URANIUM MINING AND LOCAL COMMUNITIES LIVELIHOOD EXPECTATIONS IN NAMTUMBO DISTRICT, TANZANIA

By

Baraka Joachim Kapinga

Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of the Master of Science in Natural Resources Management of the University of Dodoma

The University of Dodoma

October, 2016

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the University of Dodoma a dissertation entitled: ***"Uranium Mining and Local Communities Livelihood Expectations in Namtumbo District, Tanzania"*** in partial fulfillment of the requirements for the Degree of Master of Science in Natural Resources Management of the University of Dodoma.

……

Dr. Enock Makupa

(SUPERVISOR)

Date……

DECLARATION

AND

COPYRIGHT

I **Baraka Joachim Kapinga,** declare that this thesis is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature**: …….**

ACKNOWLEDGEMENT

To God be the utmost glory for the great thing he has done. Going through a work of this enormous magnitude successfully, invaluable support in various forms has been drawn from some people and institutions. I hereby acknowledge such assistance, which made this one time dream come to reality with this profound tribute.

Uniquely and in a more distinguished manner, my heartfelt thanks go to my supervisor, Dr. Enock Makupa, for his kind supervision, useful comments, criticisms, encouragement and the firm trust reposed in me, all of which made this thesis come out with the acceptable font. My heart is full of thanks and praise to the Department of Geography at the University of Dodoma for their tireless effort during the coursework that shaped my thinking and enabled me to come up with this work.

I would like to express my heartfelt thanks to my parents (Mr. Joachim Kapinga and Olga Mbembela), my lovely daughters (Happy and Herieth) and my siblings Evarista Kapinga, Rafaela Kapinga and John Kapinga for their spiritual, financial and moral support, without them it would have been difficult to accomplish this work. In the same vein, I wish to express my sincere gratitude to, my wife Catherine Komba for her assistance during my field work. I say I love you all, God bless you.

I wish to acknowledge the co-operation of Mr. Alois Oyari, Ngaila Gasper and all my colleagues especially Mwendamseke Ephraim and all whose names could not be mentioned because of space, for their prayer and moral support.

DEDICATION

This work is dedicated to Kapinga`s family namely;- Joachim Kapinga and Olga Mbembela (parents), Evarista Kapinga and Rafaela Kapinga (my sisters) who in very difficult settings built a strong foundation which has made possible for me to reach this stage. May God’s mercy and goodness follow you for the rest of your life. Amen.

ABSTRACT

This study was conducted in order to assess the local communities` livelihood expectations from uranium mining in 2016 at Namtumbo District, Tanzania specifically in Likuyu ward in which three villages were involved namely Likuyuseka, Mtonya and Mandela. Data for this study were obtained through documentary review, survey, semi structured interviews and Focused Group Discussion methods in which a representative sample of 96 heads of households was used. Descriptive and inferential statistics were used to analyze quantitative data using Statistical Package for Social Science (SPSS) software while qualitative data were analysed by using content analysis.

Findings from the study revealed that majority of the respondents had negative attitude on the importance of mining company to their livelihoods. It was further found that local people have diverse expectations from uranium mining in which the leading ones were provision of employment, road construction, water supply, support in education and doing business with mining company employees. The current benefits provided by the uranium mining companies appeared to be contrary to the local people`s livelihood expectations. There are also challenges that hinder attainment of local people livelihood expectations like lack of education, poor governance and poor communication network.

Generally uranium mining company in the area of study has failed to meet most of the expected benefits by the community members. The study recommends for the government to increase awareness through provision of education. Also the government need to manage the diverse expectations of the local communities by establishing dialogue with the communities so as to ensure timely and thoughtful mitigation measures are put in place

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF PLATES

LIST OF ABBREVIATIONS

CESOPE	Civil Education is the Solution to Poverty and Environmental
DED	District Executive Director
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GGM	Geita Gold Mine
ICMM	International Council on Mining and Metals
ILO	International Labour Organization
IPPNW	International Physicians for the Prevention of Nuclear War
MDG	Millennium Development Goals
MEM	Ministry of Energy and Minerals
MMSD	Mining, Mineral and Sustainable Development
NBS	National Bureau of Statistics
NGOs	Non- Governmental Organizations
REPOA	Research on Poverty Alleviation

SEWOMI	Simanjiro Entrepreneurs and Women Miners
SPSS	Statistical Package for Social Sciences
TAWOMI	Tanzania Women Miners Association
TEC	Tanzania Episcopal Conference
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Education Scientific and Cultural Organization
URT	United Republic of Tanzania
VEO	Village Executive Officer
VETA	Vocational Education and Training Association
WEO	Ward Executive Officer

CHAPTER ONE

INTRODUCTION

This chapter introduces the general overview of the study about uranium mining and local livelihood expectations in Namtumbo District. The chapter presents the background of the study in which the broadness of the problem at different levels is demonstrated, followed by a statement of the problem. The next part of the chapter highlights the objectives of the study and the research questions that guide the study, followed by significance of the study.

1.1 Background of the Study

To achieve rapid economic development, many countries resort to various activities to exploit natural resources (Yeboah, 2008). Heinrich (2003) argued that, uranium mining is an important economic activity which has a potential contribution to the development of areas endowed with such resource and contribute positively to the livelihood improvement of the local community.

Although the mining sector is seen as potential driver of economic growth and poverty reduction in the global and national levels (Sosy, 2013), recent literatures show that, African countries with potential mineral resources benefit little from those resources (Labonne & Gilman, 1999). Thus, the hopes that mining companies could play role in leading African development have not yet realized. As a result, poverty in African countries continues to deepen, with the rural population being the mostly affected ones (UNCTAD, 2005).

Unlike other kinds of mining, uranium mining and processing poses a tremendous threat to population and environment in the surrounding areas due to possibility of release of radiation and exposure to chemicals which are harmful to human being (Chareyron, 2008). For example Mbogoro and Mwakipesile (2012) noted that, about 10,000 people got cancer due to uranium mining in Germany which made the country to spent about 9.7 billion for cleaning up the overburden heaps.

In the late 1980s, Tanzania made a U-turn in its economic policy and permitted the private sector to participate in the mining operations to enhance its potential contribution to the economy (Lange, 2006). It has attracted investors in mining sector especially on gold, gemstones and Tanzanite but less has been documented regarding socio-economic benefits accrued by local communities surrounding the mining sites (Mark & Lissu, 2008).

The recent discovered uranium makes Tanzania to believe that uranium mining can play a great role in attaining the growth targets set out in Tanzania's Vision 2025 which intends to attain high quality livelihood in a sense of achieving quality and good life (Mark & Lissu, 2008). Nonetheless, local people expect that uranium deposits will positively transform their livelihood. While it seems strange to suggest that a country could be economically strong by its possession of a valuable resource some scholars argue that, more often than not, resource-rich countries are worse off economically compared to countries with little natural endowment (Auty, 2001). After all, natural resources increase wealth and purchasing power over imports, so that resource abundance might be expected to raise economy's investment and growth rates as well (Auty, 2001).

While uranium discovery, for example, presents considerable opportunities for low income countries (like Tanzania) to deepen domestic revenues and development growth, resource abundance carries an important risk (Bategeka *et al.,* 2009). For example Awudi (2002) observed that, the gains from other kinds of mining apart from uranium in the form of improved livelihood are mostly achieved at significant social costs to people. This has made mining areas to turn into conflict areas due to unmet promises and adverse effects to their livelihoods and the environment.

People may ask to why resource abundance delivers positive developmental outcomes in some countries and economic failure in others. The answer arguably lies in cross national differences in the quality of domestic institutions (Bategeka *et al.*, 2009). Dealing with a type of mining which is more hazardous than other mining types, and which has very specific and extremely long-term effects, requires at the least excellent laws, excellent law enforcement, disciplined, knowledgeable, dedicated governments and institutions (CESOPE, 2011). All these factors are lacking in all African countries. For example Australians claim to have strict environmental rules and perform uranium mining in a responsible way, but problems due to uranium mining are common (CESOPE, 2011).

Under current legal, regulatory and policy frameworks, the people of Tanzania experience pain in mining sector due to mismatch of deliverables and people`s expectations (Awudi, 2002). Musiime (2013) adds that, understanding the communities you are working with, what they are lacking and what they need most is very important as you may construct a borehole, when clean water is not the most urgent need of the community.

1.2 Statement of the Problem

Tanzania is a country endowed with substantial reserves of mineral resources such as gold, gemstones and Tanzanite (Awudi, 2002). In recent years, the country has discovered new mineral deposits of uranium. Some people perceive it as a curse to our people while others view it as a supernatural aid that would lessen their hardships in tough economic times and improve their livelihood (Mark & Lissu, 2008).

The establishment of mining sites always is accompanied by good promises of delivering benefits to the local communities (Heinrich, 2003). Despite of good promises, the returns from the promises to the local communities have persistently been minimal to the extent that the companies seem to have failed to match with the expectations of the local communities surrounding mining sites (Maliganya *et al.,* 2013). As a result it undermines the effectiveness of mining project due to lack of support and at the same time puts people's lives and future of the poor in danger.

To ensure local benefits from mining sectors, the government of Tanzania through the 2009 Tanzanian Mineral Policy aimed to raise national economy and provide alternative source of income particularly for the rural population surrounding mining sites (URT, 2009). Despite government efforts, still there is persistence of complaints and conflicts in the mining sites while the mining companies continue to deliver minimal benefits to the local communities (Heinrich, 2003). This brings question on whether the benefits delivered by the mining companies match with the expectation and needs of the local communities. It is against this background that the need of assessing local people`s livelihood expectations and attitudes towards

uranium mining in the area of study arise. Failure to address the expectations of the local people on their livelihoods will undermine the effectiveness of the project due to lack of support from the local communities.

1.3 Main Objective

The main objective of the study was to assess local people`s livelihood expectations and attitudes towards uranium mining in Namtumbo district, Tanzania

1.3.1 Specific Objectives

i. To assess the attitude of the local communities towards uranium mining in the area of study
ii. To assess local people's livelihood expectations from uranium mining in the area of study.
iii. To examine mechanisms in place that ensure local people livelihood expectations attained in uranium mining sites.
iv. To identify challenges that might hinder attainment of local people livelihood expectations from uranium mining in the area of study

1.4 Research Questions

i. What are the attitudes of the local communities towards uranium mining in Namtumbo district?
ii. What are the livelihood expectations of local people from uranium mining in the area of study?
iii. What are mechanisms in place that ensure local people livelihood expectation is attained from uranium mining site?

iv. What are the challenges that hinder attainment of local people livelihood expectations from uranium mining company in the area of study?

1.5 Significance of the study

The study aimed to help administrators and mining companies to understand local people`s livelihood expectations, which will help in taking appropriate measures that could be compatible to local people livelihood expectations. Countries like Nigeria and Chad have suffered high oil crisis due to failure on managing the huge expectation of oil and gas revenue (Bategeka *et al.*, 2009). Managing people`s expectations helps to minimize undesired resentment of host communities to the uranium mining companies. The study will also add information to policy and decision makers in mining sectors to find better ways of reconciling people`s expectations when entering into contracts with mining companies.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter gives a review of related literatures, aiming at identifying the knowledge gap that this research sought to bridge. This part of study is concerned with, Definitions of terms, Theoretical review, Empirical review, Research gap and Conceptual frame work.

2.1 Definitions of Key Terms

2.1.1 Mining

Mining is the removal of minerals from the earth's crust in the service of man (Sosy, 2013). The Encarta encyclopedia also defines mining as the selective recovery of minerals and materials, other than recently formed organic materials from the crust of the earth (Encarta, 2005)

2.1.2 Livelihoods

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 (Maliganya, 2013). Chambers and Conway (1991) define livelihood as adequate stocks and flows of food and cash to meet basic needs. Livelihoods are secured through a set of assets and resources called capitals. Multiple capitals are combined in different strategies, thus generating different types of livelihoods.

2.1.3 Poverty

Poverty in the Tanzanian context is defined broadly as a state of deprivation prohibitive of decent human life (Mwaipopo *et al.,* 2004). The UN (1995) has defined poverty as: a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services.

2.1.4 Uranium

Uranium is a natural, radioactive and chemo toxic heavy metal, which is found in rocks, soils, plants and water (Merkel, 2008). It is the heaviest naturally occurring element on earth. "When refined, it is a silvery white, weakly radioactive metal, which is harder than most chemical elements (ibid). It is malleable, ductile, slightly paramagnetic, and strongly electropositive and is a poor electrical conductor (TEC *et al.,* 2012). In historical perspective the first application of uranium was the development of atomic bombs using enriched uranium or plutonium. Nowadays uranium is the raw material used to produce fuel for nuclear power plants that generate significant amounts of electricity with half life cycle carbon emissions.

2.1.5 Participation

Participation is a process through which stakeholders, among them the local communities who are often the intended beneficiaries of community projects, influence and share control over development initiatives and the decisions on the use of resources which affect them (Havel, 1996). Participation, therefore, seeks

collaboration and the commitment necessary to ensure sustainability of the project initiatives (Havel, 1996).

2.1.6 Resource Curse

Resource Curse happens when a country with large endowment in natural resources (Oil, natural Gas, minerals) performs worse in terms of economic development and good governance than do countries with fewer resources (Sachs *et al.,* 2007).

2.2 Theoretical Literature Review

This study is guided by Conflict theory propounded by Karl Marx. This theory emphasizes the existence of opposing forces in the life of individuals, groups, social structures and society in general. This theory views human society as a collection of competing interest groups and individuals, each with their own motives and expectations (Kemp *et al.,* 2010). The principle assumption underlying this theory is that all members in society do not have the same values, interests or expectations towards certain opportunities like uranium mining. They vary according to one`s position, privileges, class, ability and wealth.

Leaders have to make agreements so as to make a balance sheet on people`s expectations and privileges. If this balance is not reached, it encourages unequal distribution of scarce resources and opportunities which may results into conflict and opposition of different projects. According to Kemp *et al* (2010), the balance sheet of people`s livelihood expectation can be brought by breaking the political and economic domination of the capitalist class with the aim of reorganizing society along the lines of collective ownership and mass democratic control. The theory is

used in this study to build a broader understanding of the study and find out to what extent Marxism theory is applicable in explaining people's livelihood expectations in mining sectors particularly in uranium mining.

2.3 Empirical Literature Review

2.3.1 Global Uranium Mining Overview

Globally the increase in oil price has increased demand on uranium as a fuel for nuclear power plants and nuclear bombs (Merkel, 2002).This has resulted in increase of large scale mining companies and exploration projects throughout the world responding to the growing demand for uranium (Rosenfeld *et al.*, 2000).

In most cases uranium mining has remained an important activity to the economic development of highly industrialized countries in which their development was primarily based on proper use of their natural resources than in non-industrialized countries (Auty, 2001). However it is anticipated that, uranium mining would ultimately provide a base for economic development in developing countries. This has not been the case for most third world countries due weak institutions and policies (Auty, 2001)

Studies done by McMahon and Remy (2001) in developed and developing countries confirmed that, for sustainable uranium mining local communities around the mining area should be involved in decision making. However there are alarming reports from communities on low participation in decision making in establishment of different projects in the world (CESOPE, 2011). This has resulted to communities around the mining cites being affected with toxicity of uranium in which authorities

and mining companies try to obscure health implications to workers and communities. For example Mbogoro and Mwakipesile (2012) argue that about 10,000 people got cancer due to uranium mining in Germany which made the country to spent about 9.7 billion for cleaning up the overburden heaps.

Putzel *et al* (2008) add that, official reports from the government about the impact of uranium mining are not compatible with observed reality in uranium-mining areas, where people`s lives are at risk and workers pass away prematurely due to mining related sickness and leave their families also affected by uranium. Wonderful enough experiences from all over the world shows that companies disappear without cleaning up the accumulated wastes they created, thus public bear the costs of accumulated burden (World Bank Group, 2011). This put communities around mining areas bare the cost at the same time their life remain at risk without having significant benefits from mining companies.

2.3.2 Impact of Uranium Mining in Africa

Many African countries are blessed with uranium and other mineral wealth that has the potential to transform their economies (Mabikke, 2012). Following the abundance of the resources, uranium-mining companies are increasingly focusing on African countries for exploration and exploitation (Nicolas, 2012). Despite huge foreign direct investment in Africa's mining sector, there is still no any significant change that enables the translation of mineral wealth into building the productive capacity of individual African states and the local communities bordering mineral resources (Darimani, 2005).

This has been due to challenges at a political level that laws and regulations are not adapted to uranium mining and even if they were, institutions would not have the capacity to ensure adequate implementation (ICMM, 2006). For example AREVA company in Niger claim that it is an environmentally friendly company; however stakeholders such as Green peace are disputing this claim and call for an independent study around the mines and mining towns in Niger followed by a thorough clean up and decontamination (TEC *et al., 2012)*

Ideally, the presence of uranium resources can be a blessing for the entire continent but historically, those resources have often proved to be a curse than a blessing especially in African countries (IPPNW, 2013).Uranium mining is environmentally hazardous and potential to affect a large number of workers due to fatal injury caused by rock fall, explosions, mobile equipment accidents, entrapment and electrocution as reported in South Africa (Garvin *et al.*, 2009).

On the other hand, it is believed that uranium mining operations present a lot of benefits for communities where such mining activities take place and the country at large. For example in 2008, 4% of Namibia's GDP came from uranium mining, a figure that could increase to 13% in 2015 (Nicolas, 2012). This is supported by World Bank Group (2011) which points that, mining companies results into increase in GDP and improvement of people`s livelihood due to different support and services provided by the mining companies. However the economic impact of uranium mining is controversial because neither companies nor governments publish mining agreements and the industry is free to decide which financial information it shares with the public (Nicolas, 2012).

A study done by Mensah (1998) show that, uranium mining operations have adverse effects on the local population by affecting their traditional means of livelihood and causing environmental problems. For example in Namibia, the most frequent health issues for uranium mine workers after lung diseases and cancer were loss of hearing due to excessive noise, body disabilities caused by vibration, non-malignant skin diseases and spine damage (Bebbington *et al*., 2008). However, National and local governments do not have the medical resources to check whether or not radiation standards are being respected, or if illnesses are treated adequately by mining companies' medical staff (Nicolas, 2012). Experience from Niger and Namibia shows that mining companies tend to refuse responsibility if a worker gets sickness caused by poor working condition (CESOPE, 2011).

Shindondola-Mote (2009) add that, communities around the mining areas are still facing a number of challenges including great violations of human rights such as land grabbing without or with poor compensation, killings by security guards, water pollution, and humiliation of all kinds. For example local Tuareg tribes in Niger suffer from pollution by dust and contaminated water sources (ibid). In this case the poor are at risk of bearing many of the costs of pollution while at the same time not participating in the economic opportunities of mining (Mensah, 1998). The ability of the poor to participate in this investment is limited by their education and work skills.

2.3.3 Experience of Mining Sector and Local Development in Tanzania

Mining is widely known to have varying impacts on the environment and the socio-economic development of the people who are occupants of these environments

(Ankoma-sey, 2014). A relevant question to ask is who suffers and who gains as a consequence of these environmental hazards? It is quite sarcastic to note that, most of the time indigenous in areas endowed with resources like gold, diamond, manganese among others are usually very poor, (Mensah, 2009). It is, therefore, not out of place to expect that the mining companies which are usually multinational companies (MNCs) give back something to the communities in order to reduce or even compensate their losses (including livelihoods, right to their lands among others)

Although natural resources of different types are abundant in Tanzania, their exploitation for sustainable socio-economic development remains a daunting challenge (Poncian, 2015). The major challenge, however, has been translating these achievements into broad based and equitable benefits to all. Instead of being benefit to all, mineral resource extraction has only served to put Tanzania into the map of foreign capital flows but with limited benefits to the local citizens (Poncian, 2015). Consequently, benefits from the sector have largely gone to few people with access and links to the sector. In fact, the mismanagement and misuse of natural resource endowments can actually severely harm the economic prospects of a country.

This supports Bentil and Lawson (2013) who argue that, countries endowed with abundant mineral and natural resources, expected to witness immense economic and social progress, sadly, have only experienced economic troubles, social instability and conflict ridden issues. For example Maliganya *et al* (2013) stated that, since the inception of large scale mining in Geita District particularly Geita Gold Mine (GGM), a lot of complaints has been raised from the adjacent communities regarding the minimal socio-economic benefits accrued by the local communities and adverse

environmental effects to their livelihoods. In this case mining companies have been accused of shirking their responsibilities towards the development of the communities in which they operate, thereby increasing the level of poverty and vulnerability in these communities (Boon & Ababio, 2009)

While problems due to mining still unsolved Tanzania government has now invested to a new uranium and the country has been preparing for a potential boost in revenues and improvement of local people`s livelihood (MEM, 2006). Kitula (2004) point out that, mining projects brings jobs, business activities, roads, schools, and health clinics to remote and previously impoverished areas, but the benefits has always been unevenly shared, and for some they are poorly compensated for the loss of existing livelihoods and the damage to their environment and culture. This has been due to limited institutional capability to manage the social and economic implication of sudden growth of investment in remote area (Mwalyosi, 2004). Thus, there is a danger of getting nothing out of uranium mining due to week institutional set up such as laws, regulations and policies.

2.3.4 Efforts to Ensure Local People Participation in Mining Sector

Mining companies located in remote rural areas have been drivers of community development in the last century through provision of various forms of infrastructure such as roads, schools, hospitals, water, and electricity, and also support for adjacent agricultural projects (Ankoma-sey, 2014). These have become possible with the collaboration and participation of mining companies, local communities and governments through local development authorities to design and implement a shared vision for community development beyond the lifespan of the mines.

In order to ensure people`s participation in mining sector the government has enacted the 2004 Environmental Management Act in which full community participation is mandatory (Mwalyosi, 2004). However, this has remained in papers, thus in most cases negotiations and discussions in mining sector have been primarily between governments and mining companies and have not involved those whose lives and livelihoods are impacted directly and usually adversely by mining operations (McMahon, 2000). This is against article 18 (2) of the 1977 Constitution of United Republic of Tanzania which states that:-

> "*Every citizen has the right to be informed at all times of various events in the country and in the world at large which are of importance to the lives and activities of the people and also of issues of importance to the society"* **(URT, 1995)**

This results into development which is not community owned and therefore not sustainable.

2.3.5 Tanzania Legal Frame on Mining Sector

In Tanzania, the mining sector is governed by a number of policies, laws and institutions. The United Republic of Tanzania does not have specific policies and laws to efficiently and effectively regulate uranium mining (Mark & Lissu, 2008). At the present, the laws and policies in place leave communities in proposed mining areas at risk.

2.3.4.1 Tanzania Mineral Policy 2009

This is the guiding document that drives and regulates the mining sector in Tanzania under the ministry of Energy and Minerals (URT, 2009). A major objective of the 2009 mineral policy in Tanzania is to alleviate poverty in the country by creating

gainful and secure employment in the mineral sector and provides alternative sources of income particularly for the rural population and to ensure environmental protection and management (URT, 2009). However, having a good policy and legal framework is not a guarantee that the sector will automatically benefit the country and its people, or it does guarantee safe environmental protection and management for life (Poncian, 2012). This is because uranium mining is the top ranking polluters of the environment and its impacts takes a number of years to clean.

2.3.4.2 The Mining Act 2010

This is the principal legislation in Tanzania that deals with all mining and mineral issues in Tanzania from exploration to extraction. It regulates all issues related to mineral prospecting, processing and other issues such as payment of royalties to the government by the mining companies (URT, 2010). However until 2014 no single company had started implementing new tax and royalty rates as per the 2010 mining Act and it is not known if uranium mining companies will adhere to Act (Binala, 2014). The situation is exacerbated by business practices of these companies of claiming losses so as to avoid taxes. Nonetheless, they continue to invest in operations (Magai and Márquez-Velázque, 2011).

2.3.4.3 The Land and Village Land Acts, 1999

The particular objective of the Act 1999 is to provide for demarcation of village boundaries and resolution of village boundary disputes (URT, 2007). Most of the land affected by uranium exploration and potentially threatened by mining projects in Namtumbo district is regarded as village land according to the village land act of 1999 (CESOPE, 2011). Mining companies hold the right to acquire any previously

productive or occupied land and to resettle or compensate the affected group. The Uranium One Company from Canada and Uranex NL Company from Australia revealed that the necessary processes are being followed and valuation being made for the compensation to be made (CESOPE, 2011).

2.3.4.4 The Environmental Management Act 2004

Environmental Management Act (EMA, 2004) compels developers to undertake EIA prior to development activities if these activities are taking place in classified areas that require EIA. Uranium mining companies have undertaken EIA in the area of study so as to reduce the negative environmental and health effects of their activities on people`s life but people doughty on participation of the local community since during exploration some people believed that, the mission of the company was to construct new antenna poles for mobile network (Mark & Lissu, 2013). Accordingly, several mining companies in the country claim to have responded to Environmental Management Act 2004 by instituting and implementing several measures but to whether some of these measures are capable of reducing the negative impacts on the environment and surrounding communities is a matter of great concern (Pallangyo, 2007).

2.4 Research Gap

Most of the studies have been conducted on mining and its effects on the environment as well as contributions to economic development of the countries endowed with mineral resources. Whereas some researches highlight the benefits of mining to economic development, others focus on the negative impacts of mining on the overall development of such economies. Specific studies on local livelihood

expectations on mining have not been adequately addressed if not completely lacking.

For example a study conducted by Maliganya, *et al* (2013) on large scale mining activities and the livelihood of adjacent communities in Tanzania did not touch on expectations of the local community to their livelihood. To sustainability of mining company it is important to ensure that, mining companies offer benefits that matches with people`s expectation. This study is towards that end aiming to investigate and understand local livelihood expectations from uranium mining and to what extent benefits associated with mining companies meet local expectations.

2.5 Conceptual Framework

This framework has been developed on the basis of the objectives and literature review in order to meet the intended purpose of the study. In areas endowed with natural resources such as uranium, the mining companies are expected as part of their social obligations to significantly contribute towards improvement of public services and infrastructures which in turn results into improvement of the livelihoods of local communities (Bentil & Lawson, 2013). This argument, however, relies on several assumptions: First, it requires responsibilities of local politicians' demands and expectations from the broad population. In turn, this requires well-functioning local institutions and a healthy degree of political competition (Besley & Burgess, 2002).

However, in the absence of good democratic checks and balances such as poor implementation of the policies and presence of weak institutions, the resource abundance can fail to significantly improve public good provision (Caselli &

Michaels, 2013) and impact people`s livelihood negatively. This may accelerate violent conflicts between the mining companies and the local communities and thus threatening the livelihoods of adjacent population. These two factors, lack of political responsiveness or lack of technical capacities, may undermine the positive effect of resource abundance on public good provision, and local living conditions. A similar negative effect on living conditions can occur due to violent conflict.

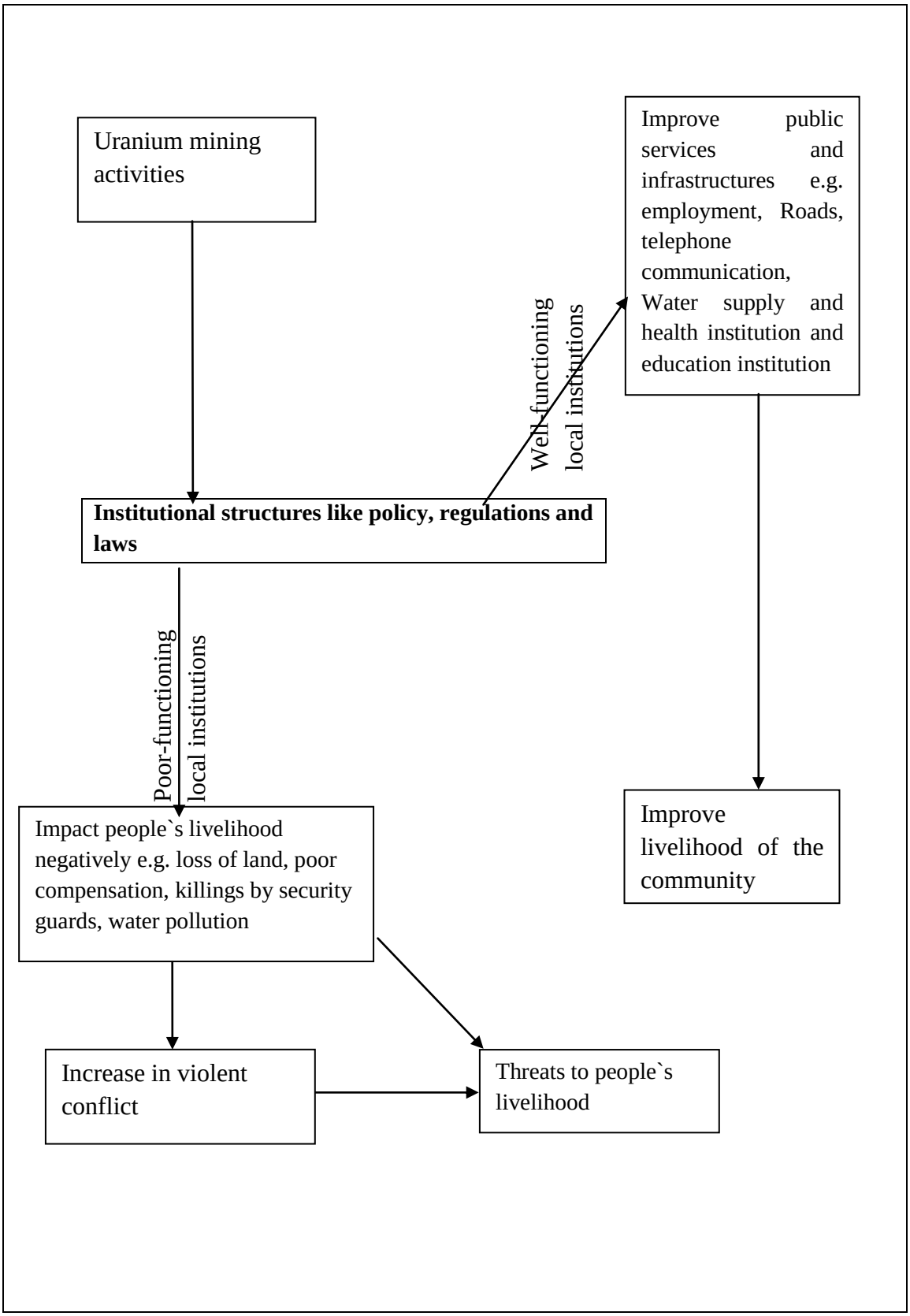

Figure 1: Conceptual Framework of the Study

Source: Researcher Conceptualization

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the research methodology for this study. The first part, presents the outlines of the research design and methodology, followed by data analysis procedures and presentation. The last part demonstrates ethical considerations validity and reliability of research methods.

3.1 Selection of the Area of Study

The study was conducted at Namtumbo district specifically in Likuyuseka ward located in Ruvuma region. The selection criteria of the area of study include its location near to the Mkuju River Project in which uranium mining is taking place. This may make villagers adjacent to the project to have high expectation of their livelihoods for the benefits to be accrued from uranium mining project.

3.2 Geographical Description of the Area of Study

3.2.1 Location

Likuyuseka ward is one of the eighteen wards which are Namtumbo, Rwinga, Mgombasi, Mkongo, Lusewa, Kitanda, Namabengo, Magazini, Ligera, Limamu, Luchili, Mkongo, Mchomoro, Msindo, Luegu, Litola, Hanga and Mputa that form Namtumbo District. The District covers 20,375 sq. km. It is bordered to the North by Mkulanga District (Morogoro Region), to the East by the Tunduru District, to the

South by Mozambique and to the East by Songea Urban District and Songea Rural District.

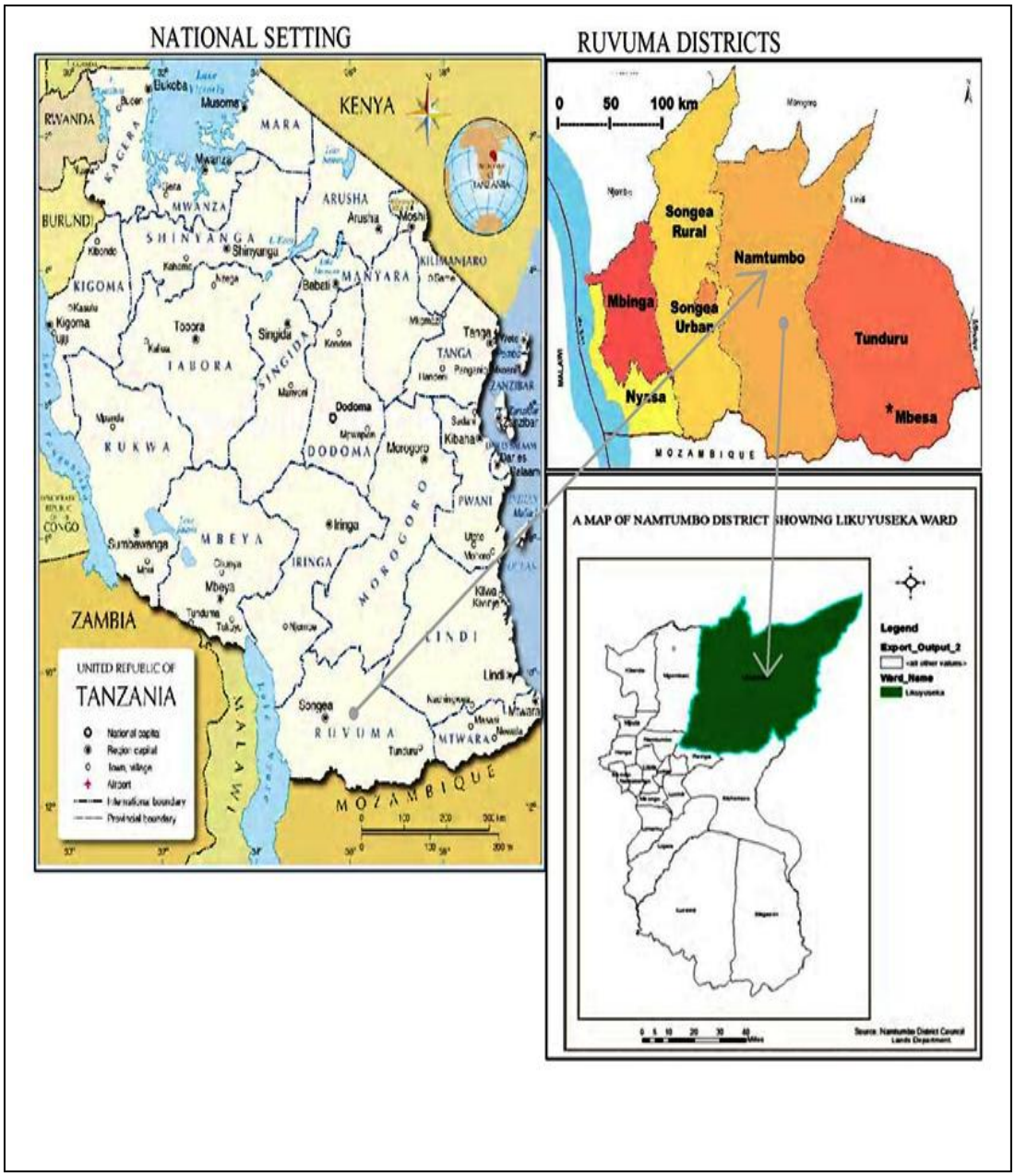

Figure 2: Tanzania Map showing Namtumbo District and Study Area

Source: Namtumbo District Council (2016)

3.2.2 Population

A population is a complete set of persons or objects, characterised by designated criteria, which the researcher intends to study (Netshikweta, 2007). According to 2012 Census, Namtumbo District has a total population of 201,639 of which 98,335 or 48% are males and 103,304 or 52% are females (NBS, 2012). According to URT (2012) the Likuyuseka ward has a population of about 10,811 in which 5,452 are males and 5,359 are females. The ward is mostly inhabited by Ndendeule and Yao people whose main economic activity is agriculture. This population may increase rapidly due to migration following uranium mining as a new source of income.

3.2.3 Climate

Namtumbo District is characterized by cool climate with an average annual rainfall of between 800 mm – 1400mm. Rainfall is a factor of vital importance for living conditions in an area primarily because of its direct influence on agricultural production and water supply. The rainfall regime is typically of the unimodal type with a single rainy season from November to May, and dry seasons for the rest of the year. The reason for this is that the monsoon winds which dominate the climate most of the year are relatively dry, while the main rainfall producing transition periods between the monsoons are very short.

The rainfall patterns in the District are evenly distributed and higher agricultural productivity is highly related to rainfall figures. The year to year variation in rainfall is very high. Also variation of temperature ranges from 20 ^{0}C to 25 ^{0}C during the hot season and between 15 ^{0}C to 17 ^{0}C during night (Nela, 2013). However the ongoing

climatic change impacts affect agricultural productivity and thus people have to diversify their economy through uranium mining.

3.2.4 Vegetation

Two major ecosystems occur in the district, the miombo ecosystem covering by far the largest part of the Selous game reserve and a drier savannah ecosystem bordering the Ruvuma River. Within the two ecosystems different types of miombo and savannah vegetation occurs respectively. In addition, several vegetation types mainly of small size are scattered mainly termitophyllous vegetation, and grasslands (Rodgers, 1996). Miombo is characterized by trees of the Caesalpiniaceae family, and nearly always dominated by species of Brachystegia, either alone or with Julbernardia species. However uranium mining may lead to loss of some plant species

In the higher-rainfall areas of the north, some trees are evergreen but most are deciduous for a short time. Towards the south most trees are deciduous for at least some weeks. The old leaves shed off as the new leaves unfold some weeks or even months before the end of the dry season (Schwartz, *et al.*, 2002).

3.2.5 Economic Activities

It is estimated that about 97% of people in Namtumbo district engage in agricultural activities which constitute the main source of income with very little animal husbandry. The type of agriculture is still very traditional in which peasants have to use hand hoes with low yields in subsistence crops per hectare. Individual peasant undertakes farming on cash and food crops production. Cash

crops grown are tobacco, cashew nuts, sunflower, simsim, coconuts and groundnuts. Whereas maize, cassava, beans, finger millet, rice, potatoes are food crops but nowadays maize, rice and beans are dual crops. However, people's high dependence on cash crops has been frustrated by unfavorable weather conditions, declining prices and inefficient marketing. Thus the new discovered uranium deposit makes mining to be a diversified local economy and livelihoods

3.3 Research Design

The research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data (Kothari, 2007). Elements "central to the research design include the presence or absence of some treatment, number of groups in the sample, number and timing of measurements to be performed, sampling method, the time frame for data collection, planned comparisons and control of extraneous variables" (Babbie and Mouton, 2001). Netshikweta (2007) points out that, the research questions, the aim and the objectives of the study should influence the selection of the research design. This study employed cross sectional research design. Cross sectional research design is the research that conducted at a single time period (Kothari, 2007). The criterion for selecting cross sectional research was that, the study did not require time series analysis of the same phenomenon. The design gave a broad description and understanding of uranium mining and people's livelihoods expectations.

3.4 Sampling Procedures

Researchers often do not study the whole population due to time and cost constraints. Thus, a portion or sample of that population is subjected to research.

Thus sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group (Kothari, 2004). Sampling procedure refers to that part of research plan that indicates how cases are to be selected for observation (Kombo and Tromp, 2006). The study used several sampling procedures to obtain sample required for the study as indicated below.

3.4.1 Target Population

Target population means all members, individuals, groups or elements involved in the study (Kothari, 2004). For the purposes of this study, the target population was all people in Namtumbo District. This target population provides necessary information like strategies to be taken to meet people's expectations on their livelihoods. The information helped to achieve the research objectives.

3.4.2 Sampling Frame

Sampling frame is a complete list of all units or elements from which the sample is drawn (Kothari, 2004). In this study the sampling frame was people living around Mkuju River where uranium mining is taking place and key informants like village chair persons, village executive officers, ward executive officer (obtained on the area of study), ward councilor, District environmental officers, District natural resource officer (obtained from District Executive Director office) and mining company stuffs working with the mining company.

3.4.3 Sample Size

Sample size refers to a subset of units selected from a large set of the same unit (Kothari, 2004). By selecting a sample, the researcher obtained a reasonably accurate understanding of the aspects being investigated in the study, without gathering information from the entire population (Netshikweta, 2007). A small sample helps to provide data for use in estimating the characteristics of the large set but the "larger the sample, the more representative it is" (Burns & Grove, 2001). Within the field of social science research Julita and Hambati (2014) suggested that, for a sample to be sufficiently representative of a given population, it should not be less than 10% of the total population. Therefore the study sampled 10% of the total household in the area of study as it was large enough to be interviewed in order to provide meaningful data for analysis.

Table 1: Sample Size of the Area of Study

Village	**Total households (N)**	**Percentage of households (C)**	**Selected households (n)**
Mtonya	370	10	37
Mandela	280	10	28
Likuyuseka	312	10	31
TOTAL	962		96

Source. Likuyuseka Ward Office (2016).

In the current research, a sample of 96 households was selected. 96 people were selected randomly from three villages whereby 37 people were from Mtonya, 28 respondents from Mandela and 31 people were from Likuyuseka.

3.4.4 Sampling Unit

Sampling unit may be a geographical one such as a state, district, village or a construction unit such as a house or it may be a social unit such as family, club, school or it may be an individual (Kothari, 2007). The sampling unit in this study was heads of household who were drawn from the three selected villages. The household heads (whether father or mother) were selected purposively as respondents. This is because heads of the household have more information of the household compared to other household members (DESASD, 2005). Another reason for the choice of the heads of household was the fact that, they are the main unit who in one way or another are affected by mining activities.

3.4.5 Sampling Techniques

In this study both probability and non-probability method were used in the selection of respondents during the study. Probability sampling is a technique in which every unit in the population has a chance of being selected in the sample, and this chance can be accurately determined (Bhattacherjee, 2012). Random probability sampling was used in selection of the household members so that anyone had equal chance to participate in the study. Lottery method was used in selection of the respondents whereby named balls each representing names of the heads of households available in the village office were placed in the container. The balls were thoroughly mixed and the number of balls equal to the sample size was picked.

Non-probability sampling is a sampling technique in which some units of the population have zero chance of selection (Bhattacherjee, 2012). In non-probability sampling, purposive sampling was used during the selection of key informants. Key

informants from different areas with knowledge on uranium mining were selected. These included village chair persons, village executive officers, ward executive officer, District environmental officers, District natural resource officer and mining staffs were purposely selected based on their position.

3.5 Data Collection Methods

Different methods were used to collect both primary and secondary data. The use of different methods has been done in order to ensure validity and reliability, suitability and adequacy of data (Kothari, 2007). The researcher assumed that, no single technique is superior to the other while a combination of two or three methods makes data highly reliable. In this study, survey method, interview and Focus Group Discussion has been used in order to get primary data while documentary review has been used to collect secondary data.

3.5.1 Survey Method

Survey is any data collection operation that gathers information from human respondents by means of a standardized questionnaire in which the interest is in aggregates rather than particular individuals (Saris, 2007). This method has been used because is an excellent vehicle for measuring a wide variety of unobservable data, such as people's preferences, attitudes (e.g., toward uranium mining) and beliefs (Bhattacherjee, 2012). The purpose of using this approach was to allow respondents to express their views independently hence maintaining free expression of views (Visser *et al*., 2009)

In this method lists of questions were prepared to capture information from the respondents. Questions comprised of both open ended questions and closed ended questions. Closed ended questions have been used because they provide efficiency and systematic answers and are easier for respondents to answer (Saunders, 2004). Questionnaires covered two aspects which were demographic aspects (age, sex, education, and occupation) and questions related to attitude and people`s livelihood expectations on uranium mining. For questionnaires to be effective the following procedures were involved.

Researcher prepared research questionnaires that focused on the objectives of the study, it include the attitude of the local people on uranium mining, livelihood expectations of local people from uranium mining, mechanisms that ensure local people livelihood expectations are attained and challenges that hinder attainment of local livelihood expectations on uranium mining. The questionnaires were arranged from simple to complex in order to encourage respondents to keep on responding to the questions. Clarity of language was highly considered to enable understanding of the questions to all respondents.

The second step was training of the research assistants who were recruited based on the background and familiarity with the area of study in order to simplify data collection process. Three research assistants with advanced level of education from three villages were given one-day training prior to the commencement of data collection. Their training covered the following: the study purpose and significance, the way to approach the respondents during data collection and the way of obtaining informed consent from the respondents.

Third step was pre-testing of questionnaire. Netshikweta (2007) refers pretesting as "a trial run to determine whether the instrument is clearly worded and free from major biases and that it solicits the type of information intended to be collected and estimates the time to be taken for one respondent to respond. A sample of ten respondents from the three villages was taken for pre-testing. To make sure there is no bias in obtaining respondents for pre-testing, lottery system was used in which names of hundred respondents from the selected three villages was written on the slips of paper and mixed in a container. One piece of paper was picked up from the container at a time until ten required sample was obtained. After the pretesting, problems which were identified were clarified and corrected to improve clarity. All members of the household who participated in pretest of the instrument were excluded from participating in the actual research.

The last step was administration of the questionnaires. The researcher and research assistants administered questionnaires face to face with respondents and wait for the respondent to answer and fill all responses from the household respondents. This is because heads of the households have more information about the establishment of uranium mining and livelihood expectation from the mining company.

3.5.2 Interviews

Key, (2011) defined an interview as a conversation in which the roles of the interviewer and the respondent change continually. This method has been used because it allows respondents to express how they regard situations from their own point of view (Visser *et al.,* 2009). Face to face interview (semi-structured) has been used to collect information from the key informants. The key informants for this

study included village chair person, 3 village executive officers, ward executive officer, District environmental officers, District natural resource officer, ward councilor and mining company staffs who were purposely selected based on their position. A total of ten key informants were approached based on work position or titles they hold in the area of study.

In order to make it intensive, personal interviews were conducted in private rooms, with "please do not disturb" signs on the doors. The interview involved the use of a set of predetermined questions and of highly standardized techniques of recording by using cellular phone. The researcher began by asking for permission of tape-recording the interview. Participants were asked to talk on issues relating to attitude of the local people on uranium mining, the mechanisms in place that ensure local people livelihood expectations of uranium mining are achieved and challenges that hinder attainment of local livelihood expectations of uranium mining.

Once an interview commenced, the role of the researcher was to encourage the participants to continue talking using techniques such as nodding of the head or giving other signs that indicate interest and noting down important points. In some cases, the participants were encouraged to elaborate further on a particular dimension of a topic by using probes (Burns and Grove, 2003), such as saying "please tell me more about this experience". Probing encouraged interviewees to give more information. The researcher did not show surprise or disapproval of respondents, discouraging irrelevant conversation but made all possible effort to keep the respondents on the track. Each interview was conducted for 20 –30 minutes. Lastly, the researcher thanked the participants for their participation in the study.

3.5.3 Focus Group Discussion

The Focus Group Discussion (FGD) is a qualitative method used purposely to obtain in-depth information on the concepts, perception and ideas of group members about a specific topic (Cohen, *et al.*, 2000). The rationale of using this method was to obtain an in-depth information of the on people`s attitude on uranium mining. This also enabled illiterate respondents to participate in giving the information about their livelihood expectations on uranium mining (Kothari, 2004). The recruitment of FGD members followed the following procedures:-

Firstly the researcher developed a list of potential participants for FGD who were of homogeneous sex, aged from 18 and above with emphasis given to educated people and who can express wide range of views so as to create a truly reflective target group due to their long life experience in the area of study. Village leaders helped to nominate the participants they thought would be good participants. Nominees are familiar with the topic, known for their ability to respectfully share their opinions, and willing to volunteer about two hours of their time and explained that, the discussion was not sponsored and would not have access to any of the focus group data.

Using the selection criteria (age, education, gender and ability to express views), the researcher administered the screener script of which was actually a brief questionnaire with not more than two pages containing basic questions of the study so as to determine whether participants meet FGD criteria. The researcher recruited focus group participants using the screener in which only those who met the criteria were selected for FGD. Once a group of viable recruits had been established, the

researcher called each one to confirm interest and availability. The researcher gave participant time and locations of the focus groups which were schools with enough chairs and secured verbal confirmation. Participants were mailed a written confirmation and call to remind them, two days before the scheduled group.

The researcher formed one group from each study village making a total of three groups. Each Focus Group composed of 7 heads of the households with more information of the households compared to other household members making the total of 21 participants for the purpose of effective discussion (Bhattacherjee, 2012). Once participants have been selected, the researcher made communication with participants prior to the focus group so as to confirm their attendance. Swahili language was used during the discussion since most of the participants are familiar with.

During the session the researcher and the participants started by introducing to each other and later the researcher introduced the topic for discussion. This method was useful because it enabled the researcher to generate data through the interaction between informants and see how people respond to each other's views rather than responding themselves. The method also helped to assess local people`s attitudes towards uranium mining and their livelihood expectations of uranium mining. The discussion was guided by the checklist of guide questions. The researcher was the facilitator by making sure that no one dominates the group. During the discussion the researcher together with the research assistant recorded some important issues in a note book and photos were taken by the research assistant.

3.5.4 Documentary Review

This method was used to collect secondary data. Secondary data are the information collected previously by another researcher for his or her own interest but may be used by someone else (Kothari, 2007). The assumption behind the use of these data is to complement the first hand information obtained through questionnaires so as to enrich the study. These were collected from reports and other relevant documents such as books, journals and official reports. This was done by visiting both published and unpublished documents from REPOA, University Library and electronic sources such as internet. Some of the documents reviewed were, report on managing the huge expectations of Ghana's oil and Tanzania Gas Sector Scoping Mission Dar es salaam. The relevant information from other sources and findings from previous studies supported the research findings.

3.6 Data Analysis and Presentation

3.6.1 Data Analysis

Analysis of data is a process of inspecting, cleaning, transforming and modeling data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making (Kothari, 2007).

In this study, data obtained from household survey were coded, summarized, and analysed by using descriptive statistics in Statistical Packages for Social Sciences (SPSS) version 20.0 and Microsoft Excel computer software in conformity with objectives of the study. SPSS was used to summarize information and present it into charts, tables, and bar graph to make it easily understood.

On the other hand, the collected data from interview were mainly qualitative in nature. As pointed out by social science researchers, qualitative data analysis has no one right to proceed with analysis (Kombo & Tromp, 2006). Data from interviews, Focus Group Discussion and secondary data were analyzed using a content analysis. Content analysis is a research tool used to determine the presence of certain words or concepts within texts or sets of texts (Meyer, 2015). On the other hand, the collected data from interview and FGD were mainly qualitative in nature. So the key issues were analyzed manually, transcriptions and summaries of emerging issues in the discussion were documented. The recurring statements and narratives were then summarized and analyzed. The result was used to support findings in various ideas on challenges that might be hindering in attaining local livelihood expectations and mechanisms in place that ensure local people livelihood expectations from uranium mining are achieved.

3.6.2 Data Presentation

Results are presented statistically in various ways including charts, tables, figures, frequencies, percentages, graphs and plates to make it easily understood. There are no names of persons or institutions have been linked to any responses in order to maintain anonymity of results.

3.7 Ethical Considerations

Ethics is a system of moral values concerned with the degree to which research procedures adhere to professional, legal and social obligations (Polit & Hungler, 1999). Burns and Grove (2001) emphasize that when human beings are used as subjects, researchers should ensure that participants' rights are observed and

respected. Research participants should grant permission prior to their participation in any study (Babbie & Mouton, 2001).

Ethical issues which were considered during the study include obtaining permission from the relevant authorities and the potential respondents, respectively to conduct the research, anonymity, and respect for human dignity, confidentiality, beneficence and justice. Each respondent was informed about the purpose, significance and benefits of the study, and the time required to complete the questionnaire. In order to maintain confidentiality and anonymity, the names of respondents were NOT written on the questionnaires. The researcher respected the principle of self-determination which meant that each respondent had the right to decide voluntarily whether or not to participate in the research. Also the researcher ensured participants on the need to provide to the stakeholders with complete details about the study outcomes after finishing the study.

3.8 Validity and Reliability

The aspects of validity and reliability were also considered in this study. Yin (2003) suggests that reliability and validity are the two important quality control objects in research design. Hence, it is the crucial need for the researcher's findings to be valid and reliable. That is validity and reliability are two factors, which any researcher who looks for a good quality research should consider while designing a study, analyzing and presenting the results. The definition of the two is as follows.

3.8.1 Validity

Validity refers to issues, whether a set of indicators devised to measure a concept really measures what is supposed to measure (Kothari, 2004). In this study, validity was achieved in various ways. First, by careful formulation of questions and pre-testing questionnaires made the questions clear and possible problems were identified earlier so as find solution on how to overcome them easily. Second, the study data were edited so as to identify and eliminate errors and omission done during data recording. This attained the completeness, accuracy and uniformity.

3.8.2 Reliability

Reliability of the study is the extent to which other researchers would arrive at similar results if they studied the same case using exactly the same procedures as the first researcher (Saris, 2007). It refers to the extent in which data collection techniques or analysis procedures will yield consistent findings (Saunders, *et al.*, 2009).

In order to ensure reliability of the data, an adequate number of questions were formulated and data were collected to various respondents. However pilot study was conducted to test the instruments before the actual study. The researcher explained on how to use the instruments to the research assistants prior to the pre-testing phase to eliminate individual variations but also use of different methods for data collection ensure reliability of the data.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.0 Introduction

This chapter presents the major findings of the study and discussion. Data obtained from the study are presented and discussed in five sub sections. Section one presents demographic characteristics of respondents. Section two presents attitude of the local communities towards uranium mining. Section three presents local people's livelihood expectations from uranium mining. Section four examine the mechanisms in place that ensure local people livelihood expectations are attained in uranium mining and section five identifies challenges that might be hindering attainment of local livelihood expectations from uranium mining.

4.1 Demographic Characteristics of the Respondents

Demographic issues addressed in the area of study included respondents' age, sex, marital status, highest level of education, economic activity and respondents duration of resident in the area of study. The items in this section attempted to obtain personal information about the respondents. This enabled to get the background of the respondents for appropriate responses concerning attitude and people`s livelihood expectations from uranium mining.

4.1.1 Age

The respondents were asked to indicate their ages. The respondents' ages were important to ascertain the human capital as a source of labour force in uranium

mining. The research findings as presented in table 2 show that, majority of the respondents (50%) aged between 31-50 years whereas 25.8% were aged between 18-30 years while 15.2% aged between 51-60 years and only 9.1% were aged more than 60 years.

Table 2: Age of the Respondents

Age group	Frequency	Percent
Between 18-30 years	17	25.8
Between 31-50 years	33	50
Between 51-60 years	10	15.2
More than 60 years	6	9.1
Total	**66**	**100**

Source: Field Survey Data, 2016

These data imply that, the area is occupied by energetic and economically active group in which over 75% are aged between 18-50 years. Mbunda (2015) pointed out that; energetic and economically active group ranges from 18 – 50 years. Only 9.1% of the respondents were above 60 years. These are unable to carry out difficult and productive work such as uranium mining. This is supported by Sosy (2013), who argues that, depending on the nature of mining activities, the elderly are unable to carry out difficult and productive work such as uranium mining thus, appear to be excluded in the process.

4.1.2 Education level

Education is an important socio-economic variable influencing the choice of economic activities to support the livelihood (Gwiarda, 2011).The findings show that, the majority (77%) of the respondents have attended primary education, 12% of the respondents had attended secondary education while 8% had no formal education whereas only (3%) have reached college level (Figure 3).

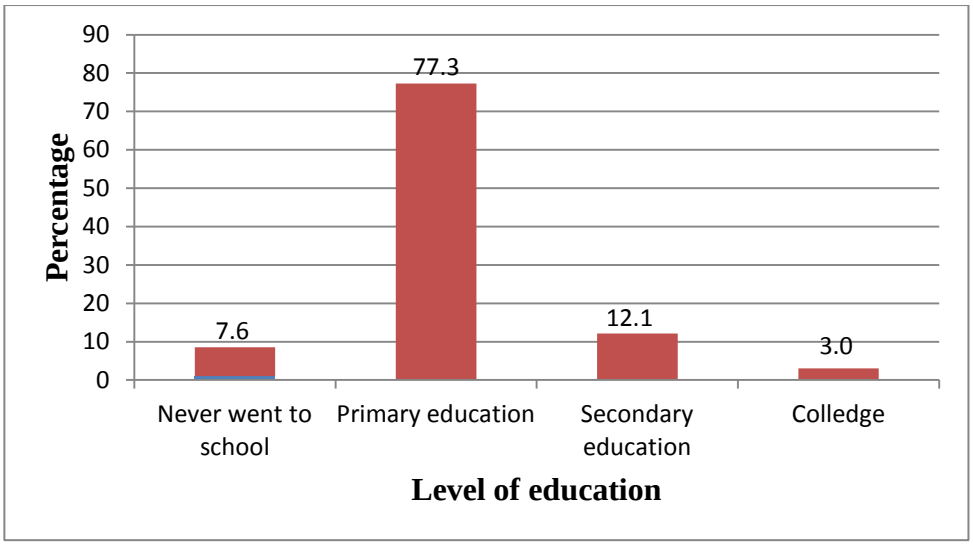

Figure 3: Education Level of the Respondents

Source: Field survey data, 2016

The findings about education level of the respondents is not far from the study done by Maliganya *et al.*, (2013), which indicated that, majority of the respondents in rural areas have informal or primary education and very little in secondary education and above.

The implementation of Universal Primary Education (UPE) and the introduction of Secondary Education Development Programs (SEDP) may explain to why the proportion of respondents with primary and secondary education is high compared to

those who never gone to school and those who have reached college level. Also the 3% of the respondents whom have attained college education can be due to the fact that most of the educated people do not stay in rural areas because they are likely to be employed in urban areas as noted also by Mabikke (2012).

However according to Mushi and Kent (1995) the formal sector in many institutions in Tanzania requires at least secondary education level. This implies that, local people with primary education certificate and those who never gone to school will face difficulties particularly on jumping to opportunities associated with uranium mining which requires advanced or professional training.

4.1.3 Gender

Table 3 exhibits the respondents according to gender. All sixty six respondents answered this question. Gender distribution of the respondents had been anticipated to be an important demographic factor because gender could affect the decision making powers in opportunities associated with uranium mining. Findings indicated that 78.8% of the respondents were males and the rest 21.2% were females.

The dominance of male respondents to represent the household of the area of study implies the persistence of patriarchy community where men are found to be heads of household. Nyoni (2008) suggested that many household in Namtumbo district belongs to patriarch system in which men are the head of the household owning the household property and dominating the major decision making processes at the household level whereas in most cases women are expected to be receivers of decisions made. The female respondents are few compared to males due to patriarchal system prevailing in that particular society. Women are not allowed to

give any information of the household in either presence or absence of their husbands.

Table 3: Distribution of the Respondents according to Sex

Sex	Frequency	Percent
Female	14	21.2
Male	52	78.8
Total	**66**	**100**

Source: Field Survey Data, 2016

4.1.4 Marital Status

Data as presented in table 5 indicate that, majority of the respondents (89%) were married while 8% were single and only 3% were divorced. The marital status of the respondents was an important demographic variable in this study because marriages act as a social capital in mining.

Table 4: Marital Status of Respondents

	Frequency	Percent
Single	5	8
Married	59	89
Divorced	2	3
Total	**66**	**100**

Source: Field survey data, 2016

The observation that majority are married is due to the reason that, marriage is respected by the society hence encouraging many people to get married. They also get married in order to have children as a source of labour in different economic activities such as uranium mining hence assurance of the security in the future life (Darimani, 2005).

The presence of high number of married people in the area of study implies the presence of social capital in mining whereby married people are seen to have family obligations, thus are likely to participate on opportunities of uranium mining activities in order to generate income to meet various family needs. These results represent typical characteristics of Tanzanians in many areas whereby 60% of them are married (NBS, 2002).

4.1.5 Respondents duration in the Area of Study

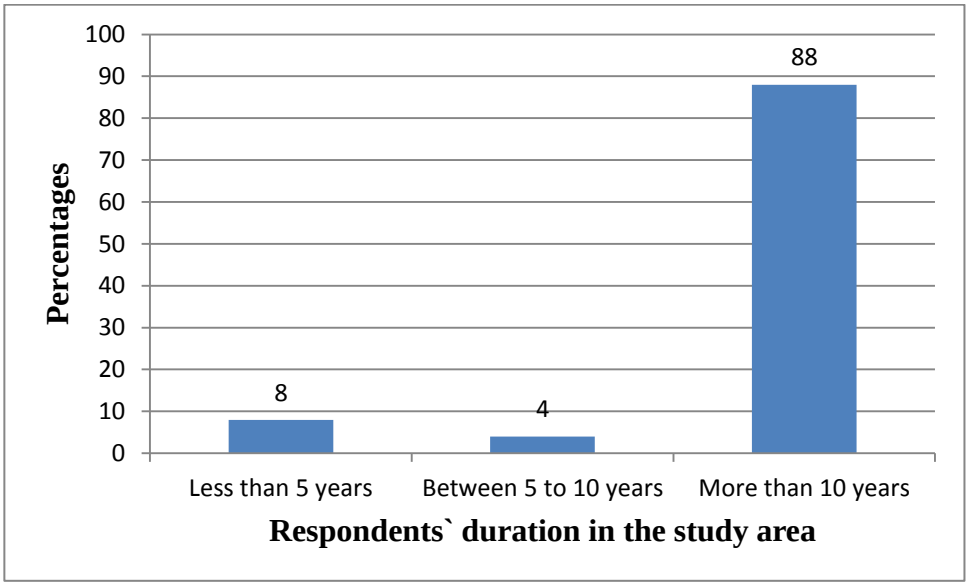

Figure 4: Duration of Residential of Respondents in the Area of Study

Source: Field Survey Data, 2016

Findings from the study show that, duration of residence ranges from less than 5 years to more than 10 years. About 88% of the respondents in the area of study have stayed in the ward for more than 10 years while 8% of the respondents have stayed in the area for less than 5 years. Only 4% of the respondents have stayed in their villages between 5 to 10 years (Figure 4).

This information has an implication that majority of the respondents have a permanent resident since they have stayed in the ward for more than 10 years hence the discovery of uranium mining might affect their livelihood either positively or negatively.

The small numbers of respondents who have stayed in their villages for less than 10 years probably have shifted from other places which may be attributed by the presence of uranium mining activity as a new economic opportunity in the area of study. The study findings is contrary to that of Sosy (2013) who found 90% of the respondents living near the mining site were migrants from other places. After all it is difficult to judge on these findings because uranium mining is still at early stages.

4.1.6 Occupation

In the area of study, respondents reported to be involved in diverse economic activities, including agriculture, entrepreneurship, employment, livestock keeping and others. Large proportions of respondents (59.2%) engage in agriculture specifically in crop production such as tobacco, maize, cassava, beans and finger millet whereas 23.5% engage in livestock keeping while 10.2% of the respondents were entrepreneurs,6.1% have permanent employment and only 1% engage in other activities (Figure 5).

The findings imply that, majority of people in the area of study have low income (common characteristics of peasants) the factor that may make them having diverse expectations on uranium mining as an alternative source of income for their livelihood. These results are in line with that of Mbunda (2015) who also found majority 88% of the people in Namtumbo districts are peasants engaging in crop production and livestock keeping.

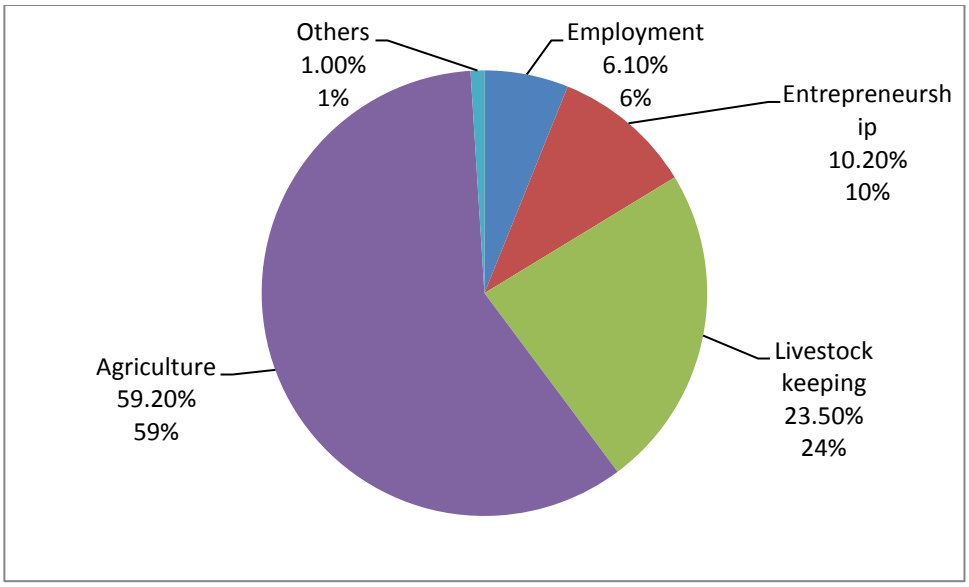

Figure 5: Shows Occupation of the Respondents

Source: Field Survey Data, 2016

4.2 Attitude of the Local Communities towards Uranium Mining

Respondents were asked to rank the importance of the mining company to their livelihood by using 4 points of the Likert scale as 1-Very useful to 4- Very unuseful in order to assess their attitude. The findings indicate that more than 63% of the respondents indicated the mining company to be either unuseful or very unuseful to their livelihood whereas only 12.1% of the respondents indicated the mining

company to be very useful to their livelihood. This implies that the local community have negative attitude towards uranium mining company.

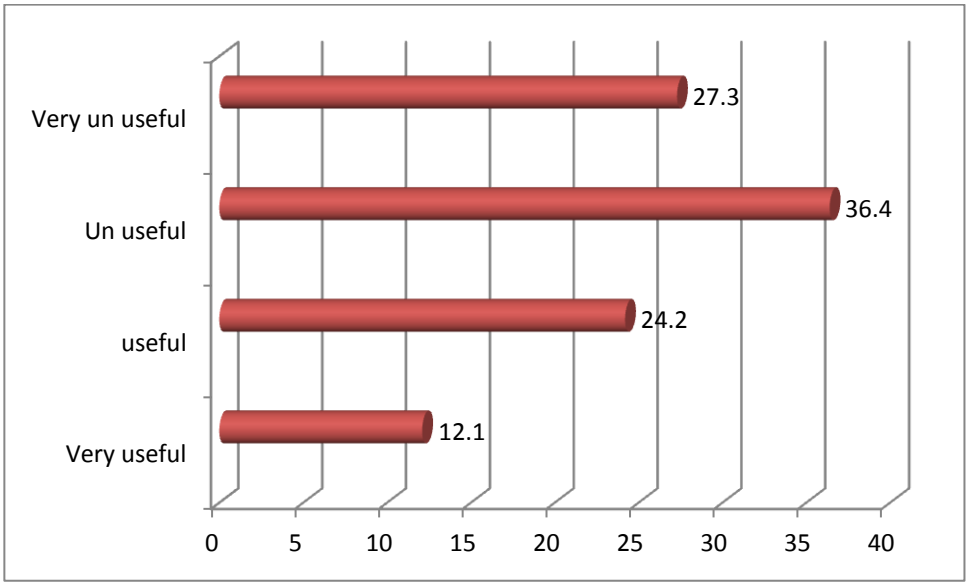

Figure 6: Attitude of the Local Communities towards Uranium Mining

Source: Field Survey Data, 2016

In connection to the above findings the study was also interested to know the major drivers of the attitude of the local communities living around the mining site to uranium mining. The study used equal weights and aggregated the specific issues under the following; effect on land, provision of training, growth of micro-enterprise and mining creates conflict on a scale of 1 to 4 (1- strongly agree, 4 -strongly disagree).

The results indicate that overall, growth of micro-enterprises are the most pressing issues in the area of study towards uranium mining with a mean rank of 2.65, followed by provision of training with a mean rank of 2.52 and exacerbation of conflicts with a mean rank of 2.21 while effect on land had the least score with the mean rank of 1.29 (Figure 7).

These findings imply majority of respondents have negative attitude towards mining company which are driven by growth of micro-enterprises followed by lack of training and accuse of the mining company on exacerbating conflicts

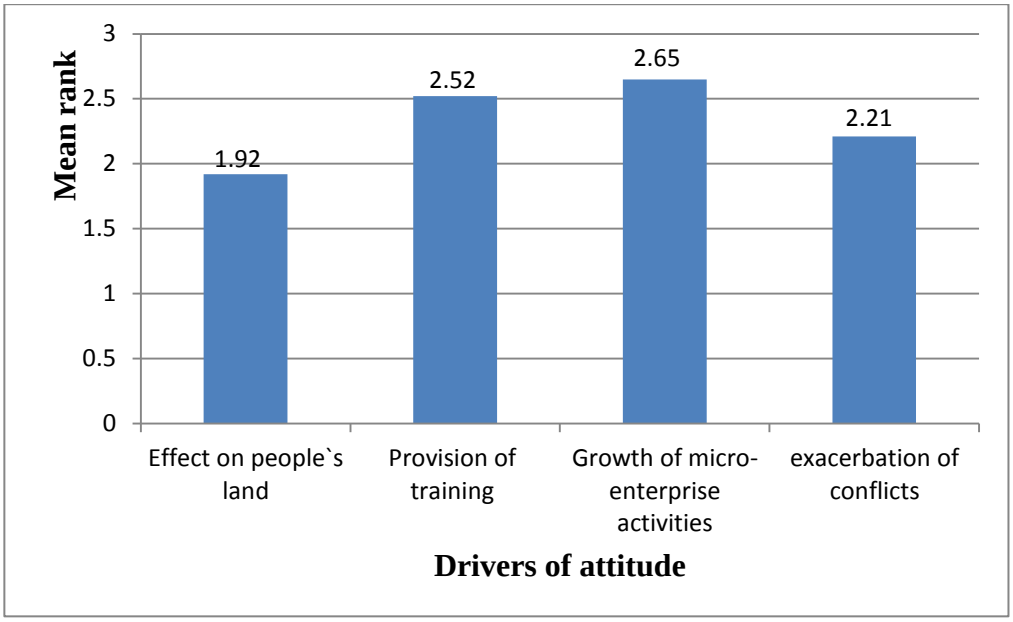

Figure 7: Drivers of Attitude of Local Community towards Mining

Source: Field Survey Data, 2016

Growth of micro-enterprises was ranked high as a driver of attitude in the local community with the mean score 2.65. Probably this has been due to divergence of opinions on the expectations of mining and development at the local community level. Local communities had high hopes on the impacts of uranium mining on the development and wellbeing of the local people but the actual realizations of the benefits were far below their initial expectations. Negative attitude on growth of micro-enterprise was also noticed during FGD whereby members had the following views:-

> *"The mining company has told us to organize into small groups so that we can start rearing livestock as an entrepreneurship. If these*

> *people know that rearing livestock were profitable business why can`t they do such activity? By the way we are crop cultivators but the mining company staffs are not buying food from our locality, don't we qualify to supply food to them?"***(FGD in Mandela village)**

Provision of training was also noticed to be one of the factors resulting into negative attitude toward uranium mining company as it scored the mean rank of 2.52. Lack of training was also revealed during an interview with the mining company staff who indicated the lack of training in the area of study as they were still at the early stages of construction.

> *"We cannot provide training at this early stage of construction and we cannot train everyone in the ward but as time goes, those who will be employed will be given training before they start working"* **(Key informant from the mining company).**

This information is evidence that, the mining company has not invested on provision of education and training thus results into negative attitude of the local communities towards uranium mining company. This result proves the theory of social exclusion development which states "no country or a given society has developed economically without investing in technology and education (Oteng-Adjei, 2010). On the other hand, the result is contrary to the Mining Act of 2010, Article No 8 which states that "any mining company should provide training to Tanzanians in all skills in respect of the operations of the mining project" (URT, 2010).

Exacerbation of conflict was also ranked to the mean score 2.21 to be one of the factors that results into negative attitude towards mining company. Negative attitude due to conflict was also noticed during FGD whereby some community members commented that, they were not aware of what the mining company was doing in the area rather than causing trouble to the community through their rules and regulations governing mining activities. Members of the FGD added that:-

"Before these mines became operational, bush meat, and firewood were in abundance in this area and we could go out in the morning to collect them. Today we cannot find them again because in the areas where they are available, we are not allowed to go and pick them due to mining activities" **(FGD in Likuyuseka village)**.

Exacerbation of conflict by the mining company brings negative attitude to the local people. This is probably attributed by change of land use which was previously used for activities such as hunting and gathering. This is supported by Yelpaala and Ali (2005) who argued that, mining companies is accused on exacerbating conflicts, activating latent disputes, creating intense controversy and trajectories through their operations and through their procedures.

4.3 Local People's Livelihood Expectations from Uranium Mining

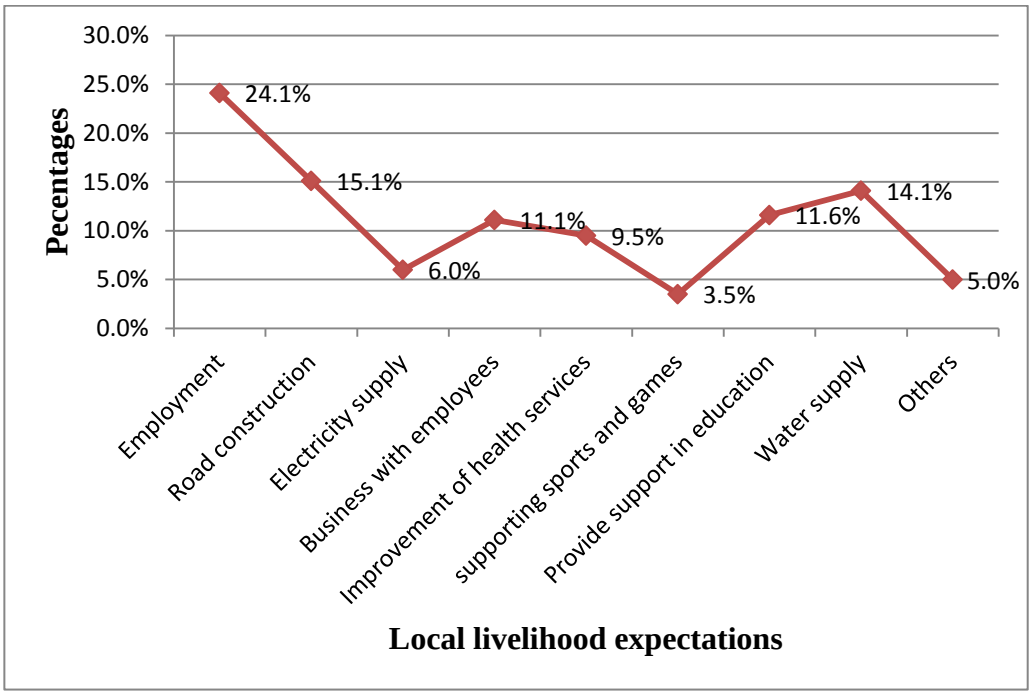

Figure 8: Local People's Livelihood Expectations from Uranium Mining

Source: Field Survey Data, 2016

Understanding the needs and the most urgent needs of the communities you are working with is very important (Musiime, 2013). When respondents were asked to indicate their livelihood expectations from uranium mining, findings from the study indicate diverse range of expectations. Findings indicate that, 24.1% of respondents were expecting uranium mining to provide employment to the local community. 15.1% of respondents expected road construction while 14.1% of the respondents expected provision of water supply. Only3.5% respondents expected support on sports and games (Figure 8).

The result shows that many respondents (24.1%) were in high expectation of being employed by the uranium mining company. This was also evidenced during interview with the key informants whereby 7 out of 10 key informants representing 70% of all key informants indicated expectations on job opportunities from uranium mining.

This has conformed to the study by Oteng-Adjei (2010), who posted that, job creation and poverty reduction are the major expectations in mining areas for general development prosperity. The study also support Fleming and Measham (2014) study, which noted high employment expectation, associated with the boom of coal seam gas in Australia. However, an interview with key informant from the mining company indicated that, employment will not necessarily fall within the locality or even within the same district. Rather, employment cuts across the nation suggesting that mining employment has an impact at national level rather than on local communities.

Infrastructural development was also indicated as one of the local peoples` livelihood expectation in which 15.1% of the respondents are of the opinion that road construction will be improved due to the presence of uranium mining whereas 14.1% of the respondents expect uranium mining company to provide water services to the local community. The FGD also brought to the fore, that there will be infrastructural development in the area. Members had the following views:-

> *"Mining companies do overuse some of their social facilities and infrastructure such as roads and are therefore bound to rehabilitate them thereby enabling farmers to transport their produce to the market and enjoy the regular flow of food produce from other communities" (FGD in Likuyuseka village)*

Plate 1: Research Assistant Conducting FGD at Likuyuseka Village

The results have conformed with the views of Addei *et al*, (2010), that infrastructural development especially road network improvement has always been the dream of many people especially the chiefs. Other livelihood expectations of the inhabitants Likuyuseka ward include doing business with mining employees, support in education and improvement of health services.

4.3.1 Current Benefits Accrued from Uranium Mining Company

Findings indicate that the mining company has supported sports and games as evidenced by 27.6% of the respondents, 24.1% of the respondents reported mining company has provided support on electricity supply in form of solar power aid. 20.7% indicated mining company to contribute to other things such as village noticeboard whereas only 6.9% of the respondents reported that mining company has provided support on water supply in form of boreholes (Table 5). The findings are supported by Kitula (2004), which portrayed mining communities as the beneficiaries of a wide range of new services, including improved access to education and health services.

Table 5: Benefits Accrued from Uranium Mining

Benefits accrued from uranium mining	Responses	
	N	Percent
Educational support	10	11.5%
Support on sports and games	24	27.6%
Water supply	6	6.9%
Electricity supply	21	24.1%
Employment	8	9.2%
Others	18	20.7%
Total	**87**	**100.0%**

Source: Field Survey Data, 2016

About 27.6% of the respondents indicated that mining company has provided support on sports and games. This is contrary to the expectations of the local community whereby almost every visited household were in high demands of

employment, road construction and water supply contrary to benefits currently received from the mining company. This implies that, mining company does not participate with the local communities as it has implemented activities which appeared not on the top priorities of the community as indicated in figure 7. McMahon and Remy (2001) indicated that, sustainable mining is closely related to the local participation of the neighbouring communities so that they can feel as the owners of the project. In particular, it is hard to assess how much the support on sports and game has positively or negatively affected the livelihoods of the local population.

Information from FGD indicated that, local community members were not benefiting from the services provided by the uranium mining company. FGD members had the following views:-

> *"What can the uranium mining company show as its benefits to this community? You see we have no infrastructure, no electricity … the promised benefits are not being realized to our livelihoods"* **(FGD in Mtonya village)**

However, the interview with the mining company key informants revealed that some of the goals have been attained whereby the mining company has been able to construct school laboratory, provision of furniture in Selous secondary school, supply of electricity in form of solar energy to all dispensaries in the ward and they look forward on supporting sustainable project that are vital for social and economic development not only for Likuyuseka residents but for the whole district as well. The mining company key informants added that:-

> *"We have committed a lot to do to the community close to us. But, we cannot accomplish every individual needs. We work for sustainable projects of which they will be beneficial to the community. There is high expectation to people around here and everyone needs to either*

be employed by the mining company or give him/her something" **(Key informant from mining company).**

The views holds true for studies conducted by World Bank Group (2011) which points out that, mining companies provide their communities with direct and indirect employment, skills training, health and educational amenities, improved social and economic infrastructures and support to small and medium business enterprises. The current benefits provided by the mining company are contrary to the people`s expectations and this is an evidence that not all local people`s livelihood expectations from uranium mining can be achieved.

4.4 Mechanisms to Attain Local Communities Livelihood Expectations

Findings indicate that majority (81.8%) of respondents said that, there is no any mechanism in place that ensures local communities livelihood expectations is attained in the area of study. Only 18.2% indicated the presence of mechanisms that ensure the attainment of local people livelihood expectations (Figure 9).

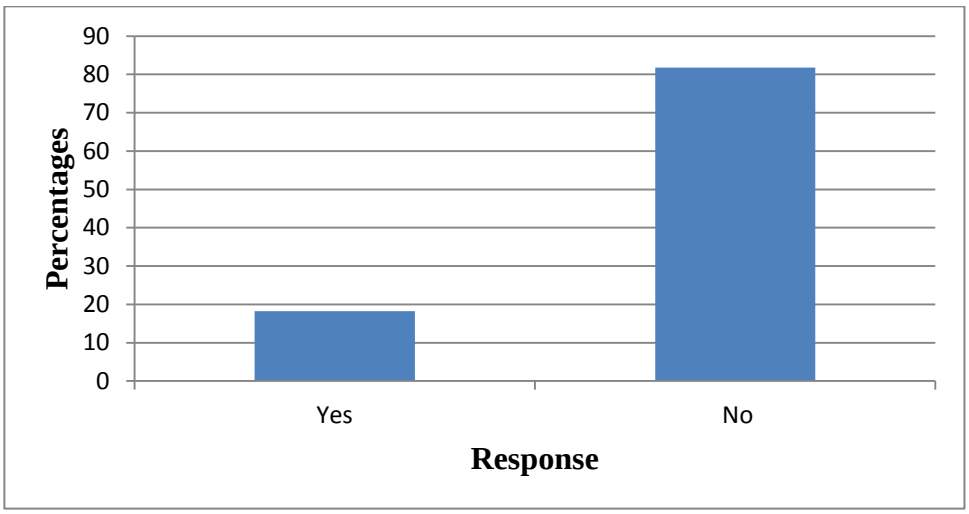

Figure 9: Mechanisms to Attain Local Communities Livelihood Expectations

Source: Field Survey Data, 2016

Few respondents, who indicated the presence of mechanisms that ensure the attainment of their livelihood expectations, mentioned the presence of public meetings, organization of entrepreneurship groups and provision of education about the opportunities associated with uranium mining as the mechanisms to ensure the attainment of their livelihood expectations.

Also an interview with the Ward leader indicated no specific mechanisms to ensure attainment of local communities' livelihood expectations from uranium mining site and demanded the government to put what they should expect on board as a way to ensure attainment of local livelihood expectation as explained in the following statements.

> *"Put us on board now what we should expect. Uranium discovery is something good but if not handled well, people will gain nothing from this opportunity. People expect benefits but they are not seeing them. They expect participation and involvement, but they are not seeing them. And if this is not managed well, the local people will face the consequences with no benefit"* **(Ward leader in Likuyu).**

This is similar to Caselli and Michaels (2013) who found no specific arrangements to distribute mining revenue among mining regions in Chile. However, these views are contrary to the information obtained from an interview with district key informants who had the following views:-

> *"Proper use of uranium revenues in itself is a good start to ensure local livelihood expectation attainment from uranium mining since the revenues will stimulate government projects within the communities and improve social services, or rehabilitate, basic infrastructures"***(Key informants in Namtumbo District)**

These words from district key informants seem to be promising that the local communities will benefit from the uranium revenues because when people start seeing real change in their way of life, they will begin to appreciate the uranium mining companies.

4.4.1 Reasons for lack of Mechanisms to Attain People Livelihood Expectations

Furthermore, respondents were asked to identify the reasons for the lack of mechanisms that ensure attainment of local communities' livelihood expectations. Findings from the study show 34.1% of the respondents indicated poor governance and 34.1% of the respondents indicated the lack of education about the opportunities associated with uranium mining to both local communities and village leaders as reasons for lack of mechanisms that ensure attainment of local people livelihood expectations. 30.6% of the respondents indicated poor communication between the local communities, village leaders and the mining company staff while only 1.2% identified others such as lack of capital as reasons for the lack of mechanisms that ensure the attainment of local livelihood expectations (Figure 10).

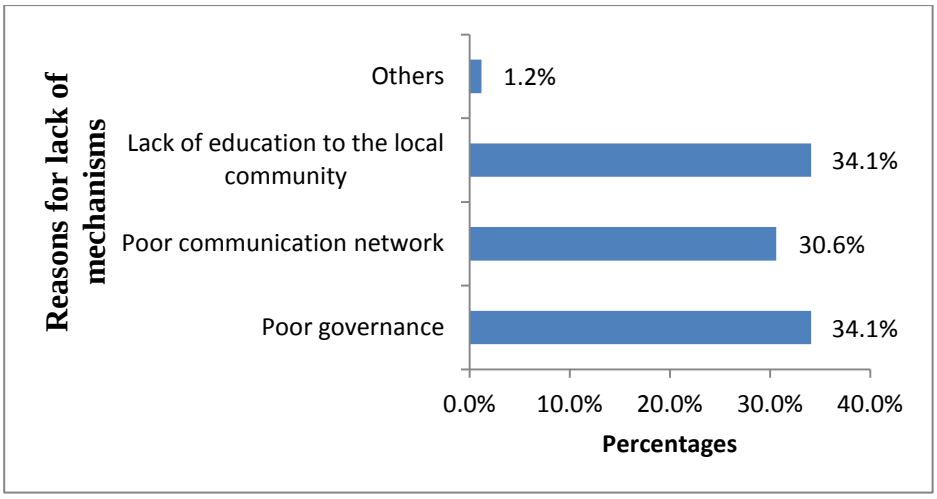

Figure 10: Reasons for Lack of Mechanisms

Source: Field Survey Data, 2016

The most leading reasons for the lack of mechanisms that ensure the attainment of the local livelihood expectations were lack of education, poor governance and poor

communication network between the local communities, village leaders and the mining company staff.

Similar results were also found during FGD in which members identified poor governance, lack of education and poor communication network as reasons for the lack of mechanism that ensures the local people livelihood expectations attainment. The FGD members had the following views:-

> *"There is no proper follow up by the relevant authorities to force the mining company to abide to their commitments. The mining company staff are just passing with their vehicles, they don't even stop to listen to us and no seminars given to us rather than giving posters which are also written in English"* **(FGD in Likuyuseka village)**.

These reasons appear partly because of absence of proper institutional set- up and the relevant authorities have low capacity and lack the mechanisms to force the mining company to abide to their commitments. These views are supported by Caselli and Michaels (2013) who stated that, in the absence of good democratic checks and balances such as communication network, poor implementation of the policies and presence of weak institutions, the resource abundance can fail to significantly improve public good provision and impact people`s livelihood negatively.

4.5 Challenges for the Attainment of Local Communities Livelihood Expectations

Furthermore, respondents were asked to identify challenges that may hinder attainment of their livelihood expectations from uranium mining in the area of study.

Table 6: Challenges that Hinders Attaining Communities Livelihood Expectations

Challenges	Responses	
	N	Percent
Corruption	37	27.4%
Lack of education	54	40.0%
Lack of capital	19	14.1%
Poor communication network	21	15.6%
Others	4	3.0%
Total	**135**	**100.0%**

Source: Field survey data, 2016

Many respondents acknowledged that, there are some challenges in attaining their livelihood expectations and these were; lack of education on the opportunities associated with uranium mining (40%), poor communication network between the local communities, village leaders and mining company staffs (15.6%), lack of capital to entrepreneurs (14.1%), corruption (27.4%) and others (3%) such as broken promises as indicated in table 6.

Lack of education about opportunities of uranium mining was also evidenced during survey whereby majority (85%) of respondents had primary level of education and other were those who never gone to school. An interview with 6 out of 10 key informants representing 60% of the key informants also indicated the lack of education as a challenge that hinders the attainment of local communities' livelihood

expectations from uranium mining. Most of village leaders as key informants had the following views:-

> *"We are being blamed as leaders, yet we know nothing about what is happening in our areas as regards to uranium mining. These people want to fragment us as no seminars or training given to the people of this ward. They have given us these magazines which are also written in English which nobody can read it"* **(Key informants in Namtumbo District).**

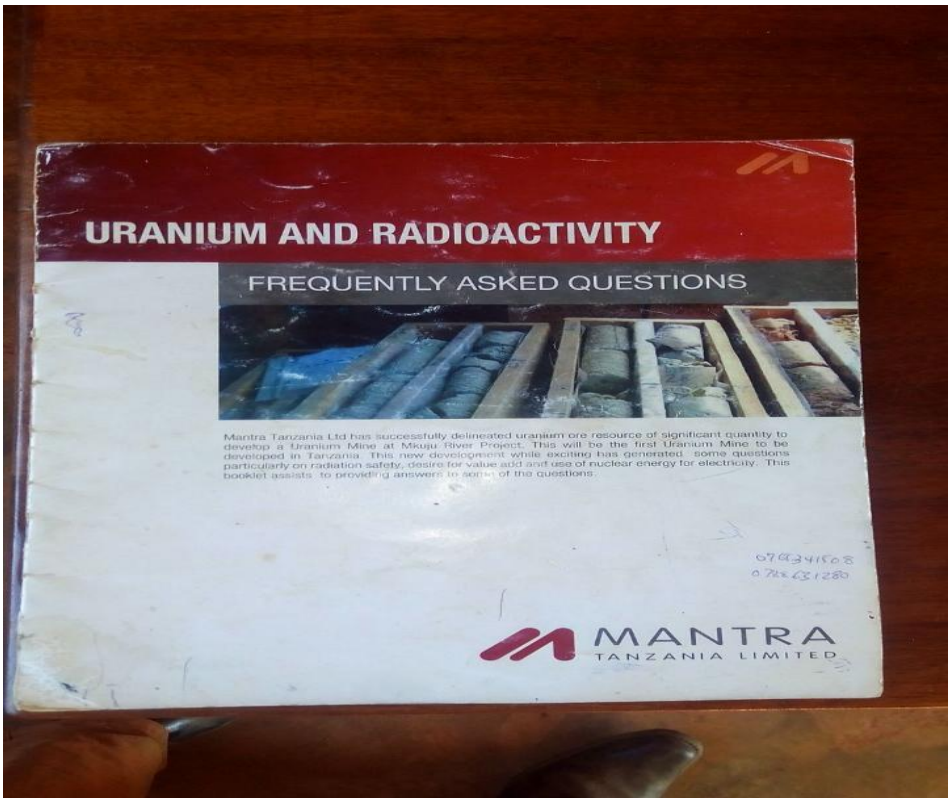

Plate 2: Magazine provided by the mining company to the village leaders

Lack of education as a challenge in attaining the local communities' livelihood expectations is probably attributed by lack of training and absolute poverty in the area of study as most of the respondents were seen to be peasants whose income is low. This is in line with the study done by (Sosy, 2013) who indicated education level, as an important tool, and is needed to stimulate, create, achieve and enhance

active production of mining for development. The higher somebody is educated, the greater the likelihood jumps to mining opportunities and vice versa.

However about 56% of the respondents identified corruption as a challenge that hinders attainment of local communities livelihood expectations from uranium mining (Table 6). Corruption as a challenge was also noticed during Focus Group Discussion where by members reported that, leaders are not honest and must be removed for direct dealings between mine officials and the local communities. Members had the following views:-

> "*There is a fear among the communities that, the revenue from mining companies as a support to our village will not be used to improve their living conditions, and most of it will be "stolen" by government officials" Leaders are not honest. They are corrupt and dishonest. They will take all the aids and leave us with only the remains. The mining company must deal with the local community directly"* **(FGD in Mandela village).**

Probably this is attributed by poor governance or absence of strong institutions. The result is in line with Brollo *et al.,* (2013) who developed a model in which resource abundance increases corruption. This view is also supported by Bhattacharyya and Hodler (2010) who argued that natural resource abundance is associated with the perceived corruption only in countries with a history of non-democratic rule.

Poor communication network between the local communities, village leaders and the mining company staff was also raised as a challenge that hinders attainment of their livelihood expectations as it was reported by 15.6% of the respondents during survey. The right to be informed and the right to be consulted is one of the people's greatest demands (Bebbington, *et al.,* 2008).

Communication in the uranium mining sector is characterised by lack of consultation as the local community either hear about decisions on the third hand without being informed directly by mining officers. This was evidenced during FGD where by members argued that:-

> *"We don't know the arrangements the government has made with the operators in order to attain our livelihood expectation thus we rely on politicians and other individuals for information and sometimes we get incorrect information* **(FGD in Mtonya village).**

Misinformation and exclusion from decision-making processes that affect local people`s livelihoods may feed into high levels of conflict and poor stakeholder relations associated with uranium mining.

Lack of capital as a challenge which hinders meeting livelihood expectations was posed by 14.1% of the respondents. This implies that there is little government intervention on improving livelihood to the people living near to the mining sites. Tanzania Mining Policy covers almost all the possible channels that if implemented would remove one of the problems facing local community of the area of study, i.e. lack of capital. However, most of these have remained commitments on paper, thus exacerbating the problem. This was also noticed during FGD were by members had the view that:-

> *"The Government should set up funds through which local communities can borrow money and pay back with small interest. The funds should revolve in accordance to repayments made by individual borrowers"* **(FGD in Likuyuseka village).**

Although there are a number of micro-finance schemes being implemented in other sectors, the capital intensiveness of the mining projects is not available to the local people living near to the mining sites. This is probably because people living near

the mining sites are seen as highly mobile thus the financial institutions avoid the loss risks.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the synthesized summary, concluding remarks for discussed findings and recommendations that are aimed at addressing the problems identified in the study and suggestions of the areas for the future research projects. The study sought to assess the local people livelihoods expectation from uranium mining in Namtumbo District specifically to the communities living in Likuyu ward. It firstly aimed at finding out the attitude of the local people on uranium mining. It put much focus on assessing the local people livelihood expectations from uranium mining in the area of study. It further examined the mechanism in place that ensures local people livelihood expectations attainment from uranium mining. Also the study identifies the challenges that might be hindering attainment of local communities' livelihood expectations from uranium mining in the area of study.

5.1 Summary of the Key Findings

The demographic characteristic of the study location indicate variety of socio-economic activities the household members engage in area of study. This include agriculture specifically crop faming, petty business, public employment and livestock keeping. The study found a most productive age group (18 – 50) in which majority (89%) of them were married. The study revealed that 77% of the respondents have attained primary education level, which does not provide good opportunity for local communities to venture on various opportunities associated

with uranium mining that could contribute to improve people's livelihoods in the area of study.

Regarding to attitude of the local community towards uranium mining the findings indicates that, local communities living near to uranium mining site have negative attitude towards uranium mining. The negative attitude towards uranium mining is mostly associated with insufficient growth of micro-enterprises, lack of training and accuse of the mining company on exacerbating conflicts.

Furthermore the study revealed diverse local livelihood expectations from uranium mining. Many respondents express high expectations of securing employment in the uranium mining company, improvement of infrastructures such as roads, water and electricity supply, provision of support in education and improvement of health services. However, the current benefits associated with mining company are contrary to local community expectations. Mining company has only managed to support on sports and games, support on electricity supply in form of solar power aid and other things such as noticeboard.

The study also found absence of the mechanisms that ensure attainment of local people`s livelihood expectations as it was reported by 81.8% of the respondents in the area of study. This has been due to lack of education about the opportunities associated with uranium mining to both local communities and village leaders. Other reasons noted were poor communication between the local community, village leaders and the mining company staff together with poor governance.

Moreover the study identified some challenges that may hinder attainment of local communities' livelihood expectation from uranium mining. Large number of the respondents (40%) acknowledged lack of education about the opportunities associated with uranium mining as a challenge to meet their livelihood expectations. Other respondents reported poor communication network between the local communities, village leaders and mining company staff as a challenge facing while consider lack of capital, corruption and failure for the uranium mining company to keep their promise to local communities as a big challenge.

5.2 Conclusion

The study found unfavourable attitude of the local communities towards uranium mining. This has been due to divergence of opinions on the expectations of uranium mining to their livelihoods.

Furthermore the study revealed a diverse local livelihood expectations from uranium mining in which many respondents were in high expectation of being employed by the uranium mining company regardless their level of education. Other local people expected uranium mining company to provide water services to the local community, road construction supply of electricity, support in education and improvement of health services. The current benefits offered by the mining companies appeared to mismatch with the local people livelihood expectations. Generally uranium mining company in the area of study has failed to meet most of the expected benefits by the community members.

The study revealed absence of mechanisms to ensure attainment of local communities' livelihood expectations from uranium mining. This is attributed by

lack of education about the opportunities associated with uranium mining to both local communities and village leaders and poor communication between the local community, village leaders and the mining company staff.

The main challenges that hinder attainment of local communities' livelihood expectations from uranium mining in the area of study are lack of capital, corruption, lack of education about the opportunities associated with uranium mining and poor communication network between the local community, village leaders and mining company staff. These challenges have been due to poor governance or absence of strong institutions, lack of training and absolute poverty in the area of study.

5.3 Recommendations

The study recommends for the government to increase awareness through provision of education and seminars. Also uranium mining companies should provide compensations for the lost benefits associated with land use changes.

Government and uranium mining companies need to manage the diverse expectations of the local communities by establishing and sustaining dialogue with the communities so as to ensure timely and thoughtful mitigation measures are put in place.

Also the government and the mining companies should ensure that full participation are made with the local communities in order to make sure that local people`s livelihood expectations are given consideration in the provision of essential development projects, social services to sustain the livelihoods of local communities near uranium mining activities.

In addition to that, the government should promote training to the local communities through the mechanism of VETA (Vocational Education and Training Association) so that local communities can benefit from the opportunities associated with uranium mining. The proposed programme should aim at ensuring that trainees select modules of their interest to address their specific needs and should place emphasis on 'hands-on' training.

Lack of capital appeared to be a challenge that may hinder the local communities in attaining their livelihood expectations. NGOs and financial institutions should be encouraged to set-up schemes, as stipulated in the mining policy strategies for promoting local communities livelihoods living around the mining sites. Encouragement for these institutions to invest in the sub-sector can be achieved through provision of data that reflect the potential of the sector and its ability to contribute towards poverty alleviation.

Regarding to the mechanisms which can ensure livelihood expectations attainment, the government through local government can create plat form to ensure that local communities around mining areas, have opportunity to negotiate for the kind of development which is most preferred. This can be done by strengthening a link between majority of the community, village leaders and uranium mining company officials in the area of study.

5.4 Suggestions for Further Research

Uranium mining is blamed to have health effect to the life of local communities, therefore further studies should investigate the effects of uranium mining on people`s health.

Further studies are needed to cover the impact of what has been recommended in this study to the livelihoods of the local communities.

REFERENCES

Addei, I., Addei, C. and Broni-Bediako, E. (2010). The Oil and Gas Find at Cape Three Points Expectations of the People in Neighboring Communitie. First Biennial UMaT International Conference on Mining & Mineral Processing. *Expanding the Frontiers of MiningTechnology*, (pp. 1-12). Tarkwa, Ghana.

Ankoma-sey. (2014). *Local Level Participation in the Design and Implementation of Corporate Social Responsibility Projects in the Prestea/Huni-Valley District In the Western Region of Ghana.*

Aragon, F. M., Pole, P., and Christopher, B. (2014). *The Local Economic Impacts of Resource Abundance:Theory and Evidence.*

Auty, R. (1993). *Sustaining Development in the Mineral Economies : The Resource Curse thesis.* London: Routledge.

Auty, R. (2001). Resource Abundance and Economic Development. *Journal of Economic Growth*, 155 - 194.

Awudi, G. (2002). The Role of FDI in the Mining Sector of Ghana and the Environment Friends of the Earth Ghana. *Resource Policy Journal*, 95 - 104.

Babbie, E., and Mouton, J. (2001). *The Practice of Social Research.* Cape Town: Oxford University Press.

Bandula, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory.* Englewood Cliffs: NJ: Prentice Hall.

Bategeka, L., Kiiza, J., and Ssewanyana, S. (2009). Oil Discovery in Uganda. *Managing Expectations Economic Policy Research Centre Makerere University*, 80-82.

Bebbington, A ., Hinojosa, L., Bebbington, D. H., Burneo, M.L. and Warnaar, X. (2008). Mining and the Possibilities of Development and Change. *Contention and Ambiguity*, 18-19.

Bentil, G., and Lawson, E.T. (2013). *Shifting Sands: Changes in Community Perceptions of Mining in Ghana.* Springer.

Besley, T., and Burgess, R. (2002). "The Political Economy of Government Responsiveness: Theoryand Evidence from India,". *The Quarterly Journal of Economics 117 (4)*, pp. 1415–1451.

Bhattacherjee, A. (2012). *Social Science Research: Principles, Methods, and Practices.* USA: University of South Florida.

Binala, J. (2014). Tanzania Seals New Tax Deal with Mining Firms. *Economic Policy Research Centre journal*, 20-21.

Boon, E.K., and Ababio, F. (2009). *Corporate Social Responsibility in Ghana: Lessons from the Mining Sector.*

Boschini, A., Pettersson, J., and Roine, J. (2007). Resource Curse or Not: A Question of Appropriability. *Scandinavian Journal of Economics 109,* pp. 593-617.

Brollo, F., Nannicini, T., Perotti, R., and Tabellini, G. (2013). The Political Resource Curse,". *The American Economic Review*, 103 (5), 1759–1760.

Burns, N., and Grove, S. (1995). *Understanding Nursing Research.Philadelphia.* USA: W.B.Saunders Company.

Burns, N., and Grove, S.K. (2003). *The Practice of Nursing Research: Conduct, Critique and Utilization.* Philadelphia: WB Saunders.

Caselli, F., and Michaels, G. (2013). "Do Oil Windfalls Improve Living Standards? Evidence from Brazil. *American Economic Journal: Applied Economics 5 (1),* PP.208–238.

CESOPE. (2011). *Uranium Mining – what does it mean for Tanzania?* Dodoma: Dar es salaam university press.

Chambers, R and Conway, G.R. (1991). *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century.* Institute of Development Studies.

Chareyron, B. (2008). *Radiological Hazards from Uranium Mining.* Springer-Verlag Berlin: Heidelberg.

Cohen, D. Manion, L. Morrison, K. (2000). *Research Methods in Education.* London: Routledge Falmer.

Collins, K., Douglas, K., Warren, J., Kann, C., Gold, L., Clayton, R., Ross, S., and Kolbe, J. (2005). Results from the 1995 National College Health Risk Behaviour Survey. *Journal of American College Health46(2),* pp.55-66.

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

Dawson, C. (2002). *Practical Research Method.* Oxford: British Library Cataloguing.

DESASD. (2005). *Household Sample Surveys in Developing countries.* New York: United Nations Publications.

Fleming, D. A. and Measham, T.G. (2014). "Local Economic Impacts of an Unconventional Energy Boom: the Coal Seam Gas Industry in Australia,". *Australian Journal of Agricultural and Resource Economics,*, 87-88.

Frey, L. (1997). *Investigating Communication: An introduction to Research Methods.* New Jersey: Prentice-Hall Inc.

Garvin, T., McGee, K., Smoyer-Tomic, E and Aubynn, E. A. (2009). Community-Company Relations in Gold Mining in Ghana. *Journal of Environmental Managem ent 90*, pp. 571–586.

Gwiarda, J. (2011). *The Association of Education and Occupation with Myppia in Comet Parents*. Retrieved 06, 25, 2016, from http://www.ncbi.nlm.nih.gov/pcm

Havel, V. (1996). *The World Bank Participation Sourcebook.* Retrieved June 20, 2016, from http://www.worldbank.org/wbi/sourcebook/sb0100.htm

Heinrich, S. (2003). *The Challenges of Change. Improving Resource Governance in Africa.*

Hilson, G. (2002). The Environmental Impact of Small Scale Mining in Ghana. Identifying problems and possible solutions. *The Geographical Journal, Vol., 168*, pp. 55-72.

ICMM. (2006). *The Challenge of Mineral Wealth using Resource Endowment to Foster Sustainable Development. International Council on Mining and Metals.* London: Earth Negotiations Bulletin International Ltd New Delhi.

IPPNW. (2013). *Uranium-Mining: Impact on Health and Environment.* Dar Es Salaam and Bahi /Dodoma.

Julita, N and Hambati, H. (2014). *Integrating Traditional and Modern Knowledge Systems in Improving Agricultural Productivity in Upper-Kitete Village, Tanzania. Research Report 14/3.* Dar es Salaam: REPOA.

Kent, D.W., and Mushi, P.S.D. (1997). *The Education and Training of Artisans for the Informal Sector, In: Josephat, K.M. (2009). A dissertation submitted in fulfillment of the master degree in Rural Development of Sokoine University.37-40pp.*

Key, J. (2011). *Research in Occupation Education.* Retrieved June 03, 2016, from: http://www.okstateedu/ag/agedcm4h/acadec/aged

Kitula, A. (2004). The Environmental and Socio-Economic Impacts of Mining on Local Livelihoods in Tanzania: A case study of Geita District. *Journal of Cleaner Production*, pp. 3 - 4.

Kombo, D. and Tromp, D . (2006). *Proposal and Thesis writing: An introduction.* Pauline‟s.

Kothari, C. R. (2004). *Research Methodology. Method and Technologies.* Ansari Road, Daryaganj, New Delhi: New age International (P) L.t.d.

Kothari, C. R. (2007). *Research Methodology.Method & Technologies (second edition).* Ansari Road, Daryaganj, New Delhi: New age Internationa (P) L.t.d.

Krueger, A. (2004). *Focus group: A practical guide for Applied Research.* Thousand .

Kulindwa, K., Mashindano, O., Shechambo, F. and Sosovele, H. (2003). *Mining for Sustainable Development in Tanzania.* Dar es salaam: Dar es Salaam University Press:.

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

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

Leedy, P. (1997). *Practical Research: Planning and Design*. Upper Saddle River: NJ: Prentice Hall.

Lei, Y., and Michaels, G. (2011). *"Do Giant Oilfield Discoveries Fuel Internal Armed Conflicts?" Technical Report 6934, CEPR Discussion Paper Series.*

Lucie C.P., Semboja, H., and Shukla, G.P. (2001). *Tanzania Precious Minerals Boom: Issue in Mining and Marketing.* Washington D.C.

Mabikke, S. (2012). *Africa's Wealth of Resources, Blessing Or Curse*. Vorlage: Datei des Autors.

Magai, P., and Márquez-Velázquez, A. (2011). *Tanzania's Mining Sector and Its Implications for the Country's Development.*

Maliganya, W., Moyo, S., Simon, G., and Paul, R. (2013). *Large Scale Mining Activities and the Livelihood of Adjacent Communities in Tanzania: A Case of Geita Gold Mine.* Dar es salaam: REPOA.

Mark, C. and Lissu, T. (2008). *A Golden Opportunity? How Tanzania is Failing To Benefit from Gold Mining.*

Mbogoro, D and Mwakipesile A (2012). Economic and Ecological Research of Bahi Swamp. The University of Dodoma, Dodoma, Tanzania.

Mbunda, J. (2015). *Contribution of Gmelina arborea Tree species in Combating Defforestation in Namtumbo district.*

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

Mensah, V. (2009). *The Role of Corporate Social Responsibility on Sustainable Development : A case study of the Mining Community in the Obuasi municipality.*

Merkel, B. (2002). *Uranium in the Aquatic Environment.* Berlin: Springer-Verlag.

Meyer, E. (2015). *An Introduction to Content Analysis.* Retrieved June 03, 2016, from http://writting.colostate.edu/guides/page.cfm?pageid=61

Ministry of Energy and Minerals. (2006). *Mineral Sector Overview.* Retrieved January 20, 2016, from http://www.mem.go.tz/minerals/index.php.

MMSD, and ILO. (2002). Artisanal and Small-Scale Mining: Mining, Minerals, and Sustainable Development. *Breaking new ground journal*, pp 43.

Musiime, C. (2013). *Managing the Expectations of Host Communities in Oil-Rich Areas.* Retrieved January 26, 2016, from: http://www.oilinuganda.org

Mwaipopo, R., Mutagwaba, W., and Nyange, D. (2004). *Increasing The Contribution Of Artisanal and Small-Scale Mining Livelihoods to Poverty Reduction in Tanzania. Based On Analysis Of Mining in Misungwi and Geita District.*

Mwalyosi, B. R. (2004). *Impact Assessment and the Mining Industry: Perspectives from Tanzania IAIA'04, Vancouver, Canada. [http://www.aia.org/Non Members/Conference/] site visited on 12/03/2016.*

Nela, L. (2013). *Challenges of Promoting Number of Deliveries in Health Facilities in Namtumbo District, Tanzania.*

Netshikweta, M. (2007). *Knowledge, Perceptions and Attitudes Regarding Contraception Among Secondary School Learners in the Limpopo Province.* Johanesberg: University Of South Africa.

Nicolas, D. (2012). *Uranium Mining in Africa: A Continent at the Centre of a Global* . Nairobi: Nuclear Renaissance Oaks, Sage Publication Africa.

Nyoni, H. (2008). *Assessment of the Environmental Impactof Dark Fire Tobacco Farming in Songea Rural District.* Retrieved 06, 25, 2016, from http://www.taccire.suanet.ac.tz/xmlui/bitstream/handle/123456789/277/clere nce%20

Oteng-Adjei, J. (2010). Managing Energy, Oil and Gas Development for Growth. Africa Investment Forum. *Accra International Conference,* (pp. 4-6). Ghana.

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

Polit, D.F., and Hungler, B.P. (2004). *Essentials of Nursing Research: Methods, Appraisal and Utilization. 2nd edition.* Philadelphia: JB Lippincott.

Poncian, J. (2015). *Mineral Extraction for Socio-Economic Transformation of Tanzania: The Need to Move from Papers to Implementation of Mining Policy and Law.*

Putzel, J., Lindemann, S., and Schouten, C. (2008). *Drivers of Change in the Democratic Republic of Congo: The Rise and Decline of the State and Challenges for Reconstruction.* London: Crisis States Research centre.

Rosenfeld-Sweeting, G., Amy, S., and Andrea, P.C. (2000). *Lightening the Lode: A Guide to Responsible Large-Scale Mining.* Washington, D.C: Conservation International.

Sachs, J. and Warner, A. M . (2007). *Natural Resource Abundance and Economic Growth Center for International Development and Harvard Institute for International Development.* Cambridge: Harvard University.

Saris, L. (2007). *Design, Evaluation and Analysis of Questionnaires for Survey Research.*

Saunders, M. Lewis, P. Thornhill, A. (2004). *Research Methods for Business Studies.* New York: Pearson education.

Schwartz, W. Caro, T. and Sakala, T. (2002). *Assessing the Sustainability of Harvest of Pterocarpus angolensisin Rukwa Region, Tanzania. Forest Ecology and Management* .

Sherbourne, R. (2012). *Mining and the Namibian Economy.*

Shindondola-Mote, H. (2009). *Uranium Mining In Namibia. The Mystery Behind 'Low Level Radiation.*

Sosy, J. (2013). *Socio-Economic Constraints among Local Artisanal Miners in Simanjiro District, Tanzania.*

Tambwe, A. (2008). *Tanzania Losing out on Minerals. The African News Paper, Issue No.3225.*

Tandari, C. K. (2002). *The National Poverty Eradication Strategy. Political Handbook & NGO Calendar 2002.* Tanzania: Friedrich Ebert Stiftung.

Tapio, L., Barry, D., and Kari, M. (2014). *The utmost ends of the Nuclear Fuel Cycle: Finish Perceptions of the Health Risks of Uranium Mining Nuclear Waste Management.*

TEC, BAKWATA and CCT. (2012). *Uranium Mining in Tanzania: Are we Ready? Community Scoping Study in the Exploration Areas and the Legal Framework.*

Thomson, K. (2009). *Development Policies, State Interventions and Struggles for Livelihood Rights in Coastal Communities in Kerala, India: A case study of the Cochin clam fishery. Ocean and Coastal Management.*

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

United Nations. (1995). *The Copenhagen Declaration and Programme of Action, New York.*

United Republic of Tanzania . (1995). United Republic of Tanzania's Constitution of 1977 with Amendments through 1995.

United Republic of Tanzania. (2009). *The Mineral Policy of Tanzania. Ministry of Enegy and Minerals. Dar es Salaam, Tanzania.*

United Republic of Tanzania. (2005). *Tanzania Poverty and Human Development Report. The Research and Analysis Working Group.* Dar es salaam: Mkuki na Nyota Publishers.

United Republic of Tanzania. (2007). *An Overview of Village Land Act, no. 5 of 1999 presented at a workshop on Tanzania`s Property and Business Formulation.* Handen.

United Republic of Tanzania. (2010). *The Mining Act 2010. United Republic of Tanzania, Dar es Salaam.*

Veiga, S., Scoble, G and McAllister, A. (2001). *Mining with Communities. Natural Resources Forum.*

Visser, E., Holleman, L., and Caro, S. (2009). *Survey Research.* Retrieved May 30, 2016, from http://www.Amstat.org/section/srms/pamphlets

Weidlich, B. (2008). *Nuclear Giants Target Namibia as their Playground as Companies Exploit Namibia`S Rich Uranium Endowment, The Green Lobby Warns of Detrimental Effect to the Ecology.*

World Bank. (2011). *Mine Closure and Sustainable Development. Proceedings of a workshop organized by the World Bank Group, Mining Department, and the Metal Mining Agency of Japa.* London: Mining Journal Books.

Yeboah, W. (2008). *Environmental and Health Impact Of Mining On Surrounding Communities in Anglogold Ashanti in Obuasi.*

Yelpaala, L. and Ali, H. (2005). *Multiple Scales of Diamond Mining in Akwatia, Ghana Addressing Environmental And Human Development Impact. Resources Policy.*

Yin, R. K. (2003). *Case Study Research: Design and Methods.* Sage: Thousand Oaks.

APPENDICES

Appendix A: Questionnaires for Household Members

Village---------- Date----------

I would be grateful if you can offer me a truthful answer to the questions posed to help my investigation on uranium mining and local people livelihood expectations. The information is needed for purely academic purpose and its confidentiality is assured. Thanks in advance for your time and effort

SECTION A: SOCIAL DEMOGRAPHIC INFORMATION

Tick one out of the given answers

1. What is your current age?

a) Below 18

b) Between 18 – 30 years

c) Between 31 – 50 years

d) Between 51 – 60 years

e) Above 60 years

2. Sex of respondents?

a) Female

b) Male

3. What is your marital status?

a) Single

b) Married

c) Divorced

4. What is your highest level of education? (Tick only one)

a) None

b) Completed primary school

c) Completed secondary school

d) College

e) Others (specify…….)

5. What are the main sources of your income? (Tick the appropriate answer)

a) Formal employment

b) Petty trade

c) Livestock keeping

d) Agriculture

e) Others (specify)…….

6. What is your originality?

a) Born here

b) Shifted from other place

SECTION B:

Attitudes of the Local Communities on Uranium Mining

7. How long have you been in this village?

a) 1 – 5years

b) 6 – 10 years

c) More than 10 years

8. Are you aware about uranium mining activities in this ward?

a) Yes

b) No

9. If yes, what kind of knowledge/awareness do you have about uranium mining activities in this ward?……
……
……
……
…

10. Rank on the importance of uranium mining company to your livelihood (Tick on one part)

1- Very useful 2- useful 3- un useful 4- very un useful

Indicate on the scale how strongly you agree or disagree with the statements.

No.	Sentence	Strongly agree	Agree	Disagree	Strongly disagree
.	Uranium mining adversely affect your livelihood e.g. loss of livelihood assets such as land				
.	Uranium mining company provide training on this				

community

. Uranium mining results to the growth of micro-enterprise activities

. Mining activities results into conflicts between mining companies and the local community

Local People's Livelihood Expectations

15. Do you think presence of uranium mining in this ward will contribute improvement of people`s life in your area?

a) Yes

b) No

16. How will the presence of uranium mining contribute to improvement of people life in your ward?

……

……

……

……

17. Does those you have just mentioned already contributed by uranium mining company in this ward?

a) Yes

b) No

18. Mention current benefits which you think have been contributed by the presence of mining?

……

……

……

……

Mechanisms that Ensure Achievement of Local People Livelihood Expectations

19. Are there any mechanisms in place that ensure involvement of local people in various activities related to uranium mining in this ward?

a) Yes

b) No

If you answered "YES" to question 18, please proceed to question 19 and if you answered "NO" go to question 21

20. Which mechanisms in place that ensure involvement of local people in the mining sector?……..,……
…
……
…
……
.
……
.

21. Which mechanism do you think is successful in ensuring that people are involved and
why?……
……
……
……
……

22. Why there is no mechanism to ensure involvement of local people in mining sector and attainment of their livelihood expectation?
……
……
……
……

Challenges that might be Hindering in Attaining Peoples Livelihood Expectation

23. What are the challenges that might be hindering local people to meet their livelihood expectation from mining company in your area?

……

……...……

……...……..……

……

……

24. What should be done to ensure attainment of local people`s livelihood expectations from uranium mining sector?

Appendix B: Interview Guide for Key Informants.

Dear Sir/Madam, I`m a student from the university of Dodoma, I`m conducting the research on uranium mining people`s livelihood expectations in Namtumbo District. The under listed questions have been set to provide the researcher with the answers towards the study. To make the study successful, please I beg for your cooperation. Please answer the questions based on your knowledge and the responses will be confidential and for academic purposes only.

Date of interview……number…….
Name of organization……
Title/ Position……

1. Will uranium mining enhance the livelihoods of the household in general?
2. May you please give reasons for your answer?
3. Can you mention some of expected enhancement opportunities?
4. In your views do you think that uranium mining will impact negatively on the livelihoods of local community?
5. Can you explain why?
6. How will the impacts affect the livelihood and general well-being of households?
7. Are there any mechanisms in place that ensure local people livelihood expectations are achieved? If yes what are they? If the answer in is NO, why?
8. Which mechanism do you think is successful to ensure that people are involved and why?
9. Are there any challenges that might be hindering local people to meet their expectation from mining company in your area? What are they?
10. What should be done in order to ensure achievement of that local people`s livelihood expectations from uranium mining sector?

Thank you for your time and participation in this research project

Appendix C: Checklist for Focus Group Discussion

1. Do you have any idea about mining activities in this ward?
2. Is uranium mining helpful to the people`s livelihood? How/ why not?
3. Are there any mechanisms in place that ensure local people are involved in various activities related to uranium mining? What are they? / Why not?
4. What are the challenges that might be hindering local people to meet their expectation from mining company in your area?
5. What should be done to ensure that, local people`s expectations are met from uranium mining sector?

Thank you for your time and participation in this research project

Appendix D: Focus Group Confirmation Letter

May 10, 2016

Dear _____,

Thank you for your willingness to participate in our focus group discussion. As discussed on the phone, we would like to hear your ideas and opinions on local livelihood expectations from uranium mining and if benefits associated with mining companies meet local people's livelihood expectations. You will be in a group with 6 to 9 other household members. Your responses to the questions will be kept anonymous. Incentives may be given at the end of the focus group discussion. The date, time, and place are listed below. Please look for signs once you arrive directing you to the room where the focus group will be held.

DATE …….

TIME …….

PLACE……

If you need directions to the focus group or will not be able to attend for any reason please call 0753713195 at any time. Otherwise we look forward to seeing you.

Sincerely,

Researcher

Appendix E: Consent to Participate in Focus Group Discussion

You have been asked to participate in unsponsored focus group discussion but incentives may be given. The purpose of the group is to investigate and understand local livelihood expectations from uranium mining and the extents benefits associated with mining companies meet local expectations.

The information learned in the focus groups will add information to policy and decision makers in mining sectors so as to find better way of reconciling people`s expectations when entering into contracts with mining companies.

You can choose either to participate or not in the focus group and stop at any time. Although the focus group will be tape recorded, your responses will remain anonymous and no names will be mentioned in the report.

There is no right or wrong answers to the focus group questions. We want to hear many different views from everyone. We hope you can be honest even when your responses may not be in agreement with the rest of the group. In respect for each other, we ask that only one individual speak at a time in the group and that responses made by all participants be kept confidential.

I understand this information and agree to participate fully under the conditions stated above:

Signed:_____

Date:_____