m in imported goods and accounted for over 11% of GDP (Acheampong, 2003). In South Africa, where gold is the largest mineral foreign income earner, gold mining alone contributes 27.4% in mineral revenues. The gold industry is also responsible for 56% of South Africa's mine labour force (Mbendi Profile, 2005).

In Ghana, the sector plays a vital role in the development of the economy. In 2000, minerals accounted for 38.96% of total export earnings, followed by cocoa (22.51%) and timber (9.03%) (ISSER, 2001). The mining sector now contributes 41% to the country's foreign exchange and is the leading foreign exchange earner. Of the \$612.9 million in total mineral export income in 1997, gold, the most important mineral, accounted for \$579.2 million, or 94.5%, while the remaining 5.4% came from diamonds, bauxite and manganese (ISSER, 1998). Mining companies have taken giant steps in reducing or mitigating the devastation effects of their activities in the communities and areas of operation by developing comprehensive Influence Assessment studies and strategies for dealing with the effects as well as massive investment in infrastructure such as roads, hospitals, schools, electricity, water

supplies etc, as a means at least to offset some of the cost of mining activities. However, the mining sector has been at the fulcrum of intense controversy and trajectories over its development abilities (Yelpaala& Ali, 2005) and destructive efforts. Sometimes considered as the entry point for development (Davis & Tilton, 2003), it has been glaringly criticized for its negative influence on the environment (Hilson, 2002) and its role in conflict and underdevelopment (Ross, 2001) in several towns and cities across Africa.

As the relationship between the mining companies and communities have been described as the “battleground” for contesting the operational activities of industry (Calvano, 2008), it is clear that disputes emerge from this interaction. Thus people have resorted to publicly opposing mining operations and often resort to violent agitations resulting in deep rooted disputes (Opoku&Asare, 2014). This is particularly due to forced displacement, lack of enough compensation, inadequate resources distribution and environmental degradation. This is supported by Abuya (2013) who argues that studies have shown that corporate-community and state-community conflict in mining communities in Africa revolves around at least four issues: land ownership, unfair compensation practices, inequitable resource distribution, and environmental degradation. However, like all other industries and sectors, the mining sector is also bereft with its own problems and challenges. The footprints it usually leaves behind are tremendous especially when it is not managed well because badly managed influences of mining on the environment or the social fabrics of society can reflect negatively on economic parameters countrywide (World Bank/International Finance Corporation, 2002) and can allow many communities to become poorer with little access to resources especially when mining ventures fail (Kapelus, 2001).

The displacement of settled communities can be a significant cause of resentment and conflict associated with large-scale mineral development (Kitula, 2006; Oxfam, 2002). Communities may lose their land, and thus their livelihoods, disrupting also community institutions and power relations (Akabzaa&Darimani, 2001). Entire communities may be forced to shift into purpose-built settlements, into areas without adequate resources (World Bank & International Finance Corporation, 2002). They may be left near the mine, where they may bear the brunt of pollution and contamination (Bush, 2009). Involuntary resettlement can be particularly disastrous

for indigenous communities with strong cultural and spiritual ties to the lands who may find it difficult to survive when these are broken (Obara& Jenkins, 2006).

As with compensation payments, some of the issues associated with relocation may take years to surface (Opoku-Ware, 2010). Where houses built with permanent materials replace traditional homes, for instance, communities may not have the skills required to maintain them, and companies may be reluctant to become involved in the process (World Rainforest Movement [WRM], 2004). Increasing household sizes may place pressure on relocation housing; young people may demand an equivalent dwelling when they marry (Awudi, 2002).

Much of the environmental damage caused by mining affects local communities, most significantly in terms of their livelihoods and health (Tom-Derry, Dagben&Cobbina, 2012). Environmental health problems may become evident not just close to the mine, but some distance away (Kitula, 2006).Overburden, waste rock, tailings dams, buildings, roads, airstrips, and so on as well as immigration of population and increased human activity all create considerable change in local environments. This may lead to loss of biological diversity, including plants and animals important to peoples' livelihoods, such as cultivated land or pasture for livestock. The changes may affect land used by indigenous people for hunting and gathering, shift cultivation, or adversely affect forests that yield timber and a wide range of non-timber forest products such as game, resins, dyes, vegetables, and medicinal plants.

Mining operations often require vast quantities of water (Akabzaa&Darimani, 2001; WRM, 2004; Gualnam, 2008).This can create a number of changes in the supply and quality of water for other uses. Besides damaging biodiversity, water depletion may also destroy or reduce fish stock, depriving local people of a vital source of food and, possibly, livelihood. Mining operations can contaminate surface and groundwater through acid drainage, chronic leaks from waste impoundments, or direct disposal of waste in water bodies. Water contamination can result in important pollution legacies years after mining operations cease. Domestic uses of contaminated water for cooking, drinking, swimming, and washing can have health influences. The contamination of water may contribute to the build-up of toxic chemicals in fish and

in those who consume the fish. This shows that mining has serious socio, cultural and economic influence on the livelihoods of communities around the world.

The study focuses on the effects of titanium mining on the livelihoods of resettled communities in Kwale County, Kenya. The mining activities in Kenya are regulated by Mining Act (Cap 306) (Republic of Kenya, 2006). In Kenya, Titanium mining is done by a Canadian company, Tiomin Resources Inc. of Toronto Canada which is a transnational corporation (TNC) with various mining operations all over the world. The firm applied for and was granted a number of Exploration Leases in Kenya in the mid-1990 (Ong'olo 2001). The people that were affected by the proposed mining project were landowners located in Mwaweche and Kidiani locations and squatters located on the Ramisi Sugar Estate. It is estimated that about 450 households were affected. Of these, 25% were landowners with title deeds and 75% are squatters.

The average household size had about seven people per household, which means that approximately 3000 individuals will be affected over a period of 10-15 years by the project as a result of changing of hands from Canadian Company to Australian. In general, families had well-developed shambas. On the social and cultural environment, almost half of the households had one or more graves on their shamba, which are recognized as sites of particular spiritual importance, as they are associated with ancestral spirits. Men are generally the heads of households and about 70% of them are farmers, 10% businessmen, 4% teachers and 2% civil servants. In summary, the development of the mineral sands mine will influence on the physical, natural and socio-economic environments at Kwale (Abuya, 2013).

1.2 Statement of the Problem

The last decade and a half has witnessed a dramatic growth in mining activity in many developing countries (Maliganya, Moyo and Paul, 2013). Countries like 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 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).

The mining sector has been at the fulcrum of intense controversy and trajectories over its development abilities (Yelpaala and Ali, 2005) and destructive efforts. Sometimes considered as the entry point for development (Davis and Tilton, 2003), it has been glaringly criticized for its negative impact on the environment (Hilson 2002) and its role in conflict and underdevelopment (Ross, 2001) in several towns and cities across the continent.

In Kenya coast region, there has been an outcry from the residents of the coast region regarding poor development in the region despite enjoying enormous resources (salt in Malindi, Limestone in Mombasa and Titanium, Niobium and rare earths minerals in Kwale and TaitaTaveta Counties). Since 1995 when mining prospects began, the residents had protested to the government regarding granting of mining rights to Tiomin but their request for the cancellation of the mining licence was turned down by the high court in Mombasa in 2007 (Abuya, 2013). Therefore in 2008, communities living around the exploratory sites were evicted and the company began operations in 2009. The locals have been against mining of titanium in their areas

What remains not clear is the process through which displacement took place, whether the communities were satisfied with the compensation given by the mining companies, the effect of mining activities on economic and agricultural resource distribution and the various environmental concerns regarding the project degradation activities on flora and fauna. Furthermore, the situation of the resettled communities' social-economic wellbeing has not been adequately researched since their displacement. This formed one of the basis for conducting this research on the effect of titanium mining operations on the livelihoods of resettled communities in Msambweni division, Kwale County, Kenya.

1.3 Purpose of the Study

The purpose of this study is to assess the influence of mining related factors on livelihoods of resettled communities in Msambweni division, Kwale County, Kenya.

1.4 Objectives of the Study

The Study will be guided by the following objectives

- (i) To assess the influence of displacement on the livelihoods of resettled communities in Kwale County, Kenya
- (ii) To investigate the influence of compensation on the livelihoods of resettled communities in Kwale County, Kenya
- (iii) To establish the influence of economic resource distribution on the livelihoods of resettled communities in Kwale County, Kenya
- (iv) To find out the influence of environmental degradation on the livelihoods of the resettled communities in Kwale County, Kenya

1.5 Research Questions

The study will attempted to answer the following research questions:

- (i) To what extent does mining activities displacement affect the livelihoods of resettled communities in Kwale County, Kenya?
- (ii) How does compensation from mining activities influenced on livelihoods of resettled communities in Kwale County, Kenya?
- (iii) To what extent does mining project economic resource distribution affected the livelihoods of resettled communities in Kwale County, Kenya?
- (iv) What is the effect of mining activities environmental degradation activities on the livelihoods of resettled communities in Kwale County, Kenya?

1.6 Research Hypothesis

The study will test the following research hypothesis

- Ha₁ The displacement process has significant influence on the livelihoods livelihood of resettled communities in Kwale County, Kenya
- Ha₂ Compensation received from mining has significant influence on the livelihoods of the resettled communities
- Ha₃ The economic resource distribution by the mining projects has significant influence on the livelihoods of resettled communities in Kwale County, Kenya
- Ha₄ Environmental degradation activities of mining have significant influence on the livelihoods livelihood of resettled communities in Kwale County, Kenya.

1.7 Significance of the Study

The findings of the study are relevant to Msambweni residents, Titanium Company, the ministry of Mining and future researchers. At first, the resettled communities living in Kinondo and Mivumoni stand a higher chance of benefiting from this study as the report might be useful working document for addressing issues of related to titanium mining and livelihoods in the area. For Base Titanium Ltd, the findings of the study will provide recommendations on how the company might co-exist with the resettled communities for mutual and peaceful co-existence. Areas of concern regarding the influence of mining activities on the local population will be addressed to the management and appropriate action and procedures will be taken. For the government of Kenya, the findings of the study will assist in policy modifications on the Mining Act. This will ensure that the national government does not collide with county government and company regarding the revenue and shares to be collected from the mines. It is also envisaged that the findings made by this study will be of paramount importance for future research into mining activities and rural livelihoods in Kenya and beyond.

1.8 Delimitation of the Study

The study investigated the effect of titanium mining operations on the livelihoods of resettled communities in Kwale County. The county is divided into three Sub Counties; Kwale, Kinango and Msambweni. The study was not conducted in Kwale Sub County and Kinango due to non-existence of neither minerals nor mining activities. Msambweni district is where mining prospects and operations are in two divisions; Mivumoni and Kinondo locations. The study covered resettled households in all locations in Msambweni by using questionnaires, interviews and focus group discussions methods. The study also looked at the extent to which four factors influenced livelihoods of the rural populations in that area. The research was conducted within a period of two months.

1.9 Limitation of the Study

The main limitation of the study was the difficulties of reading the true opinions and impressions of the respondents through the use of questionnaire. Language barrier was a challenge since there had to be some interpretation of some questions on the questionnaire for the respondents in the local dialects (Kiswahili and Digo). To

address this, the study hired one local interpreter familiar with the language to assist in translating some items from English into Digo or even Kiswahili. Another challenge that the study encountered is that the population for the study was scattered in different geographical regions and therefore this lengthened the period of data collection and arranging for focus group discussions.

1.10 Assumptions of the Study

The following are the assumptions of the study

- (i) Livelihoods of resettled communities in Msambweni is largely dependent on the independent variables of the study; displacement, compensation, economic resource distribution and environmental degradation activities.
- (ii) That the respondents to be involved in this research provided honest data for the study.

1.11 Definition of Significant Terms

Compensation– refers to giving out monetary and non-monetary to community members as a result of loss of their land to mining activities

Displacement – refers to the process of moving resident from their ancestral home to new areas to create land for mining of titanium

Economic resource distribution– refers to the state in which community members shift from their original way of meeting their households needs e.g. farming, occupation to new ventures (activities) as a result of displacement by mining projects

Environmental degradation– mining activities that affects environment

Household- refers individuals who live in the same dwelling and who share basic domestic and/or reproductive activities such as cooking and eating.

Livelihood– refers the means of securing the necessities of life. It may also comprise of capabilities, assets (material and social resources) and activities required for a means of living. In this study the livelihoods indicators comprise of sources of income, health, education, security and culture that people use to sustain their living.

Mining– the process of earth excavation to extract minerals e.g. coal. Gold, salt among others. The study will focus on the mining of Titanium in Msambweni.

Resettled communities – refers people relocated to new areas to pave way for mining activities in Msambweni.

1.12 Organisation of the Study

This chapter has presented the background information to the on the influence of mining related activities on the livelihoods of resettled communities. 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. The chapter has also focused on the research problem; presented the objectives, research questions and actual benefits of the study to specific groups. The next chapter presents a review of literature on the topic of the study as written and researched by scholars around the globe. The chapter three documents on the research design and methodological procedures followed. Chapter four presents the results of data analysis while chapter five gives summary of findings, recommendations and suggestions for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews related literature on influence of mining activities on livelihoods of resettled communities in as written by other scholars; it also presents the theoretical framework, conceptual framework and the study research gaps.

2.2 Influence of Displacement and its effects on the livelihood of the resettled communities

Mining is a major economic activity in many developing countries (Kitula, 2006), particularly in rural sub-Saharan Africa. At the extreme, mining has led to growing conflicts among most communities displaced by mining operations and has even increased the presence of social vices such as prostitution, drug abuse, alcohol abuse, gambling, incest, inadequate housing, youth unemployment, family disorganization and school dropout rates (Akabzaa&Darimani, 2001; WRM, 2004: Gualnam, 2008).

Recent concerns regarding the potential conflicts between mining and other land uses has prompted some communities to pass non-binding referendums banning mineral development. For example, in June 2002 the Peruvian community of Tambogrande voted to reject mining in their community due to concerns regarding the projected displacement of half of its residents and fears regarding the potential influences of mining on the community's traditional livelihood (Oxfam, 2002). According to a study commissioned by the mining industry, displacement may result in serious social problems, including marginalization, food insecurity, and loss of access to common resources and public services, and social breakdown (MMSD, 2002). The study will determine the influence of displacement on existence of problems among Msambweni resettled communities.

The acquisition and purchase of land for mining is a common cause of conflicts between mining companies and local communities (Owusu-Korateng, 2008). Some of the problems associated with voluntary resettlement can take years to surface. For instance, community members may not have the skills needed to maintain houses built using permanent materials that replaced their traditional homes; or they may lack sufficient access to natural resources (e.g. fishery areas, agriculturally productive

land) in new settlements (MMSD, 2002). In Australia, Involuntary relocation usually poses more risks than voluntary relocation, as it can lead to homelessness, food insecurity, loss of access to public services, and social breakdown (MMSD, 2002). Indigenous people (aboriginals) are particularly vulnerable due to their strong cultural and spiritual connections with the land on which they live (MMSD, 2002).

In India, Bharali (2006) informs that displacement of people from traditional habitats causes much trauma to the affected persons. Compulsory acquisition of land for construction of dams and roads, quarrying and mining operations, industries and reservation of forests for National Parks and environment protection forces people to leave their traditional abodes and land—their main sustenance. Thus, development projects have often become a major threat to the people whom they deprive of their traditional livelihood without alternatives. Nearly 50-60 million people have been displaced by development projects in India as a whole and tribal constitute at least 40% percent of them. Cash payment does not really compensate the tribal's for the difficulties they experience in their lifestyle and ethos.

Agricultural lands are not only degraded by mining activities but also the decrease in the land for agricultural production has led to a shortening of land fallow periods (Akabzaa&Darimani, 2001). In this regard, livelihoods are greatly affected. In terms of livelihood, mining concessions have taken over lands used by indigenous people for their traditional livelihoods; rice fields, vegetable gardens, hunting and grazing livestock. In a report by Oxfam (2004), it indicated inter alia that traditional small scale miners have lost their small areas allotted for mining of gold to the bigger mining firms. Some communities have completely lost their cultural landscapes including mountainsides, burials and hunting sites to deep open pits. In amplifying this point, Bush (2009) opines that mining, particularly large scale, is a major cause of forcing people especially women to find alternative forms of livelihoods on their own.

Ocansey (2013) found out that the influx of mining companies in the study area showed that mining activities within the region of study has in many ways affected the livelihood of the people by displacement, relocation and even resettlement. The socio-economic, environment, and the lives of the inhabitants of the catchment area are adversely affected by mining activities which has led to food shortages, land

degradation, water pollution, high cost of living, food price hikes and many other factors.

Appiah and Buabe (2012) realised that gold mining activities have adversely affected livelihoods via landlessness, more in Prestea and Damang than Tarkwa, as per the proportionate representation of 41%, 33% and 26% respectively. Surface mining for instance, has claimed farmlands which are main source of livelihood and rendered many people jobless (Cottrell & Rankin, 2000), and cited in (Obara & Jenkins, 2006). Being denied access to their farmlands, they had to initiate other sources of livelihood which have not been self-sustaining. The fact is the retrenchment of many mine workers during the transition from underground mining to surface mining has made a lot of people redundant. This idea was mainly expressed by petty traders in the communities, who related this problem to the drastic reduction in their customer base.

In Tanzania, 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 (Maliganya *et al.*, 2013). 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.

Kitula (2006) reports that mineral exploitation involves the appropriation of lands from indigenous people and massive displacement of settlements. In rural communities, locals depend on the land as a source of livelihood. According to the District mine engineer; some 1800 villagers were forcibly displaced in Mtakuja, Nyamalembo and Nyamange villages in Mtakuja Ward, following the establishment of the Geita Gold Mine. The displacement threatened peoples' livelihoods and has

resulted in confrontation between the local people and staff at the Geita Gold Mine. An influx of foreign mining companies has made it even more difficult for locals to secure land.

Kitula (2006) further reports that displacement has already caused conflicts between the local people and the mine operators. There have since been additional social conflicts between small-scale miners and the large-scale mining companies, as the (small-scale) miners have begun to find that areas previously open to prospecting and mining of gold is now under the control of a private foreign company. In Kenya, Abuya (2013) observes that. (The residents of Kwale lost their homes and lands in 2007 when Tiomin-Kenya began titanium-mining operations. The local residents, however, resisted the seizure of their land right from its inception in 1995 when prospecting on their land began. They filed several cases in court in which they questioned the legality of the forceful acquisition of their land (by the state). They lost the cases, however, and on a rainy night of 25th April, 2007, the farmers were displaced from their land (Mines & Communities, 2007).

2.3 Influence of Compensation on the Livelihoods of resettled Communities

The emergence of land compensation can be traced to feudal England (Benson, 2008). In more recent times, compensation is normally considered in anticipation of the negative effects that social displacement portends (Abuya, 2013). The issue of land compensation, especially in Africa, has become quite contentious, as communities have been disaffected mainly by what may be termed “unfair” compensation practices, as these practices do not include lost subjective value and aspirations (Beideman, 2007).

Mining activities also cause frequent destruction of farm lands without adequate compensation being paid to the affected farmers (Akabzaet *al.*, 2005). Though in recent times, affected communities have stepped up the struggle for human rights, self-determination and social and environmental justice, human rights violations as well as other social vices resulting from mining activities continues to rise with several cases of arbitrary arrests, violations of the right of access to food, forceful evictions, inadequate compensation and demolishing of villages (WRM, 2004). In India, Monetary compensation for farmers who have lost their lands to mining

companies remains a contentious issue, with farmers reporting that they are always at the losing end of any contestation for land and compensation.

Furthermore, the local public perception is that there is hardly any trickle down of mining benefits to the local communities to improve their lives. Such struggles and opposition to mining projects and activities have also been rife and recorded in Kenya among the local people who have raised concerns about the desecration of ancestral graves and the fate of their sacred forests, in addition to losing their homes, health, and livelihood (World Rainforest Movement, 2004).

In Ghana, Opoku-Ware (2010) observed that in the view of the company, one major way to deal with the influences is to use compensation as a means to persuade and convince the people to accept the influences (social and environmental) of their mining activities. Particularly, peoples whose lands are taken over are in theory entitled to compensation in cash or kind. Respondents whose lands have been affected or taken over by Newmont for mining were asked if they have been compensated in any way. Most of the respondents indicated that they have been compensated by the company but also expressed some reservation with the compensation given them. They were furthered asked what form the compensation took. The respondents indicated two major forms of compensation. They noted that houses and cash were used to compensate them. They added that those whose farms were destroyed were compensated with money whereas those whose houses were destroyed were relocated and compensated with new houses.

Ocansey (2013) observed that there was migration for the youth from their farms to nearby mines. The reason for this migration usually stems from the fact that compensation packages from the mining companies to the communities mostly do not benefit the youth but end up benefitting a few influential people within the communities. The result has been an increase in social problems in the area. Some of the problems include drug abuse, high cost of living, prostitution and other environmental problems such as air pollution, ground and surface water pollution and physical assaults (Fusseini, 1996).

O'Neill (1993) has noted that, while the mining companies and to a lesser extent the government, reap the benefit, the communities enjoy few benefits and bear the greater part of the negative influence. It is this imbalance within these groups that bring about the persistent social conflicts in mining sites. O'Neill (1993) further stated that such conflicts are centred on the following: unfair distribution of benefits of mining projects, struggle for self-determination and control of resources and struggle between small scale miners and the large companies. Land use conflicts, which are struggles for basic rights, usually are met with police brutalities by the dominant beneficiaries; the companies and the government.

Ocansey (2013) established that there were two main forms of compensation. These were resettlement and relocation. The resettlement refers to those who had their buildings and land replaced. Relocation pertained to those victims who were given cash in compensation. Other compensations referred to those who were given some training in some trades or employed in the largest company, Newmont Ghana Company Limited. It can be deduced that most of the respondents opted for relocation. They therefore collected the money and left while others opted for the trade and training which led to their employment by some of the mining companies. Few people opted for resettlement and were given some farm land and houses. Some irresponsible household heads decided on relocation instead of resettlement and hence collected compensations in money form, some abandoning their homes and headed for urban towns. Another sad influence is the increase in social vices such as prostitution, theft, high cost of living and tension between the local folks and the mining companies due to the influx of the youth from the urban areas.

Abuya (2013) reports that the official basis for the forceful acquisition of land in Kwale District was the provision in the Kenyan Mining Act that all subterranean minerals belong to the government (Cap 306) and the Land Acquisition Act (Cap 295, Section 6 (1) (a)) that provides for government acquisition of private land for public good. Over three thousand residents were consequently displaced to make way for titanium mining. To mitigate the influence of displacement, the Kenyan government offered a compensation package (to be paid by the extractive company, which included monetary payments for land, crops, and physical structures lost, plus compensatory land, among others) to the local Kwale community. The compensation

offered did little to appease the community, who resisted the displacement through a series of court cases from 2001 (when Tiomin began prospecting for titanium in Kwale) until 2008.³ The farmers' last case in 2008 led to a lengthy suspension of the mining project.

2.4 Influence of Resource Distribution and the Livelihoods of resettled Communities

In most mining communities, the degradation of large tracks of land by the large-scale surface mines constitutes a major threat to agriculture in the communities and their economic survival (Awudi, 2002). Akabzaa (2009) also notes this trend and states that that mining companies are annexing vast lands in their operational areas and depriving communities of their chief source of livelihood (Akabzaa, 2009).

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 (Malinganyaet *al.*, 2013). Dutch Disease undermines long-term economic performance in resource dependent economies resulting in a 'resource curse in Botswana (Poteete, 2009).

In Tanzania, 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 (United Republic of Tanzania, 1997). However, Mwalyosi (2004) found that Tanzania is yet to realize the objective of economic distribution as a result of mining activities in alleviating poverty in the country (Mwalyosi, 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).

In Tanzania, Maliganya *et al.*, (2013) observed that 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.

AduYeboah *et al.*, (2008) stated that one of the major negative influences of mining projects is the high cost of living within communities near the mining sites. AduYeboah noted that most basic needs such as food, accommodation, water and other necessities are expensive to purchase by ordinary people. He again stated that there are two main reasons for this situation. Firstly; the mining companies employ most of the strong and able-bodied young men into the mining industry, taking them away from the farms. Secondly, most of the farmlands in those communities are taken over by the mining companies. The result is that there is always a reduction in food production in those areas and the need for food to be brought from distant areas at exorbitant prices (AduYeboah, 2008).

The extensive land clearance and also open-pit had also resulted in the destruction of vegetation, biodiversity of natural water such as stream, rivers, ponds etc and restricted farming activities to very small holdings. The people in the study area are likely to be engulfed by poverty since the farming which is the major source of livelihood for the indigenous people in the area has been relegated to the background. This is another avenue to help break the poverty chain of the farmers in such communities (Ocansey, 2013).

Mining operations are normally undertaken in rural areas where people make use of uncleared land or depend on land for agriculture and subsistence purposes. This notwithstanding, mining could be acceptable under good technology and managerial skill. Yet, the fundamental issue that land will remain primary for food and shelter stands (Veheye, 1997). Hence, mining and conflict coincide because both companies and communities place different socio-economic values on land (Hilson, 2002). Epps and Brett (2000) add that mining communities are sometimes among the poorest

segments of the population and often engage in small scale local economic activities. They are unexposed to global society and more vulnerable to the influences of development.

Bebbington and Bury (2009) found out that the mining industry has placed Peru on the map for foreign direct investment as well as provides valuable infrastructure in the form of roads, irrigation etc. in the regions where extraction occurs. In Tanzania Geita District, Kitula (2006) found that only 8.1% of respondents in non-mining areas benefit from direct mining activities as a source of alternative employment, while 37.8% benefit indirectly from food crop sales, and 25.7% from subsistence (petty) business. Kitula further explains that in the 1980s, the Tanzanian government amended mineral policies for the sole purpose of creating a favourable investment climate for foreign mining companies. As a result, several small-scale miners and farmers have lost their mine sites, agricultural and grazing lands. The long-term implications of such displacement include accelerated food insecurity to landless classes, increased poverty and intensified environmental degradation.

In Ghana, Appia and Buaben (2012) It note that in spite of the enormous wealth generated from mining activities, host communities still persist in lifestyles of abject poverty seen in deteriorated livelihoods and inadequate housing and road infrastructure. This alludes to the fact that the expectations of most communities in this district have not been fully met. The host communities expect to see total socio-economic improvement with regard to provision of more social infrastructure and livelihoods in their communities, but this is not the case. In view of this they see gold mining activities as a bane rather than the blessing it should connote. Gold mining is increasingly being considered as a threat to livelihood and ultimately the very human existence, as far as these local communities are concerned.

2.5 Influence of Environmental Degradation on the Livelihoods of resettled Communities

The environment, its natural resources and development capacity remains a contentious element in the development process of human society (Opoku&Asare, 2014). Mining is viewed undoubtedly as a dangerous activity with acute effects on the socio and environmental context within which it operates. As the global environment

has been very visible especially within the sphere of mining activities, residents are demanding recognition of their rights, entitlements and their livelihood. There are indeed tensions, conflicts and/or disputes on the risks, influences and distribution of benefits.

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 influences, 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 &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 & 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 influences (Knight, 2001; Lange, 2006). By its nature, mining has permanent environmental influences 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 (WRM, 2004).

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& 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).

In Peru, Bebbington and Bury (2009) acknowledges that despite mining industry facilitating powerful, state-level economic development, it has also reportedly created immense challenges for livelihood stability and environmental sustainability. These challenges are particularly relevant in the regions where extraction occurs. In Peru, many mining sites are located in close proximity to regional watersheds as water is a crucial element in mineral extraction. One of the key concerns generated by this industry is the degradation in water quality and quantity for downstream communities. It is broadly cited that the chemical wastes and effluents flow beyond the operation site and rapidly disperse down rivers and aquifers (Bebbington& Williams, 2008).

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.

In Ghana, Tom-Derry, Dagben and Cobbina (2012) asserts that mineral exploitation creates environmental damage on a scale matched by only few other human activities. It is responsible for deforestation, soil erosion, water pollution and significant air pollution. The environmental influences are particularly very severe in developing countries, which produce a large portion of the world's minerals. Surface mining scars large areas and creates enormous. Tom-Derry et al, (2012) found out that Small scale

gold mining activities in Nangodi is having a significant effect on shrubs and tree species numbers and diversity resulting in environmental degradation.

Mensah (2009) in her study in Obuasi on gold mining and CSR reveal that farmers in mining communities also lose their crops and the fertility of their land to mining activities. The influence exerted on the farmers is not just a matter of crop destruction as a result of the spillage of cyanide, smoke from the mines. Mensah reports that farmer as saying in a bitter tone that: his cocoa trees became stunted and thus he had to destroy them and grow cassava. According to him, with the smoke from those chimneys, you cannot plant certain crops such cocoa (a very important cash crop in the country) and plantain. The loss of production of cash crops brings to fore the economic livelihoods questions of financial sustainability and household income generation needed to drive rural households out of poverty. The environmental cost is therefore an issue that permeates into the very core of living of populations.

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.

In Tanzania, Kitula (2006) explains that environmental pollution is a major problem in the mining areas of Geita District. Continuous disposal of mine wastes contributes to air and water contamination, which are detrimental to human health, livestock and wildlife biodiversity, and have serious effects on the welfare of the mining communities, especially groups of women and children. The health and safety of

miners and the nearby communities are at risk from a variety of factors, ranging from the inhalation of mercury fumes and dust, to water contamination and poor safety procedures. Unprotected pits, for instance, during the rainy seasons, form breeding grounds for disease vectors such as mosquitoes and housefly the agents that spread malaria and water borne diseases. Mine pits have clearly prevented farmers from harvesting animal manures, and excessive vibrations caused by repeated explosions have resulted in the cracking and collapsing of buildings near to mine sites.

In Kenya, Ogola, Mitulla and Omulo (2002) gave details of environmental influences of artisanal gold mining in the Migori Gold Belt in Kenya. The authors attempted to quantify the various additives to the environment and their health effects. They reached the conclusion that the concentration of heavy metals, Pb (lead), As (arsenic) and Hg (mercury) at mine sites, stream sediments and water far exceeded the recommended values of the World Health Organisation (WHO). The concentrations of Pb and As in the Macalder stream were 13.75mg L^{-1} and 8.04mg L^{-1} respectively against the WHO recommendation of 0.05mg L^{-1} for both metals. Poisoning from lead was particularly emphasised pointing out that it does not breakdown naturally but it impairs the nervous system, it affects foetus development, and it affects the IQ of infants and children.

Jerie and Sibanda (2010) agree with Ogola *et al.*, (2002) that international standards are being neglected in gold mining operations. Examining the environmental effects of effluent disposal at Tiger Reef Mine in Kwekwe they found out that the chemical composition of the effluent did not meet the standards set by WHO which Zimbabwe follows and that this has dire health implications. McKinnon (2002) who examined the environmental effects of gold mining waste disposal at Likir Gold Mine, Papua New Guinea also share the same view pointing out the health issues associated with cyanide disposal. McKinnon (2002) pointed out that, the most common environmental problems are likely to result from the chronic contamination of surface and ground water by lower concentrations of cyanide and related breakdown compounds.

McBain-Haas and Bickel (2005) have looked at the issue of environmental degradation due to gold mining from a human rights point of view. They viewed the case of gold mining at Marlin Gold Mine in San Marcos in Guatemala as a sure case

of violation of human rights since the mining project and the ensuing environmental influences affected communities' access to livelihood resources and sources.

The European Bank for Reconstruction and Development (2009) has written on human rights, local communities and indigenous peoples in relation to large-scale mining development pointing out that, because of lack of title, the local people are vulnerable to eviction with little or no compensation at all and those who remain suffering economically because of loss of traditional livelihood resources. The Bank also points out the social problems that may arise due to the influx of migrant workers including health issues. It is not only during the life time of the mine that social problems can be experienced. There can be problems as well when the mine closes down when people who previously depended on the mine find themselves without an income or accommodation. The Economic Commission on Africa (2002) also discusses the issue of human rights in relation to mining.

Saunders (2008) argues that despite the huge mineral base of the country the local population has not benefitted from the mineral wealth as they are left out from playing an active part in the extraction and marketing of the minerals. It is seen that most of the mineral exploitation in the country is done by foreigners despite the government's indigenisation policy. Agreeing with Saunders (2008), Hawkins (2009) points out that it is inconceivable for local communities to benefit from the mineral resources of the country since there is no room for a trickle-down effect. The situation was going to negatively affect the recovery rate since most of the wealth is in the hands of a few and in most cases in the hands of foreigners.

2.6 Theoretical Framework

The theoretical framework was based on Capability Approach developed by Amartya Sen (1980) and Nussbaum (1988) cited in (Clark, 2005) which mainly assesses human well-being. Basically, the theory is about the ability of people to have freedom to do the things that bring happiness and satisfaction to their lives. The core concept of this approach is achievement, which relates to living conditions and capability which also relates to freedom in the positive sense (Robeyns, 2003). With reference to the Capability Approach, this study is based on the notion that titanium mining can enhance or retard community development in Msambweni, given the capabilities or otherwise of the inhabitants of the mining areas.

A well developed and improved mining sector has the potential of becoming a major growth centre with its attendant benefits for Mswambweni residents. This will lead to development of the country in general and the mining communities in particular in a trickling-down effect fashion. But the question is what has been the effects of mining projects on the livelihood of residents within the mining communities in Kwale county and Mswambweni division in particular. It is in the wake of these paradoxes that the study sought to investigate whether titanium mining activities had facilitated or impeded community development in the area.

2.7 Conceptual Framework

The conceptual framework was modelled on the relationship between the mining projects activities effect on the livelihoods of people in KwaleCounty, Kenya. Figure 2.1 shows the model.

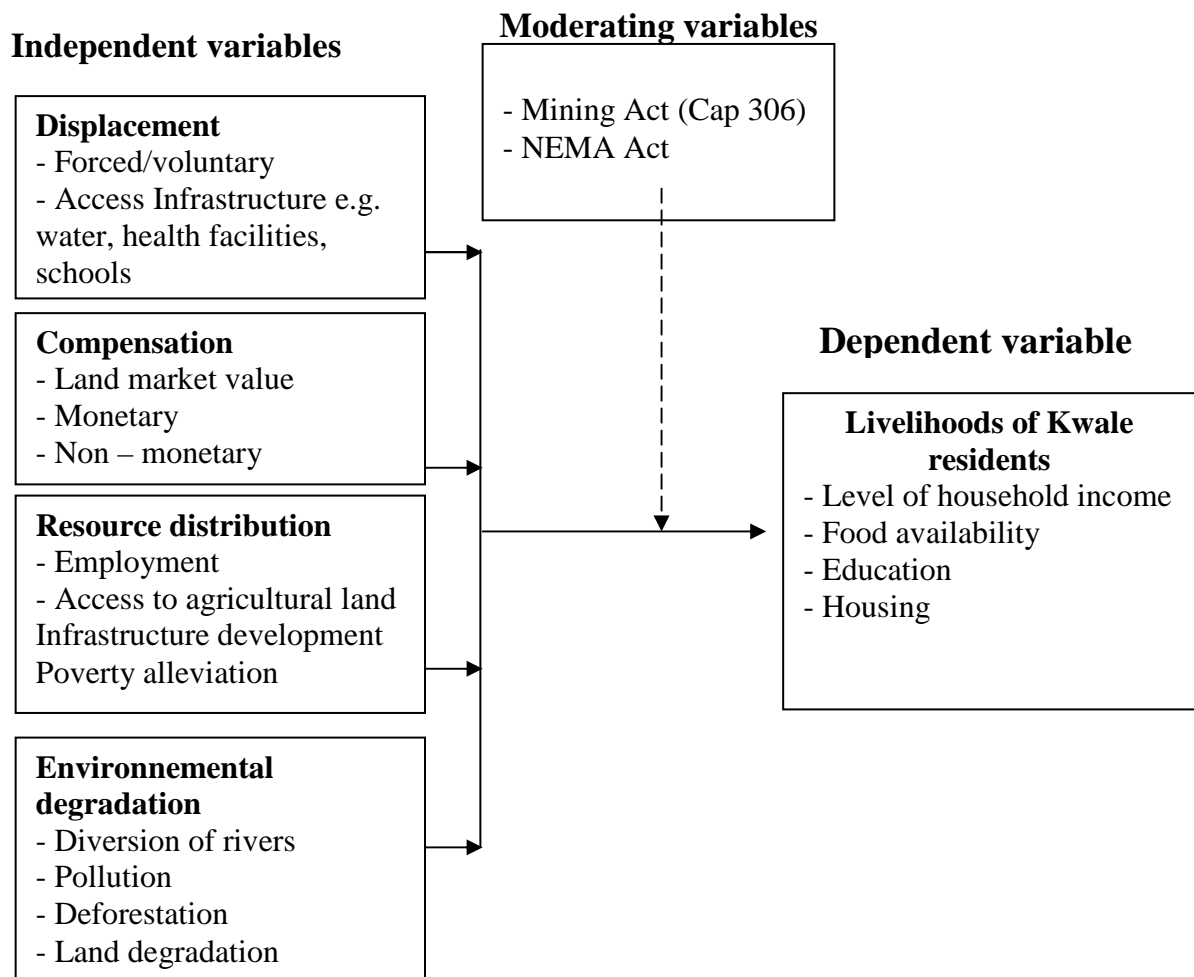


Figure 1.1 Conceptual framework

The independent variables predictors involve the displacement activity through which Kwale residents in Mswambweni moved out of their land forcibly or peacefully after Titanium mining company began operations, the second variable involves the compensation to which residents from the area received from the company, the third involves the resource distribution activities through community feelings about the merits and demerits of the project being implemented in their area and lastly the environmental degradation activities that came after the Titanium company began operations. The four predictors could have a significant effect on the dependent variable which is described through the livelihoods of the residents affected by mining operations by Titanium Company. However, the Mining Act (Cap 306) and NEMA Act forms the main moderating variable in the study as it depends on how the implementing agencies (Ministry of Mining and Ministry of Environment and Natural Resources) implements its provision provided under the said acts in terms of compensation, environmental assessment among others.

2.8 Summary of Literature

The reviewed literature has offered some insights on how mining activities have influenced on livelihoods of surrounding and resettled communities in mining areas across the world. This section looks at the research gaps that have been found in a couple of studies from several countries across the world. For instance, Abuya (2013) conducted an ethno ecological analysis of mining, social displacement and vulnerability in Kwale district but choose ethnography approach that hinges towards qualitative research approach but the current study seeks to mix both qualitative and quantitative approaches to determine the extent to which livelihoods have been affected by mining activities. Ocansey (2013) researched on mining influences on agricultural lands and food security in Ghana but the current research will focus on livelihoods that go beyond the economic aspect to social and cultural aspects. Appiah and Buaben (2012) conducted a study on the effect of gold mining on survival of communities in Ghana; however, the current research will look at how titanium mining activities have influenced livelihoods of resettled communities in Msambweni division which has distinct cultural, economic and geographical characteristics from (Appiah & Buaben, 2012).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses methods and procedures to be used in collecting data. It presents research methodology, description of the study area, research design, study population, sampling design, research instruments, validity and reliability, data gathering procedures, data analysis and ethical considerations.

3.2 Research Design

The research design used was descriptive survey. The term research design in this study referred to the basic plan or strategy of research, the logic behind it which made it possible and valid to draw conclusions (Leedy&Ormrod, 2001). 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). According to Shuttleworth (2008) descriptive research design is a scientific method which involves observing and describing the behaviour of a subject without influencing it in any way. Shuttleworth (2008) emphasizes that, the subject is observed in a completely natural and unchanged natural environment. The descriptive research, which focuses on what questions was appropriate in this study since it can demonstrate the existence of social problems and can challenge accepted assumptions about the way things are and can provoke action. The design was considered as the most appropriate for descriptive purposes and determination of relationship between variables.

3.3 Target Population

In this study, the target population were households of the local communities in Msambweni Division, Kwale County. According to statistics from Base Titanium Kwale, 381 households from Kinondo and Mivumoni locations were resettled between 2006-2008 (Base Titanium Ltd, 2012). The 381 households formed the study population together with key informant from the company. 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 of Titanium. It was assumed that, mining activities are more likely to affect the livelihoods of households' individuals who are much more close to its operations. The study also conducted

focus group discussions with resettled communities in Kinondo and Mivumoni areas; Table 3.1 shows the target population.

Table 3.1 Target population

Respondents location	Number
Kinondo Location	208
Mivumoni location	173
Total	381

3.4 Sampling Size and Procedures

A sample is part of the population that has been procedurally selected to represent the population once the sample has been scientifically taken, the result can be generalized to the entire population.

3.4.1 Sample size

Choosing a study sample is an important step in any research project since it is rarely practical, efficient or ethical to study whole populations. The sample size (n) was computed depending on the total number of the households (N) in each location. To obtain the sample size for the study Mugenda and Mugenda (2003) advocates that between 10-30% of the target population can be selected to act a representative of the whole population. Therefore, 30% of the target population (381) which is 114 formed the sample size for the research. This means that 61 respondents came from Kinondo location while 53 were from Mivumoni locations. Table 3.1 shows the sample size.

Table 3.2 Sample size

Location	Target	Sampling formula	Sample size
Kinondo Location	208	30%	61
Mivumoni location	173	30%	53
Total	381		114

3.4.2 Sampling Procedures

Cluster sampling was also used to select the households within each village as the population in the respective areas, which were homogeneous in nature. According to Mugenda and Mugenda (2003), cluster sampling is used when it is not possible to obtain a sampling frame because the population is very large or scattered over a large

geographical area. Cluster sampling involves selection of an intact group. All the members of an intact group are then included in the sample and each member becomes a unit of observation. A list of villages' registers of the selected villages was identified. The population was divided into clusters based on the villages they were in Kinondo and Mivumoni. Thereafter, a sample size for the population was determined for each cluster. All the clusters were listed in random order. Lastly, using a table of random numbers, the researcher selected the required clusters according to the sample size required until a population of 114 was selected. The advantage of using cluster sampling was because it was convenient and took less time.

For the focus group discussion, the members of the group were also selected randomly but with much consideration to their social background. Seven people who were selected to be on the group. Consideration was not given to gender in the selection of respondents because the study was not interested in the gendered perspectives of the issues under study although mining can impact on gender differently.

3.5 Methods of Data Collection

Data for this study was collected from questionnaires and observations methods. The questionnaire instrument comprised two sets of questions; open ended and close ended questions. The questionnaire was structured according to the objectives of the study. The study considered using questionnaire because of its low cost, it was free from bias, respondents had adequate time to give out well thought answers and a larger sample size was reached and thus the results were more valid and reliable.

In order to investigate the views of the resettled people on the activities of the mining company in their area and how they perceive the impacts of mining activities on their lives since operation began focus group discussion was a very useful method of ascertaining such general views of the local people. Focus group discussions were conducted with households displaced by mining activities in both Kinondo and Mivumoni locations. According Bryman (2008), the focus group method represents a form of group interview where there are several participants including the interviewer in which questioning emphasis on fairly tightly defined topic and focus centred on interaction within the group and the joint construction. It is therefore a means to

achieve some form of collective conscience or opinion of a group of people on their experience of an issue or phenomenon.

Lastly, observation method was also used to capture images of livelihood status of resettled communities in the study area. It is noted by Bryman (2008) that participant observation and ethnography are difficult to distinguish because in both the “researcher immerses him or herself in a group for an extended period of time, observing behaviour, listening to what is said in conversations both between others and with the fieldworkers and asking questions. The result of this method was an in-depth understanding of the nature and extent of impacts of the mining activities on the indigenous people in the real setting.

3.6 Validity and Reliability of Research Instruments

Validity and Reliability are essential ways by which any research instruments are evaluated before being taken to the field for data collection.

3.6.1 Validity of instruments

If the research instrument measures what it purports to measure then it has what is termed ‘validity’. According to Silverman (2006) it is another word for truth. To determine the validity of research instruments, the questionnaires and interview guides was given to research supervisor to ascertain whether the instruments questions answered the study research questions. Comments and suggestions made by the supervisor were incorporated before administration of research instruments to the field.

3.6.2 Reliability of instruments

Reliability is the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the result of a study can be reproduced under any similar methodology, then the research instrument is considered to be reliable (Joppe, 2000). The reliability of the research instruments was determined through test-retest technique. Thereafter, Cronbach alpha correlation coefficient was used to ascertain the reliability of research instrument (specifically questionnaires which captured only the objectives of the study on close-ended questions). A reliability threshold was set up at 0.7 as suggested by Silverman (2006). An r value of 0.863 was obtained for the research questionnaire. The value of

the reliability value was above the cut off point of 0.7 suggested by Silverman (2006). Based on feedback received from the pilot study, the questionnaire was further modified before final administration to the field.

3.7 Data Collection Procedures

University of Nairobi, Department of Extra Mural Studies approved and provided clearance for permission collect data. The study sought research permit from National Commission for Science, Technology and Innovation (NACOSTI). The methods of data collection were both formal and informal. After this procedure, the researcher requested the assistant county commissioner (DO) to allow for the administration of research instruments in Msambweni locations two weeks before actual data collection. The researcher administered the questionnaires to villagers with the assistance of one trained research assistant that was conversant with the area and understood the local dialect (Digo). For FGDs arranged for meetings with resettlement communities members in the two divisions at Kinondo and Mivumoni. The respondents were guided on the filling in the questionnaires and interpretation on several research questions was availed to them at their request. The village elders assisted in identifying households to be surveyed.

3.8 Data Analysis Techniques

Data collected was analysed quantitatively and qualitatively. Both descriptive and inferential statistics were performed for quantitative data. The quantitative analysis was done using Statistical Package for Social Sciences (SPSS version 20.0) software. Frequency distribution tables were generated to summarize descriptive (frequency, percentage, means and standard deviation) data. A Karl Pearson product moment correlation coefficient was performed to test for any significant relationship between independent variables indicators on dependent variable at 0.05 significance level.

Qualitative data was handled using thematic techniques and organized using key themes that emerged from the discussions held with respondents in FGDs. Such data was then analysed using content analysis. In this way, the recorded dialogues with respondents was broken down into the smallest meaningful units of information, values and attitudes of respondents regarding the effect of mining projects on livelihoods of resettled communities in Msambweni division.

3.9 Ethical Considerations

In this study, ethical issues were accorded high priority in a sense that needed information was to be obtained on the consent of respondents. The researcher informed the subjects about their expected roles in the study and its benefits. The researcher 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 mining activities on local communities.

Table 3.2 Operational definition of variables

Objective/ Independent Variable	Variable (predictors)	Indicators	Tools for data collection	Measurement scale	Type of analysis
To determine the effect of displacement on the livelihoods of resettled communities in Kwale County, Kenya	Access to farmland Access to infrastructure Forced or voluntary	Household income Participation in agriculture Participation in social activities Participation in education	Questionnaires and interviews	Nominal	Qualitative Quantitative
To investigate the effect of compensation on the livelihoods of resettled communities in Kwale County, Kenya	Monetary value of land and vegetation in it Non-monetary compensation	Household income Participation in agriculture Participation in social activities Participation in education	Questionnaires and interviews	Ordinal, nominal and scale (interval)	Qualitative Quantitative
To establish the effect of economic resource distribution on the livelihoods of resettled communities in Kwale County, Kenya	Employment Shift in agricultural activity Employment - Access to agricultural land Infrastructure development Poverty alleviation	Household income Participation in agriculture Participation in social activities Participation in education	Questionnaires and interviews	Nominal	Qualitative Quantitative
To find out the effect of environmental degradation on the livelihoods of the resettled communities in Kwale County, Kenya	Pollution Diversion of rivers Deforestation Land degradation	Household income Participation in agriculture Participation in social activities Participation in education	Questionnaires and interviews	Nominal and ordinal	Qualitative Quantitative

CHAPTER FOUR

DATA ANALYSIS,PRESENTATIONANDINTERPRETATION

4.1 Introduction

This chapter presents the data analysis, presentation and interpretation of findings on the data collected on the influence of mining projects on the livelihoods of resettled communities in Kenya: the case of titanium mining in Mswambweni division, Kwale County, Kenya. The study sampled a total of 114 displaced members and qualitative information obtained from focus group discussions. The presentation of the findings of the study follows the research objectives. Also response rate and demographic data are presented.

4.1.1 Response Rate

Out of 114 questionnaires issued to households living in Mswambweni division, 86 returned signifying 75.41 for those in Kinondo and 75.47% for those in Mivumoni location as given in Table 4.1.

Table 4.1 Response rate

Location	Sample	Response	Response rate (%)
Kinondo	61	46	75.41%
Mivumoni	53	40	75.47
Total	114	86	

This is in line with Cooper and Schindler (2006) arguing that that research whose response rate is above 75% is adequate for a study of a social science nature.

4.2 Demographic Information

This section presents the demographic information of the respondents. It is almost always expedient to have a sufficient personal information or knowledge concerning respondents who participate in a particular research. Such information will provide readers with a fair idea about the category of people who took part in the research. The study obtained the respondents responses on gender, marital status, education qualification level, period of living in their current location, main economic activity

and family size. At first, the participants were asked to give their gender profile. The results are given in Table 4.2.

Table 4.2 Distribution of respondents by gender

Gender	Frequency	Percent
Male	50	58.1
Female	36	41.9
Total	86	100.0

Results from Table 4.2 show that 50 (58.1%) of participants were male while 36 (41.9%) were females. This ensured balanced response in establishing the influence of mining projects on the livelihoods of resettled communities in Kwale County. This indicates that both males and females have suffered from the impact of mining in the study area. The trend is in no way based on any biased assumptions about gender equalities or inequalities because most of the households in Msambweni are male dominated with most males being household heads who in most cases are given the respect by allowing them to speak on most issues concerning the household. The participants were also requested to give their marital status as presented in Table 4.3.

Table 4.3 Marital status of respondents

Status	Frequency	Percent
Single	14	16.3
Married	57	66.3
Divorced	6	7.0
Widow	9	10.5
Total	86	100.0

On their marital status, results from Table 4.2 shows that most 57 (66.3%) reported that they were married, 14 (16.3%) reported that they were single parents, 9 (10.5%) were widows/widowers and only (7.0%) were found to have divorced. This shows that all categories of families were affected by mining activities in Kwale County. The study corresponds to Maliganya *et al.*, (2013) results that indicated; majority of respondents (79.4%) in the away villages were married in Geita, Tanzania. The study went further to check the families of the respondents who participated in the research.

Table 4.4 Distribution by Household

Number	Frequency	Percent
1-3 members	13	15.1
4-6 members	19	22.1
7-10 members	44	51.2
More than 10 members	10	11.6
Total	86	100.0

Results from Table 4.4 shows that most of the households who were resettled comprised of 7-10 members 44 (51.2%), 19 (22.1%) said that they had 4-6 members, 13 (15.1%) had 1-3 members and 10 (11.6%) indicated to have more than 10 members. The finding implies that if adequate compensation of land, employment and even housing was not adequately provided, the families could be facing the challenge of meeting their needs. This is in contrast to Malinganya *et al.*, (2013) research findings that showed 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. Moreover, the respondents' education qualification levels are given in Table 4.5.

Table 4.5 Education level of participants

Education level	Frequency	Percent
No formal education	21	24.4
Primary	41	47.7
Secondary	16	18.6
College	7	8.1
University degree	1	1.2
Total	86	100.0

Based on their educational qualification level, 41 (47.7%) had primary level of education (although there was no proof of completion), 16 (18.6%) were found to have secondary education level, a significant 21 (24.4%) had no formal education, 7 (8.1%) were diploma holders and 1 (1.2%) said that they possessed degree. The results implies that the literacy level of respondents influenced their bargaining power

during the resettlement process as those who may have nor or low formal education level could be compromised with the fact that agreements are usually written in English thereby end up appending signatures to issues they are not conversant with.

Lastly on the demographic aspects of respondents, they were asked to indicate their economic activities. One major determined of the social status and economic power of people is their occupation. In order to understand the economic livelihood of the people vis-à-vis their poverty levels and ahigh expectation of job creation and opportunities with the onset of mining activities. According to the results from open-ended questions, 67 (77.9%) engaged in subsistence farming, 6 (7.0%) worked as casual labourers, 10 (11.6%) engaged in business while others said that they were casuals. The study coincides with Opoku-Ware (2010) in Ghana established that majority of the people were mainly farmers and continue to farm even with the start of mining in the community with only a few people engaged in other forms of small enterprises (SMEs).

4.3 Influence of Displacement on the Livelihoods of Resettled Communities

This is the first objective of the study that sought to find out the effect of mining activities displacement and livelihoods of resettled communities in Msambweni division. Through twelve statements measured on a Likert scale of five 1-Strongly Disagree to 5-Strongly Agree. Their responses were computed and results illustrated in Table 4.6.

Table 4.6 Effect of displacement on the livelihoods of resettled communities

Effect	N	Mean	Std. Deviation
All our local leaders including elders were involved in the displacement process	86	4.1395	.97211
Our children continued with education well after displacement	86	3.5000	1.43691
The displacement occasioned by mining activities was peaceful	86	3.0581	1.54428
We were counselled several times before displacement	86	2.6395	1.54091
The place where we live has adequate security	86	2.6279	1.56466
There are adequate health facilities in the area we were resettled	86	2.5814	1.59015
As a household, we are happy with our new location	86	2.4767	1.39517
We as a household decided to vacate voluntary to our current home	86	2.1512	1.47543
The displacement did not disorganise our family	86	2.1395	1.42385
The land we were compensated with is the same as the old one in terms of productivity	86	2.0465	1.22625
The displacement has not affected our cultural heritage e.g. sacred forest, ancestral graves	86	1.8488	1.30625
Displacement did not hinder access to natural resources (forest)	86	1.8140	1.22245
Valid N (Listwise)	86	2.5852	1.39153

Findings of the study showed that the respondents highly ($M=4.13$ and $SD=0.97$) with the statement that all their local leaders including village elders were involvement in the displacement process. They also tended to slightly agree ($M=3.5$ and $SD=1.43$) with the statement that their children continued with their education after displacement. However, the high standard deviation scores (0.97 and 1.43) for the two statements suggest that some respondents tended to disagree with the statement. It is therefore evident that education progression by children was least affected by the displacement process for mining activities.

However results further informs that displacement hindered access to natural resources (M=1.81 and SD=1.22), it affected their cultural heritage like sacred forests and ancestral graves (M=1.84 and SD=1.30), the land they were compensated with is not productive (M=2.04 and SD=1.22) compared to the previous one, their families were disorganised (M=2.13 and SD=1.42), they did not voluntarily vacate their previous land/home (M=2.15 and SD=1.47) and they are not happy with their new location (M=2.47 and SD=1.39). The results show the level of dissatisfaction that the resettlement of households from mining areas was not conducted in a humane way.

The results of the study further showed that respondents had mixed feelings on the statement that; displacement was peaceful (M=3.05 and SD=1.54), some also were unsure about the security of their current environment (M=2.62 and SD=1.56), health facilities are not adequate as expected (M=2.58 and SD=1.59) and counselling was not provided frequently. Computed average statistics are given in Table 4.7.

Table 4.7 Effect of displacement on livelihoods of resettled communities

Effect	Frequency	Percent
Negative	23	26.7
Moderate	40	46.5
Positive	23	26.7
Total	86	100.0

Findings shows that most 40 (46.5%) had been affected moderately by displacement. 23 (26.7%) said that displacement had positive influence on their livelihoods while 23 (26.7%) indicated that displacement had negative influence on the source of livelihoods. This coincides with Akabzaa (2009) who notes that mining companies annex vast lands in their operational areas and deprive communities of their chief source of livelihood with such rampant dislocations of communities for mining activities fostering poverty among these displaced communities. Through open-ended questions, the participants were asked how they were satisfied/dissatisfied with the displacement process that occurred. The results are given in Table 4.8.

Table 4.8 whether residents were satisfied with displacement process

Responses	Frequency	Percent
Yes	31	36.0
No	55	64.0
Total	86	100.0

It is seen that majority 55 (64.0%) were dissatisfied with the displacement process that occurred in their previous land and only 31 (36.0%) were satisfied. They were dissatisfied because they were promised many things of which they were not fulfilled to them. Other reiterated that the process was not fair, and up to date, they have not seen their 'shambas'. The researcher found out during the focus group discussion that only the politicians were thought to have been the beneficiaries of the project. Other included the chosen few, the elite and county government. For instance, the superintendent's secretary is related to a high ranking official of the county government while the committee was believed to have been set to work with the company and not to protect the community interest. The committee that was put in charge of allocating land was thought to have been corrupt since they had amassed vast pieces of land for themselves and took advantage of the people illiterate situation.

One member during FGD in Mivumoni narrated that one officer in charge was corrupt by asking for bribes from residents. The officer could even tell the old members (who most of them were illiterate) that the cheques from Nairobi to Kwale would take a month to arrive which was a lie since the cheque were right in their office tables but we did not know so they could take 10-20% of people compensation claiming that they were speeding the cheque process. The study established that the whole displacement and resettlement process was not fair and transparent.

Committee members chosen to represent community took opportunity to grab land. The people were compensated land and crops at the cost of Kshs. 80,000/= per acre. They were compensated with some swampy lands for instance in Bwiti which were still owned by the original owners hence the reason for buying land elsewhere (see photo attached in the appendix). Land Survey cost Kshs. 13,750/= and the title were out but had multiple names e.g. original owner and the resettled. Most of the resettled

had not seen their shambas since there were swampy areas that none could access their pieces of land. Some of the displaced members could not access Bwiti where the original resettled land existed due a high level of conflict and hostility amongst the owners of the lands in Bwiti. This shows the inhumane nature of displacement process was conducted by the company representatives, politicians, elite and committee members to defraud innocent residents of their right to fair and equitable compensation of land. These sentiments have been documented in Ghana whereby Appiah and Buabe (2012) realised that gold mining activities have adversely affected livelihoods via landlessness, more in Prestea and Damang than Tarkwa.

4.4 Influence of Compensation on the Livelihoods of the Resettled Communities

This was the second objective of the research that investigated the effect of compensation that residents living in Msambweni received after being resettled due to mining activities. Through a Likert scale of five, they were supposed to agree or disagree on how they received compensation and how it has affected their livelihoods. The results of the analysis are given in Table 4.9.

Table 4.9 Effect of compensation on the livelihoods of the resettled communities

Effect	N	Mean	Std. Deviation
Fair and proper valuation of our properties (houses, trees, plants, animals) was conducted before displacement	86	2.9186	1.42429
The compensation received targeted everybody (adults)	86	2.7209	1.58412
We were given alternative land as a compensation for our former lands	86	2.5698	1.48356
Most of the people displaced were people who have been employed by the base titanium mining from this area	86	2.3721	1.51887
Our crops in the field were compensated at the best market value	86	1.8140	1.10093
The mining company has compensated houses that were destroyed by building for us new ones	86	1.8488	1.12216
The money we received as a compensation package from the mining company was adequate	86	1.7558	.94478
The mining activities in the region have created more benefits to farmers in this area in terms of supplying agricultural produce	86	1.4535	.73014
Valid N (Listwise)	86	2.1817	1.23861

A result shows that none of the respondents agreed with the statements on the effect of compensation on the livelihoods of resettled communities in Msambweni division. The means calculated for the eight statements on compensation did not exceed 3.5. The participants gave mixed reactions on the statements that fair and proper valuation of their properties was conducted before displacement (M=2.91 and SD=1.42) and that compensation received targeted everyone (M=2.72 and SD=1.58). This implies that some households did not receive equal share of their property seized by the mining companies because proper and fair valuation was not conducted. The respondents further disagreed that they were given alternative land as a compensation to former lands (M=2.56 and SD=1.48), they did not receive employment offers

(M=2.37 and SD=1.51), their crops were not compensated at the best market value (M=1.81 and SD=1.10), they did not compensate houses destroyed during evacuation process (M=1.84 and SD=1.12).

It was also evident that money received as a compensation package from the mining company was inadequate to cater for the living expenses (M=1.75 and SD=0.94). The result concurs with Opoku-Ware (2010) who established that those who were compensated with cash noted that the compensation was not adequate and did not equal the value of their farms destroyed while those who were relocated into new house also complained about the small sizes of the rooms as compared to the ones they built and have been destroyed.

Moreover, the respondents also strongly disagreed (M=1.45 and SD=0.73) that the mining activities in the region have created more benefits to farmers in terms of supplying agricultural produce. Average statistics reveal (M=2.18 and SD=1.23) that all respondents tend to agree but Table 4.10 below gives the proportion of respondents who were negatively, moderately or positively influenced by compensation received from mining company.

Table 4.10 Effect of compensation from mining on livelihoods of resettled communities

Influence of compensation	Frequency	Percent
Negative	62	72.1
Moderate	19	22.1
Positive	5	5.8
Total		

Results from Table 4.10 shows that close to three quarter 62 (72.1%) indicated that the compensation received from the mining company has negatively affected their livelihoods, 19 (22.1%) said that the compensation has moderately affected their livelihoods and only 5 (5.8%) acknowledged that compensation had positively influenced their livelihoods. This shows that compensation that the residents received was not adequate to support their livelihoods leading to increased poverty levels

amongst the residents of Msambweni. This agrees with Owusu-Koranteng (2005) who found out that low level of compensation payments exacerbate the problem of poverty in mining communities and is major contributors to the worsening poverty since most residents continually complain of the inadequacy of the compensation packages given them in spite of the loss of their major source of livelihood, the land. It was further revealed during focus group discussions that the token received as compensation was not adequate to sustain the resettled members in their new locations. For instance the Cassuarina trees took planted take so much time mature, the shambas we bought were empty. “We came here and the shambas we bought were empty, they had nothing we had to start all over again... look at the size of the tree it’s just above a metre since we moved here”

Majority of the respondents have not built permanent structures since the money ran short. The schools and churches were temporary in nature. The hospital (Built by BTC) was situated far away about 10km from where the people in Kigombero and Kinondo and Bwiti. Furthermore, majority of respondents noted that they were not consulted or did not participate in the determination of the value of the compensation package but was rather imposed on them by the company by force or at best in consultation with some community leaders who were in the committees. For instance, they indicated that at some point, they were threatened to accept the compensation if they like it or not and risk receiving any compensation if they fail to accept what they were being offered by the company since the company stated that they have already bought the lands from the government and were only helping the people by compensating them.

Some of them noted the extent to which some farms were destroyed without their notice upon their failure to accept the compensation given them. One respondent indicated that his farm was destroyed without his notice because he failed to accept the compensation given him. This was evidence by respondent No. 2 in the questionnaire who said that “...Since the ones who opposed the price, their houses were destroyed.” To make the matters worse, the land to which they were promised did had occupants living in it.

4.5 Influence of Economic Resource Distribution on the Livelihoods of Resettled Communities

This was the third objective of the research that investigated the effect of economic resource distribution on livelihoods of resettle communities in Kwale County. The participants were asked to give ways, through which mining activities affected their work, their economic activities, income level, mining revenue, infrastructure, housing and even social services. Their responses are presented in Table 4.11.

Table 4.11 Influence of economic resource distribution on the livelihoods of resettled communities

	Agree		Undecided		Disagree	
	Freq	Percent	Freq	Percent	Freq	Percent
There is adequate housing as a result of mining operations	0	0.0	4	4.7	82	95.3
We are allowed to graze our livestock in the former lands	0	0.0	5	5.8	81	94.2
Our livelihoods (income level per family) have significantly improved since mining operations began	7	8.1	9	10.5	70	81.4
Roads have been improved as a result of mining activities thereby making accessibility easier to agricultural markets	12	14.0	6	7.0	68	79.1
Our sources of livelihoods (agriculture) have been greatly improved after we were resettled	14	16.3	6	7.0	66	76.7
Social services have improved (health, education) as a result of our resettlement by the mining company	17	19.8	3	3.5	66	76.7
We have received gainful employment since mining prospects and activities began	15	17.4	5	5.8	66	76.7
Food production has increased since our resettlement	13	15.1	11	12.8	62	72.1
The company has shared mining revenue by supporting developmental projects in this area e.g. construction of schools, dispensaries, social halls	21	24.4	6	7.0	59	68.6
Mining activities have positively affected our main economic activity	54	62.8	3	3.5	29	33.7

Results show from Table 4.11 shows that majority 82 (95.3%) of participants disagreed with the statement that there is an adequate housing as a result of mining operations. This implies that respondents were compensated or helped upon in building their houses. When asked as to whether they were allowed to graze their livestock to their former lands, most 81 (94.2%) said that they were not allowed to graze their livestock with only 5 (5.8%) reporting that this happens on rare occasions. This has resulted to majority of household destocking their livestock which has reduced their earnings. One of the respondents remarked that they cannot keep their cattle, goats and sheep as there is no enough land for grazing. The household income level did not significantly improve as a result of mining operations, majority 70 (81.4%) reported that mining activities have not resulted to household income increase, only 7 (8.1%) acknowledged that their income increased.

Too many, reported that since they were evicted from their farms, adaptation to new environment which were far away from market centres affected marketing of their farm produce. Some of them indicated that inaccessibility of roads had made marketing issues a big challenge while other narrated that they are now being exploited by brokers who offer cheap/low prices for their farm produce. For instance, 1kg of Bixa costs Kshs 30/= which is low price to sustain families. For those in Kinondo they indicated that a lot has changed from their previous homes to the new settlement in that during FGDs meetings they opined that life in Nguluku was much better than the current situation in Kinondo. They described that the farming that used to take place in Nguluku was much more profitable than where they are. For instance, farming cash crops such as cashew nuts, green peas, cassava, livestock farming, cowpeas and large scale coconut production, but most of them abandoned their former crops and are now engaged in others.

It is noted that mining can be a major propellant of economic activities in most mining communities by creating wealth, providing jobs and stimulating business ventures for community members. Other sources of livelihood came from vending kiosks and local restaurants had also significantly change thereby affecting household income. Those in Mivumoni new settlement echoed similar sentiments as those in Kinondo during FGDs in that lifestyle was generally good before, income was much

higher and environment was much better. The nutrition status of families was much better than what they are in right now. The means transport was much better.

The community members used to grow cash crops such cashew nuts, oranges, and perennial passion fruits. The community reported to have been collecting 300Kgs of cashew nuts a day and having 30-40 kg on a bad day. Palm trees were a natural to the environment and were harvested all through the year as compared to their current settlement where there is scarcity of water, the fertility of the land is comparatively low. The findings correspond to Opoku-Ware (2010) who found out that all these respondents noted that their farmlands have been destroyed for mining purposes by the company and have therefore changed their social and daily routine which was to get up every day and proceed to the farm to work since they are farmers. To them, this lifestyle has changed since they now have to stay at home without any farm work, sit under trees with community members and drink local gin or engage in small business trading which they are not used to doing.

Infrastructure basically refers to those physical structures that enhance the life and living conditions of people in any place. On the infrastructure front, 68 (79.1%) said that their roads have not been improved, 6 (7.0%) indicated that road network had moderately improved and only 12 (14.0%) said that mining activities resulted to improvement in road network. Participants lamented that they were cut-off from their main supply road network and roads in their current settlements are not accessible during the rainy season. Transport cost has tripled because owners of motor-vehicles argue that they incur high costs in maintaining their vehicles. When asked as to whether their sources of livelihoods (mainly agriculture) had greatly improved after resettlement, 66 (76.7%) disagreed, 6 (7.0%) were undecided while only 14 (16.3%) agreed with the statement.

Some resettled people complained that before they had good fertile land that was productive but they have nothing now except swampy areas. Another respondent observed that the previous land was fertile compared to the new one which is unproductive for sustainable agriculture (Appendix V). Others indicated that food production had significantly reduced 62 (72.1%), their fruit trees have experienced stunted growth due to changing weather and climatic condition, their new

environments is not good for farming while others indicated that pest and disease attack has affected their farming operations. Since the displacement, their sources of livelihood have been significantly affected since they could no longer produce the same quantities as before. Most of the resettled area was hot and dry whereas the former lands were all taken up by the mining operations.

Asked as to whether social services like health and education had improved as a result of resettlement by the mining company, 66 (76.7%) disagreed, 3 (3.5%) remained neutral while only 17 (19.8%) tended to agree with the statement. This is explained by the fact that schools are now very far and scattered within a wide area making the children to cover long distances to schools, the health facilities are inadequate and available ones are far (more than 10kms thereby increasing the cost of transportation), they are not connected to the electricity grid, market centres are far, water sources are now far and even security situation (no presence of police posts/stations). This was evident during FGDs session at Mivumoni where buy the members said that one school, a dispensary and water point- borehole constructed at Bwiti by Base Titanium which is 10km away.

To add, the dispensary has not been fully functional since the construction of the health worker(s) house (nurses and clinicians) is still under construction and not yet complete. However the only place they built was upper Bwiti which was very far from any other area especially with the frequent erosion and mudslides. Besides, the resettled communities were bitter about the company since it had not fulfilled the promises they had made with regard to setting up social amenities such as children's education colleges, accessible modern roads, electricity and water availability to the resettled communities. Nothing much had happened—much of the land (50%) that was to compensate the community was submerged in water (Bwiti areas) (See Photograph attached in the appendix section). This shows that the resettled communities were cut off from benefiting social services that are essential for their livelihood.

Furthermore, the study asked the respondents as to whether the community received gainful employment from mining companies, according to 66 (76.7%), they said that they have never benefitted, 5 (5.8%) said that they have benefited on occasional basis and only 15 (17.4%) acknowledged to have benefited from mining operations. All of

them however stated that since the company tells them that they do not have the skills and competence to work in the mines coupled with their inability to pay the bribes that are requested by some Base Titanium officials for employment, most of their children have become miserable and frustrated because they do not have anything to do and also cannot farm because the land have been taken over by the mining company. Despite 17.34% acknowledging to have been given employment, they were low cadre employees like machine operators, security guards among others. Some even complained that they were hurriedly employed but later laid off with no benefits. This shows that the mining companies have not adhered to the provision of Labour relations Act 2007. It was discovered during FGDs that only 4 people who have been employed by Base Titanium Company and 3 of are casually employed out of 100 households in Mivumoni.

Moreover, as part of its corporate social responsibility activity, close to three quarter 59 (68.6%) said that the mining company has not shared mining revenue through support of developmental projects in the area like construction of schools, dispensaries and social halls. During FGDs it emerged among the resettled community members that they felt neglected since they had been promised to have been given first priority in benefiting from CSR activities. They referred to the mining project liaison committee as the most corrupt and full of politics. The BTC had promised to give about 20% of the revenue as CSR but nothing had ever been done. Even the structures put up in Mrima-Bwiti were thought to have been of low quality.

In conclusion to this objective it has been established that there has been negative influence of mining activities on the economic resource distribution in Msambweni division. To support the findings of the study, during the FGDs session at Kinondo, the members noted that before displacement, a lot was being produced and sold from their farms, there were markets for agricultural produce and after resettlement, their new settlements have no ready market for their farm produce to unavailability of access roads. Market centres also are very far thereby resulting to post-harvest losses. Those who were settled in Mivumoni said that the community economic resource distribution has significantly shifted. The land in Mivumoni cannot have sustainable agriculture due to waterlogged soils and unfertile soil (Appendix V). To compound

the matter further, the new settlements had no market centres where they could sell and get supplies for their livelihoods.

4.6 Effect of Environmental Degradation on the Livelihoods of the Resettled Communities

This was fourth objective of the research that investigated respondents' perception on the effect of mining operations towards the livelihoods of Mswambweni division, Kwale County. The findings of the analysis are presented in Table 4.12.

Table 4.12 Effect of environmental degradation on the livelihoods of the resettled communities

Mining activities environmental degradation	N	Mean	Std. Deviation
Soil erosion has increased (deposit of sediments and emergence of gulley) as a result of mining activities	86	3.2326	1.42807
there has not been serious incidences of diseases (skin rashes, cancer, TB) among our household after mining operations began	86	2.4186	1.33254
The air we breathe is still fresh despite mining activities ongoing in the mines nearby	86	2.1860	1.38489
Smoke and other emissions from mines has not affected crop growth	86	1.8140	1.04613
Our sources of water (rivers, wells and springs) have not been affected as a result of mining activities	86	1.6860	1.02051
Our watershed (sources) have not been contaminated (poisoning, odour, colour) as a result of mining activities	86	1.6628	1.09125
Mining activities have not led to deforestation	86	1.6279	1.09594
Valid N (Listwise)	86	2.0897	1.1999

The data presented in Table 4.12 reveals that respondents disagreed (M=2.08 and SD=1.19) with the statements made on the effect of environmental degradation on the livelihoods of the resettled communities in Kwale. However, they showed mixed

responses ($M=3.23$ and $SD=1.42$) on the statement that soil erosion has increased as a result of mining activities. This interprets to mean that some tended to agree while others disagreed with the statement based on the high standard deviation scores. It is evident that mining activities have led to wanton destruction of forests ($M=1.62$ and $SD=1.09$) in Kinango and Mivumoni locations. The results concurs with Opoku-Ware (2010) research in Ghana that found out that large areas of land, forests and trees have been destroyed by the mining company for the purposes of mining gold. These lands and forest areas according to the respondents were earlier used for agricultural purposes and indicated that even though parts of the land and forest areas were cleared on a seasonal basis for agricultural purposes, they believed that the damage that resulted from their agricultural practices were very insignificant compared to the devastation of these resources for mining activities.

The respondents tended agree with the statement that water sources have been contaminated ($M=1.66$ and $SD=1.09$) and that water sources have been adversely been affected by decline in water levels in springs and rivers ($M=1.68$ and $SD=1.02$). this coincides with Opoku-Ware (2010) who found out that water bodies particularly streams and rivers that were previously used by the community for various purposes is no more usable as they have been warned by Newmont Company to desist from using them for any kind of purpose or activity for safety reasons.

Air is a very important natural resource for humans, animals and even plant life. Its pollution may have serious consequence on the health. However, access to good and quality air can be challenging and a problem. Respondents were asked if mining operations have resulted in air pollution due to the use of mining machines. The results further showed that respondents agreed that smoke and other emissions from titanium mines have affected crop growth ($M=1.81$ and $SD=1.04$), the air has been polluted ($M=2.18$ and $SD=1.38$) and there has been report of diseases outbreak as a result of mining operations in the study area ($M=2.41$ and $SD=1.33$). Computed average results are given in Table 4.13.

Table 4.13 Influence of mining environmental degradation activities on livelihoods

Influence	Frequency	Percent
Negative	64	74.4
Moderate	15	17.4
Positive	7	8.1
Total	86	100.0

Result show that majority 64 (74.4%) of residents indicated that mining operations have had adverse effect on the environment, 15 (17.4%) said that it has had some moderate effect on livelihoods and only 7 (8.1%) acknowledged that mining operations have not degraded environment that households rely on for their livelihood. Through open-ended questions, the respondents were asked to further elaborate how environment has been affected since mining operations began in Msambweni. The results are presented in Table 4.14.

Table 4.14 Effect of mining activities on environment

Environmental influence	Frequency	Percent
Water being contaminated by the soil from the site	34	39.5
High effect on crops as fertility rate decreased due to emissions of smoke from the mining site	17	19.8
Some rivers were blocked and as a result more people do not have access to water	12	14.0
Dust and smoke	10	11.6
We are suffering from smoke and gas emissions from the mining company	7	8.1
Noise from the company	5	5.8
There has been health issues due mosquitoes, siltation and open pits as a result of mining	4	4.7
Poor productivity of food due to infertile soil and soil erosion	4	4.7
Wells and springs have dried up	4	4.7
Water sources have changed direction	4	4.7
There were incidences of diseases like skin rashes, TB. HIV/AIDS	2	2.3
Increase of wild animals e.g. snakes, buffaloes, monkeys therefore lack of fruits due to animals	2	2.3

It is seen that mining activities have resulted to contamination of water (39.5%). This happened in cases whereby communities living downstream complain that their water is coloured as opposed to the situation before. The participants also cited that some rivers and streams have been blocked as a result of rivers/streams being diverted and this has made 14.0% of respondents not to access clean and safe water.

Other environmental challenges that came about by mining activities was that emission of dust and smokes from the mines resulted to air pollution, there was prevalence of noise pollution, water sources (rivers and streams) had changed direction, some wells and springs have dried up, attack from wild animals (monkeys, buffaloes, snakes, gazelle) had significantly increased due to human-wildlife conflict, and crop production had significantly reduced due to clogging of respiratory spores by smoke from mining. The findings are similar to Akabzaa and Darimani, (2001) research that noted that most of resettled communities in Ghana have been victims of air and water pollution as well as other forms of environmental degradation resulting from mining operations. During FGDs discussion in with resettled communities in Kinondo and Mivumoni, they were asked to identify environmental challenges that have resulted from mining activities by Base Titanium. Those in Mivumoni identified the following:

- Landslides on the newly built murram roads
- Mosquitoes are too many
- The forests are believed to have been re-grown with wild animals hence made the areas were inaccessible.
- Some of the houses had cracks due to bull-dozer
- Mukurumudzi dam had been built near some houses and that some of the households were forced to leave the area. They were compensated.

Those in Kinondo listed the following as environmental challenges noted that:

“The water had odour and colour, soil erosion was taking place and evidence of siltation caused by quarrying by the B.T. C. A lot of indigenous trees had to be cut down to pave way for the mining activities.”

The respondents further said that there was an open quarry that has been a death trap for not only human but also domestic animals. They said that the BTC came and dug up the quarry and left it open thereby creating a great risk for residents. The response

from FGDs shows that resettled communities' environment has been badly affected. The findings concur with Akabzaa&Darimani, (2001) research that showed that mining activities can therefore have decisive influence on the communities in which or near which the mines are located.

4.6.1 Respondents' Assessment on how Mining Projects have influenced on their Livelihoods

It was important for the research to extract respondents' opinion on how mining projects have influenced their household livelihood. One casual labourer opined that:

“Now and then it is different because I had familiarised with everybody in the area and my earnings were good but currently the earnings have plummeted.”

Another respondent No. 8 remarked that:

“I have not seen my land since the day I was given. There have been conflicts; the owners were not ready to accommodate us. My life changed since the day of resettlement. Livelihood was not influenced positively.”

The statement made shows how bitter the resettled households were bearing in mind that the new lands they were allocated, their original inhabitants did not accommodate them. Their lives changed to worst after the resettlement.

Another participant said that:

“The households are scattered so much that we can even ask one another how we are faring along. I can't borrow salt because I live with strangers.”

This shows that family unit and community togetherness was shattered as a result of resettlement. As a spirit of Africanism, we usually depend on each other for living and this is not the case for the resettled households in the area. Another participant narrated this:

“The resettlement disorganised my family and other economic activities. Agricultural production is poor compared to the land I had earlier.”

Similar to the above respondent, one lady lamented that:

“People are going through hard/difficult time since we had our former land of trees and other plants that were beneficial to us. The project hold us because, we had progressed so well. We had 1500 palm trees, bixa, I had lemon and oranges, all I used to sell. Imagine 5000 pieces of coconut in a month! Now am just here suffering.”

The ordeal that the resettled communities experienced after being resettled is painful. The agricultural production has declined, families have been disjointed, children have been forced to go for long distance to get to school while others dropped out, market centres are not available, health facilities are far, security is a big problem, environment has been degraded and people were not compensated their houses, crops and land according to the current market value.

During FGDs, it emerged that mining operations have not added much value to the communities since the majority of the resettled have no direct or indirect benefit through employment. The company was reported to have been sourcing labour from other parts of Kwale and Kilifi counties instead of prioritizing on the resettled. The respondents felt no use or benefits from the mining activities. None of the income or revenue was received as corporate social responsibility or even social economic empowerment initiative. They had expected a social corporate responsibility to have been adhered to. However it was reported that the some few farmers had received much greater benefits due to connections with the Base Titanium Company. This underscores the argument that mining project in Kwale has negatively affected the livelihoods of resettled communities.

Despite, the challenges that the resettled communities faced as a result of being displaced from their original homes to pave way for mining activities, the suggested the following actions to be taken to improve their livelihoods. Table 4.15 shows the results.

Table 4.15 Respondents' suggestions on improvement of livelihood

Suggestion	Frequency	Percent
Gainful employment by the company in all job cadres	46	53.5
The company to pay our dues as promised	30	34.9
The company to dig boreholes	23	26.7
Support families in education by offering/giving school fees/ scholarships	22	25.6
Government to increase health facilities	19	22.1
Construction of all-weather roads	16	18.6
County government to support farmers through provision of subsidized fertiliser to improve the fertility of soils	8	9.3
A cooperative society should be established to stop exploitation by middlemen and therefore improve profitability of agricultural enterprises	7	8.1
The promises made should be fulfilled because it seemed as if we were conned. some of the promises were employment and social amenities	7	8.1
Base titanium to do evaluation on health issues	6	7.0
Agricultural services should be introduced to educate the farmers on sustainable agricultural practices	5	5.8
Improve local communities through capacity holding	3	3.5
Provision and of electricity	3	3.5
Market centres to be built	2	2.3
Create a good link between the community and company in social matters (corporate social responsibility)	1	1.2

The responses show that that majority 46 (53.5%) of elderly citizens suggested that their sons and daughters should get formal employment from the company as promised before their eviction. They also suggested that water provision through digging up of boreholes should be hastened, road infrastructure should be improved and upgraded to fit all weather, the government and the company should partner in construction and provision of better health services, the county government should empower farmers to form their own cooperative society through which they are going

to get best value for their farm products and lock out middlemen (brokers) among other recommendations presented above.

4.6.2 Hypothesis Testing

- Ha₁ The displacement of community by the mining project significantly affects livelihood of resettled communities.
- Ha₂ Compensation received from mining project has significant influences on the livelihoods of the resettled communities.
- Ha₃ The economic resource distribution by the mining projects greatly influences on livelihoods of the resettled communities.
- Ha₄ Environmental degradation activities of mining have greatly influenced on the livelihoods of resettled communities

To test the hypothesis above, a correlation was computed at 99% confidence level to check whether mining activities had significant influence on the livelihoods of resettled communities in Kwale County. The findings are presented in Table 4.16.

Table 4.16 Hypothesis testing result

		Livelihood
Displacement	Pearson Correlation	.118
	Sig. (2-tailed)	.280
	N	86
Compensation	Pearson Correlation	.158
	Sig. (2-tailed)	.147
	N	86
Economic resource distribution	Pearson Correlation	.172
	Sig. (2-tailed)	.114
	N	86
Environmental degradation	Pearson Correlation	.067
	Sig. (2-tailed)	.541
	N	86

The results shows that mining projects have not made significant influence ($p > 0.01$) on the livelihoods of resettled communities in Msambweni division. Therefore the entire four alternative hypotheses were rejected. The correlation statistics further showed that the r values for displacement were ($r = 0.118$ and $p = 0.28$) which suggested

that there existed weak positive relationship between the two variables since the values are less than 0.5. Under compensation the correlation were ($r=0.158$ and $p=0.147$) which also showed weak positive relationship and economic resource distribution ($r=0.172$ and $p=0.114$) which revealed that there existed a weak positive effect. However, the environmental factors had no significant effect ($r=0.067$ and $p=0.541$) on the livelihoods of resettled communities in Kwale County. The findings are reinforced with the fact that majority of respondents were dissatisfied with the mining activities since they were not compensated fairly, the land they were resettled seemed to be unproductive, the areas they were resettled had no public amenities (schools, markets, health centres), water was inadequate in their current locations and many of them were not offered employment as promised before resettlement.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary and discussions of the major findings of the study on the influence of mining projects on the livelihoods of resettlement communities in Kinondo and Mivumoni locations of Msambweni division, Kwale County, Kenya. The chapter also gives the conclusion of this study; recommendations are given out together with suggestions for future research.

5.2 Summary of Findings

The aim of conducting this study was to determine the extent to which mining projects has influenced on the livelihoods of resettled communities in Msambweni division, Kwale County. This involved participation of resettled communities who are in Kinondo areas, and Mivumoni areas. The study collected data inform through use of research administered questionnaire and conducting two focus group discussions to get more information and details on how the displacement, compensation, resource distribution took place after the communities were moved from their original homes to the new settlements. Result of the study and field experience during the process of data collection revealed that the resettled communities were scattered in different areas of the county thereby prompting the research to extend the period of data collection contrary to what was anticipated. This was due to the fact that the promised settlements were not comfortable to some people who felt that their new settlement were not conducive, friendlier and sustainable for their livelihoods.

The residents received compensation in form of cash, others were given alternative lands, others were supported in construction of new homesteads, boreholes were built (although very far apart), and a few schools, market centres, health centres and roads were constructed as part of corporate social responsibilities function. The findings are in agreement to Malinganya *et al.*, (2014) research in Tanzania that showed that Geita Gold Mine (GGM) had 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. This was also evidenced in Kinondo and Mivumoni areas.

The result of the study showed that the process of displacement was not conducted in a fair and transparent manner as incidence of bribery; nepotism, corruption, inadequate compensation and delay in issuing titles were evident. For instance only 36.0% of sampled population were satisfied with how the displacement was conducted with majority 64.0% feeling that the process was not satisfactory. For instance, the compensation of the value of their lands was not in commensurate to the market prices. This made most households not be able to buy enough land for settlement.

This forced them to migrate to nearby urban centres like Ukunda and Kwale in-search of gainful employment to sustain their families while others migrated to neighbouring regions (Mombasa, Kilifi and Kinango) to seek better opportunities. Research reveal that communities all over the world, and especially those in Africa, are uniquely attached to their land as these spaces bear multiple meanings to them (Andriamasinoro& Angel, 2012; Yelapaala& Ali, 2005; Opoku&Asare, 2014). Evicting them from these spaces is therefore usually a traumatic experience (Abuya, 2013). The respondents also reported that in their current settlements, family ties have been broken and weakened therefore limiting their power to address livelihoods challenges occasioned by mining operations.

The study found out that 72.1% of residents had negative perceptions on the influence of compensation on their livelihoods. The findings concur with Abuya (2013) ethnography study in Kwale that showed that some farmers were still dissatisfied with the various compensation awards given by compensation and resettlement committee. Residents were incensed that the compensation offered did not reflect the “true value” of the agricultural plants. Moreover, the study found out that agricultural production level had significantly reduced where most farmers acknowledged that they have been forced to diversify to other crops because their new settlements soil is not fertile to support growth of various crops.

They indicated that due to unavailability of ready markets, most of their harvests go to waste while those who manage to get sell their harvest get little in return. In tandem with the study results, Maliganya *et al.*, (2013) established that there was reduction in agricultural and pastoral activities in areas where families were resettled for mining operations. Their new settlement has created good environment for brokers (middlemen) to thrive. Similarly in Ghana, Ocansey (2013) found out that conversion of farmlands to mining has brought about losses in arable land areas, it has also deprived smallholder farmers the capacity of food production.

Moreover, there had been agreement by the mining company (base titanium) in giving employment to the displaced families but up to today it was found out of 100 households, only 3-4 persons were employed by the company in casual terms who came from Kigombero. The jobs were outsourced to people from neighbouring counties and “politically correct” households. The findings are similar to what Ocansey (2013) found out that due to unemployment of youth by gold mining companies in Ghana, this has resulted in the migration of unemployed youth to the nearby towns to meet their livelihoods needs. The respondents strongly disagreed that mining activities in their region have created more benefits to farmers in terms of supplying of agricultural produce.

On the environmental front, it was discovered that the new settlements (especially Bwiti) is not fit for human settlement due to swampy and waterlogged soils (see attached images of the environment). Most of the community leaders benefited on the higher grounds living destitute farmers to settle in the low lands that are inhabited by mosquitoes and prone to human-wildlife conflict (crops being attacked by monkeys). In addition, the respondents complained that earth movers and quarries from the mining areas have led to formation of cracks in their houses that endanger their families’ lives. The same situation was observed by Kitula (2006) in Geita mining sites in Tanzania whereby mine pits have clearly prevented farmers from harvesting animal manures, and excessive vibrations caused by repeated explosions have resulted in the cracking and collapsing of buildings near to mine sites.

Both air (smoke fumes from chimneys) sound (mining machinery) and water (from open pits) pollution has been recorded. For instance, the residents complained that

water colour and smell has significantly changed thereby risking their lives to waterborne infections. Cases of diarrhea, cholera and bilharzias have been documented by health personnel in their current settlement especially to children and women fetching water downstream. In Tanzania, Malinganya *et al.*, (2013) said that gold mining activities lead to environmental pollutions which 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. In contrast, Opoku-Ware (2010) research Ghana that found out that waste disposal from gold mines are controlled and managed by highly restricted dams created by the mining company, excavated lands and the sand from the mining areas are protected and managed to prevent spreading to other lands that have not been earmarked for mining.

The study found out that the community seemed disillusioned since the inception of the mining projects nothing has changed and hence had been used to be oppressed and taken advantage of. Some of them went further to indicate that they have adapted to their current lifestyles although they bore wounds that will never heal unless their plight is addressed for once and for all considering other countries like South Africa, Ghana, Zambia and Botswana have progressed despite their economies relying on the mining sector for growth and development.

5.2 Conclusion of the study

The findings of the study have shown that there has been a significant negative influence of mining projects on the livelihoods of resettled communities in Mswambweni division. The community has nothing to be proud off despite billions of resources that have been extracted from their land benefiting individuals far and miles away. The government (national and county) have been of no help in cushioning the residents against exploitation by leaders and company of their resource. Computed Karl Pearson correlation statistics revealed that displacement ($r=0.118$ and $p=0.28$), compensation ($r=0.158$ and $p=0.147$), economic resource distribution ($r=0.172$ and $p=0.114$) and environmental degradation ($r=0.067$ and $p=0.541$) had no significant influence on the livelihoods of resettled communities in Kinondo and Mivumoni locations of Mswambweni division, Kwale county. These mining activities have

tended to affect negatively the livelihoods of resettled communities as the majority were primarily dependent on agriculture for their sustenance.

The resettled communities were equally displeased with the compensation offered. The displacement process was not fair, compensation of land, crops, houses and social amenities was not adequate, the residents did not benefit from employment to the mining company, agricultural production had significantly reduced, roads, schools, boreholes, market centres and health facilities are not adequate and are located more than 10km from where the people were settled while air, noise and water pollution has been recorded. It was established that most of the residents have been forced to migrate to other areas to look for employment and new opportunities as their new homes are unsuitable for sustainable agricultural production. They decried the process of displacement to an extent that the time they plan to petition their pleas to the company and government officers, they are usually harassed by general service officers. Most of them see mining project as a curse but not blessing. The perception shared within local resettled communities is that mining has caused land degradation in the area.

5.3 Recommendations

The findings of the study have shown that titanium mining has had negative influence on the livelihoods of resettled communities in Msambweni division. However, the study makes the following recommendations to improve the livelihoods of the resettled communities and avert future confrontations and problems;

- (i) To address displacement issues, the government and Titanium Company need re-evaluate the displacement records to ensure that the genuine people receive their fair compensation of money and land. This will address the injustice committed by the company employees, committee leaders and government officers in charge of resettlement process.
- (ii) To address socio-economic issues that arose from the research, the government and the mining company need to fasten the processes of ensuring that each village is accessible by road (all weather), there are market centres (or even marketing point), health facilities and schools.
- (iii) To address economic resource distribution, the mining company need to be compelled to ensure that it fulfil the pledges it made to the locals on the

provision of employment opportunities to sons and daughters of displaced families in a more fair and transparent manner.

- (iv) To address environmental degradation, the National Environmental Management Authority needs to re-conduct an Environmental Influence Assessment audits to ensure that the mining projects are environmental friendly. Also NEMA should take action for any event that the money company would have been found to have flouted environmental rules.

5.4 Suggestion for Further Research

The study suggests further research to be conducted on:

- (i) A cost-benefit analysis research on the influence of mining activities on the socio-economic development of Mswambweni division
- (ii) A similar research can be conducted in a wider scale to cover other mining activities that are ongoing in other parts of Kwale county

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APPENDICES

Appendix I: Letter of Transmittal

JORIA SUDI
P.O. BOX 96237-80100
MOMBASA

RE: REQUEST TO PARTICIPATE IN RESEARCH

My name is JoriaSudi a student at University of Nairobi. I am carrying out a study on the “**Effects of Mining Projects on the Livelihoods of Resettled Communities In Kenya: The Case Of Titanium Mining In Mswambweni Division, Kwale County, Kenya**” and you have been identified as one of the people who can be of assistance to me.

The information you will provide will entirely be for academic purposes and will be treated with utmost confidentiality. Your name is not required on the questionnaire and your identity will not be disclosed in any way.

Thank you,

JoriaSudi

.....

University of Nairobi
Mombasa Campus

Appendix II: Questionnaire for Community Members

Instructions

1. Please kindly respond to all items in these questionnaires
2. Put a (Tick) alongside the option that is most applicable to you or fill in the spaces provided
3. You do not need to write your name in this questionnaire.

Section A: Demographic Details

1. Respondents gender
 Male [] Female []
2. Marital status
 Single [] Married [] Divorced [] Separated [] Widow []
3. Education level
 No formal education [] Primary [] Secondary []
 College [] University Degree [] Any other _____
4. How long have you lived in this area?
 Less than 1 year [] 1-5yrs [] 6 – 10yrs [] 11-15yrs []
 16 yrs and above []
5. Your main economic activity? (Specify) _____
6. Your family size
 1-3 members [] 4-6 members [] 7-10 members []
 More than 10 members []

Section B: Effect of displacement on the livelihoods of resettled communities in

Msambweni division

7. On the following statements, indicate the extent to which you agree or disagree regarding the effect of your displacement due to mining operations and how it has influenced your livelihood status in this area. Scale SD-Strongly Disagree, D-Disagree, UN-Undecided, A-Agree and SA-Strongly Agree.

Effect of mining operations displacement on livelihoods	SD	D	UN	A	SA
i. We were counselled several times before displacement					
ii. The displacement, did not disorganised					

our family					
iii. We as a household decided to vacate voluntary to our current home					
iv. The displacement occasioned by mining activities was peaceful					
v. Displacement did not hinder access to natural resources (forest)					
vi. The displacement has not affected our cultural heritage e.g. sacred forest, ancestral graves					
vii. All our local leaders (including elders) were involved in the displacement process					
viii. As a household, we are happy with our new location					
ix. Our children continued with education well after displacement					
x. The land we were compensated with is the same as the old one in terms of productivity					
xi. There are adequate health facilities in the area we were resettled					
xii. The place where we live has adequate security					

8. In your view, were you satisfied with the displacement process that occurred in this area? (Please explain) _____

Section C: Effect of compensation on the livelihoods of resettled communities in Msambweni division

9. On the following statements, indicate the extent to which you agree or disagree regarding the effect of compensation by Base Titanium Ltd and how it has influenced

your livelihood status in this area. Scale SD-Strongly Disagree, D-Disagree, UN-Undecided, A-Agree and SA-Strongly Agree.

Effect of compensation on livelihoods	SD	D	UN	A	SA
i. The money we received as a compensation package from the mining company was adequate					
ii. Fair and proper valuation of our properties (houses, trees, plants, animals) was conducted before displacement					
iii. The mining activities in the region have created more benefits to farmers in this area in terms of supplying agricultural produce					
iv. The mining company has compensated houses that were destroyed by building for us new ones					
v. The compensation received targeted everybody (adults)					
vi. Most of the people displaced were people have been employed by the Base titanium mining from this area					
vii. We were given alternative land as a compensation for our former lands					
viii. Our crops in the field were compensated at the best market value					

Section D: Effect of economic resource distribution on the livelihoods of resettled communities in Msambweni division

10. On the following statements, indicate the extent to which you agree or disagree regarding the effect economic resource distribution by Base Titanium Ltd and how it has influenced your livelihood status in this area. Scale SD-Strongly Disagree, D-Disagree, UN-Undecided, A-Agree and SA-Strongly Agree.

Effect of economic resource distribution on livelihoods	SD	D	UN	A	SA
i. Mining activities have positively affected our main economic activity					

ii. Our sources of livelihoods (agriculture) have been greatly improved after we were resettled					
iii. We have received gainful employment since mining prospects and activities began					
iv. The company has shared mining revenue by supporting developmental projects in this area e.g. construction of schools, dispensaries, social halls					
v. Social services have improved (health, education) as a result of our resettlement by the mining company					
vi. Our livelihoods (income level per family) have significantly improved since mining operations began					
vii. Food production has increased since our resettlement					
viii. Roads have been improved as a result of mining activities thereby making accessibility easier to agricultural markets and farms					
ix. We are allowed to graze our livestock in the former lands					
x. There is adequate housing as a result of mining operations					

Section E: Effect of environmental degradation on the livelihoods of the resettled communities in Msambweni division Kenya

11. On the following statements, indicate the extent to which you agree or disagree regarding the effect of environmental degradation activities by Base Titanium Ltd and how it has influenced your livelihood status in this area. Scale SD-Strongly Disagree, D-Disagree, UN-Undecided, A-Agree and SA-Strongly Agree.

Effect of mining activities on	SD	D	UN	A	SA
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environmental towards livelihoods of Msambweni residents					
i. Our sources of water (rivers, wells and springs) have not been affected as a result of mining activities					
ii. Mining activities have not led to deforestation					
iii. Our watersheds (sources) have not been contaminated (poisoning, odour, colour) as a result of mining activities					
iv. There has not been serious incidences of diseases (skin rashes, cancer, TB) among our household after mining operations began					
v. Soil erosion has increased (deposit of sediments and emergence of gulley) as a result of mining activities					
vi. Smoke and other emissions from mines has not affected crop growth					
vii. The air we breathe is still fresh despite mining activities ongoing in the mines nearby					

12. In your opinion, how has environment (mazingira) been affected since mining operations began in this area? _____

13. In your assessment, how has mining projects influenced on your household livelihood?

14. What are your suggestions on the solutions to challenges that you experience as a result of mining activities in this area?

The end
Thank you

Appendix III: Focus Group Discussions Questions

1. Description of the Msambweni community lifestyle (livelihoods) before Base Titanium Ltd began its operations and after
2. Has the sources and means of livelihoods been affected as a result of mining operations
3. What are the community members perceptions regarding the mining activities in Msambweni?
4. Are the mining activities beneficial to resettled communities? What's their perception?
5. What are the pros and cons of titanium mining activities on livelihoods of resettled communities in terms of social and economic lifestyle?
6. What are the initiatives undertaken by the Base Titanium in addressing the Msambweni residents plight
7. How has the community been affected in terms of resource distribution? (Previous income generating projects among others)
8. The environmental challenges that have resulted as a result of mining activities by Base Titanium
9. How is the community responding to challenges generated by mining activities in Msambweni?

Appendix IV: Research Permit Letter