

UNIVERSITY OF GHANA, LEGON

INSTITUTE OF STATISTICAL, SOCIAL AND ECONOMIC RESEARCH (ISSER)

**SMALLHOLDER FARMERS' UPTAKE OF INITIATIVES TO MITIGATE THE
LIVELIHOOD EFFECTS OF CHANGING LAND USE PATTERNS IN THE
ABOKOBI MUNICIPALITY**

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**This dissertation is submitted to the University of Ghana, Legon in partial fulfillment of
the requirement for the award of a Master of Arts Development Studies degree**

MARCH, 2016

DECLARATION

I hereby declare that with the exception of identified quotations and references to other people's work which has been duly acknowledged, this work is entirely the result of my own research and it has neither in part nor whole been presented for another degree.

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Date



DEDICATION

I dedicate this work to my husband, Asomani K. Nyarko for his encouragement and support throughout the process. A special gratitude also goes to my sister-in-law, Philomena Adomako, who consistently spent time and effort to check on push for completion.



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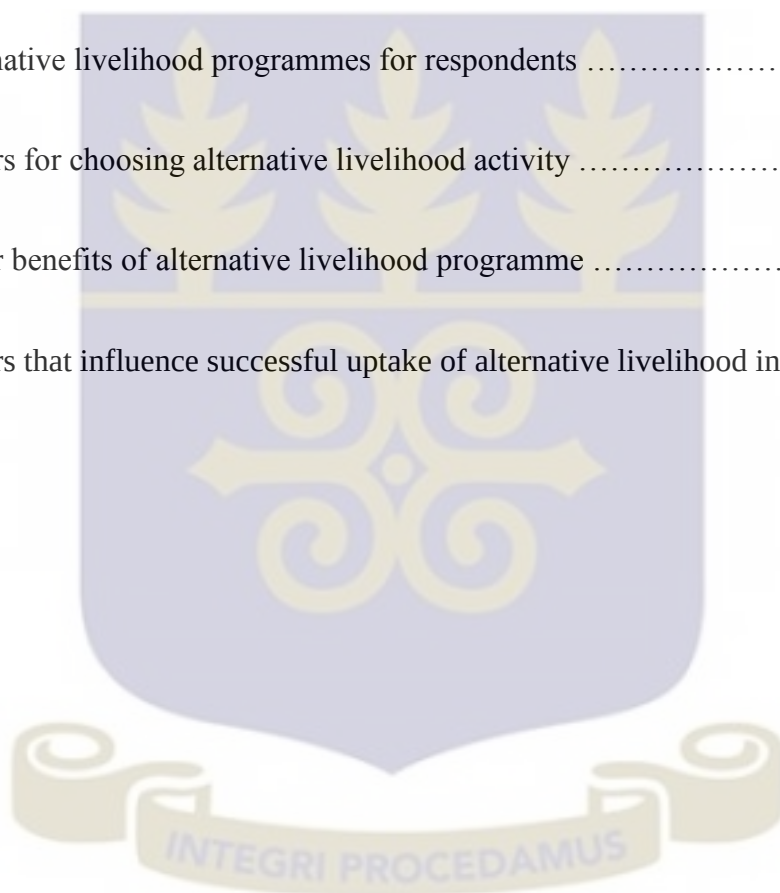
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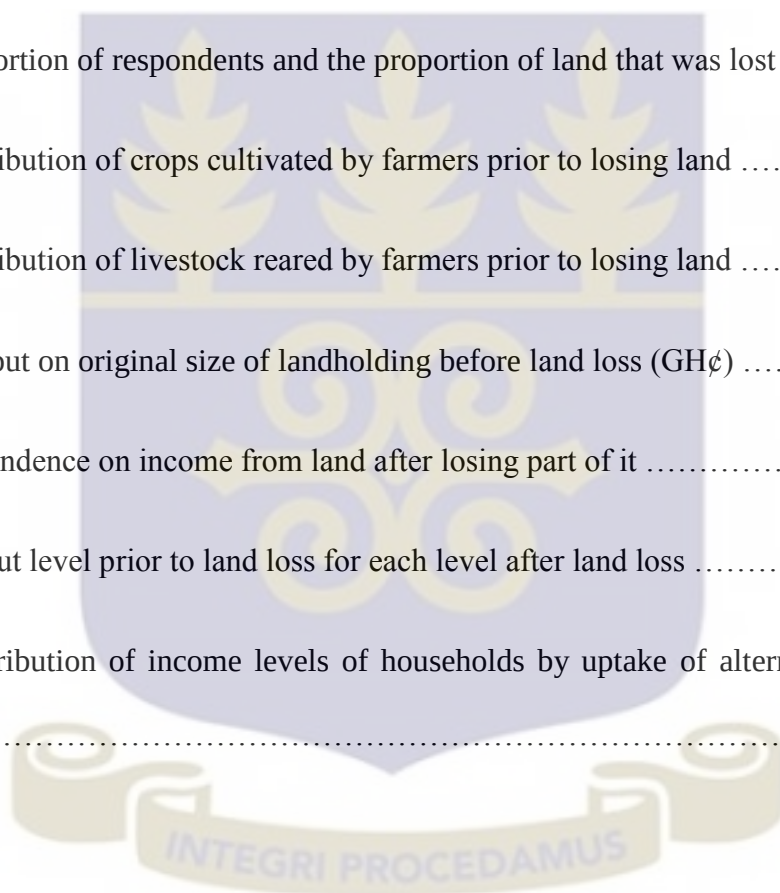
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ABSTRACT

Small-holder farmers in the urban and peri-urban areas have become very vulnerable to land use change patterns due to rapid increase in population and urbanization. Farmlands are gradually being converted to residential facilities, posing significant threat to the livelihood of farmers who depend on such lands. Land use change at Abokobi dates back to the 2004, but the phenomena became more pronounced in 2008 when the Ga East District attained municipal status. With support from the Department of Agriculture, small-holder farmers in Abokobi were offered alternative livelihood programmes in livestock and high yielding crop varieties and non-traditional farming practices under the Heifer Project. This study sought to assess the extent of farmer uptake of the alternative livelihood support programmes. Mixed approaches of qualitative and quantitative methods were used to engage 100 farmers in a survey whiles 12 others were engaged in a focus group discussion. Three project officials were engaged in an in-depth interview.

The findings revealed that farmlands were increasingly being sold to estate developers leading to a reduction in farm size, output and income. Of the 100 farmers in the survey, 49 were under the Heifer project, 33 were engaged in their own alternative livelihood activities and 18 were not engaged in any livelihood activity. Those with successful uptake of the Heifer programme had higher income relative to those who did not adopt. The factors that influenced successful uptake of the alternative livelihood programmes were expectation, incentive and benefits from the programme, educational level, age and household size of farmers. The study recommended that providers should engage farmers before introducing them to alternative livelihood programmes, proper and efficient planning of urban areas with much consideration for the preservation of space for agriculture should be considered and continuous education of farmers in peri-urban areas not to depend only on farming.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Changing land use patterns have assumed greater dimensions and raised major concerns at the global, national and local levels. Land use change takes place on a continuum and is manifested in the conversion of horticultural land to livestock holdings, regarded as minor change, the conversion of agricultural land to residential, regarded as medium change, and a conversion involving heavy investment which is seen as very significant. Recent urban planning favours real-estate-led development over land uses such as agriculture (Allen et al., 2014).

At the global level, studies point to population growth, rapid urbanization, increased economic activities and climate change as the major causes of land use change as reported by the fifth Global Environment Outlook (UNEP, 2012). An earlier report also attributes global land use change to increased demand for water, waste disposal, demand for food and unsustainable use of land (UNEP, 2007). Similar views are held by Dale and Haeuber (2000) that the need to provide food and shelter among other basic human needs are factors affecting land use change. The different dimension of impact of land use change indicates that actual effects and concerns differ from place to place. Haller (2013) argues that there exist both positive and negative impacts of rural-urban land use change. His study of land use change in Peru identifies infrastructure investment derived from urbanization as a positive result. On the other hand, his perceptions' analysis found that the decrease in fertile and irrigated agricultural land was a threat to "subsistence, food and income security" (Haller, 2013: pg 1).

As in other cases, land use change in Ghana has been attributed to a number of factors, including climate change (Gyasi et al, 2006), environmental degradation (Yorke and Margai, 2007), and population growth and urbanization (Owusu, 2008). Studies have emphasised the impact of population and rapid urbanization on land use change. From a figure of 9% recorded in 1931, Ghana's urban population was estimated at 50.9% in 2010 (Ghana Statistical Service, 2012). Some of the research has also identified both positive and negative effects of land use change. Gyasi (1994) found that one of the economic benefits of turning communal land into oil palm farming is increased income. On the other hand small-holder farmers - indigenes and migrants - have and continue to lose their source of livelihood, and as a result, they are deprived of the source of their economic activities, especially in peri-urban communities. As well, the emergence of land markets in such communities due to the scarcity of land in the centre creates wealth for traditional leaders, heads of families, clans and individuals but also deprives small-holder farmers of their livelihood. Owusu (2008) explains that there are two different schools of thought with regards to the impact of land use change. The phenomenon either creates land markets and promotes individual property rights or deprives farmers of agricultural livelihood without alternative economic activities. In effect, small-holder farmers in peri-urban areas have been one of the hardest hit by increasing economic activities such as the springing up of small-scale industries for the production of water and real estate development. Small-holder farmers, most of who own not more than two hectares of land (Chamberlain, 2007) have also lost all or part of their source of livelihood to real estate development through the sale of lands resulting from the spillover of urban sprawl (Owusu, 2013). Furthermore, illiterate and unskilled farmers affected by changes in land use in peri-urban communities have limited alternative sources of livelihood (Owusu, 2008).

Livelihood is defined as “the means of gaining a living” (Chambers, 1995, VI). According to Scoones (2009), the loss of livelihood refers to loss of occupation whether in rural or urban communities. The literature on livelihoods is often linked to the concept of sustainable livelihoods and alternative livelihood strategies which are used interchangeably and seek to provide interventions for the vulnerable in society along with small-holder farmers and rural communities whose very existence is often threatened by both internal and external factors, including land use change (Hilson and Banchirigah, 2009). Alternative livelihoods are defined as either “allowing or necessitating a choice between two or more things” or “existing outside traditional or established systems” (Ireland, 2004 pg 19). Alternative livelihoods have become important measures to mitigate the drivers (example, population pressure) of change on natural resources that provide livelihoods of rural or peri-urban population. In most cases, the absence of alternative sources of livelihood has the potential to further deepen poverty levels of small-holder farmers affected by urban sprawl among other factors. For example, a study on fish farming in selected coastal communities in Ghana showed that the provision of alternative livelihood helped encourage fishers who depended on fishery resources to adopt practices other than unsustainable harvesting (Asiedu and Nunoo, 2013). Similarly, small-holder food and crop farmers who have lost their lands or are about to lose their source of livelihoods can be offered alternative livelihood interventions to mitigate the effects of land use change on their income. Wiggins and Keats (2013) offer a reason to focus on small-holder farmers because developing small-holder agriculture can be effective in reducing poverty and hunger in low income countries.

A number of studies have been undertaken to examine the effects of land use change on peri-urban communities with particular emphasis on the livelihood of small-holder farmers. However research on uptake of alternative livelihoods by farmers affected by land use change is scanty. The absence of in depth studies on the uptake of alternative livelihood programmes

by small-holder farmers who lose their source of livelihood require further investigations to improve acceptance and make the programmes more attractive for increased uptake. This study investigates the level of uptake of alternative livelihood programmes offered to smallholder farmers affected by land use change.

1.2 Problem Statement

The agricultural sector is the hardest hit by land use change across the globe (Olson et al, 2004; Owusu, 2008). There is growing evidence that small-holder farmers are vulnerable to land use change patterns especially in urban and peri-urban areas where rapid increase in population and attendant socio-economic activities are impacting on livelihoods. In Ghana, this is evidenced by growing population density in places such as the Ga East Municipality where the report of the 2010 Population and Housing Census identifies migration inflows as the major influence. It also puts the population density for the area at 1,224 persons per square kilometre which is very high compared to the national density of 79.3 and a regional density of 895.5 persons per square kilometre. As a result, the Municipality which has Abokobi, a peri-urban community as its capital, is described as having a great pressure of population on land and natural resources (GSS, 2014).

Land use change at Abokobi dates back to the 2004, but the phenomena became more pronounced in 2008 when the Ga East District attained municipal status, obviously with both migrants and indigenes seeing diverse opportunities. The 2010 Population and Housing Census identified 70% of the rural population in the municipality as dependent on agriculture as a source of livelihood with 95% of them being small-holder farmers. Maxwell et al (1998) suggests that virtually all farmlands within Abokobi and surrounding areas have been converted to land for housing and that residents cannot encroach on available land for farming. Their work further explain that new land owners purchase properties not necessarily

to build in the short term but rather as an investment fueled by rapid inflation. In essence, land purchased would be re-sold for profit. The loss of land is described as “a major shock to the livelihood of the people” whose main livelihood activity has always been farming. Farmers affected by land use change, according to Ubink (2006) in a study of peri-urban communities in Kumasi, are often left without compensation. In the face of urban sprawl, sale and re-sale of land and loss of livelihood by smallholder farmers, the Presbyterian Church in Abokobi which owns part of the land in the area was expected to support members with its Abokobi Agricultural Project but this did not happen because of the illegal sale of lands in the area. Moreover, the resources to pursue alternative livelihood activities are virtually non-existent.

To survive the loss of land and livelihood, small-holder farmers have diversified into masonry, carpentry, security jobs, driving and table top trading among others (Maxwell, 1996). Some of the farmers have taken up intensive farming on small parcels of land or utilized the limited space available to them by their homes to sustain crop yield. However, this form of diversification is capital intensive making it difficult for more farmers affected by loss of land to enter into this field (Maxwell, 1996).

With the aid and support of the Department of Agriculture established within the Municipality but functioning under the Ministry of Agriculture, some small-holder farmers in Abokobi were offered the opportunity to take up alternative livelihood options in livestock, high yielding crop varieties and non-traditional farming practices. The introduction of alternative livelihood programmes to farmers affected by land use change in Abokobi was an opportunity to diversify and ensure small-holder farmers were not left without jobs. The Department of Agriculture at Abokobi has records of some farmers being receptive to the provision of alternative means of livelihood in the area but there is limited information to prove this assertion or otherwise. This research therefore seeks to review the uptake of

alternative livelihood options such as rearing of zero-grazing cattle, bee-keeping, rabbit, grasscutter and goat rearing offered to small-holder farmers in the area by Heifer Ghana. Other support offered by the Department of Agriculture included planting of high yielding crops from the Crop and Food Research Institute of the CSIR in Kumasi (Cofie et al., 2005; Egyir et al., 2007). The Abokobi Department of Agriculture is limited in both financial and physical resources to support the farmers but was able to provide application skills to those who were affected by land use change through the provision of resources from local and international non-governmental agencies including Heifer Ghana, the USAID and the Crop and Food Research Institute.

Despite the assistance to small-holder farmers, the Department of Agriculture faced resistance from some farmers and has limited documentation on farmer uptake of the alternative livelihood support programmes made available to them. For instance, some youth in the area prefer to undertake game practices rather than to rear domesticated grass-cutter while some farmers who initially subscribed to zero-grazing cattle rearing have sold the cattle rather than to pass the heifer from livestock rearing on to other farmers to benefit from the project. Thus far, the Department of Agriculture has not conducted research to assess the forms of resistance to both high yielding crops and livestock rearing introduced to farmers. The study therefore aimed to find out the extent of uptake of alternative livelihood activities by small-holder farmers and assess reasons for resistance by those affected by land use change.

1.3 Research Questions

The main research question was how responsive small-holder farmers have been to the introduction of alternative livelihood programmes in Abokobi and what factors have influenced their responses.

Specifically, the study sought to answer the following questions:

1. How were prevalent land use change patterns affecting small-holder farmers in terms of their landholdings and outputs?
2. What was the level of uptake among small-holder farmers of the livelihood support programmes introduced to mitigate the effects of land use changes?
3. What factors influenced farmers' acceptance or otherwise of alternative livelihood programmes?
4. What were the benefits of the alternative livelihood programmes for small-holder farmers?

1.4 Objectives of the Study

The main objective of the research was to examine the level of small-holder farmers' uptake of alternative livelihood support offered to them to mitigate the effects of land use change on their means of livelihood and to identify the factors influencing their responses.

1.4.1 Specific Objectives

1. To establish the effects of land use change patterns on small-holder farmers landholdings and outputs.
2. To determine the level of uptake of the livelihood support programmes by the small-holder farmers.

3. To identify the factors that influences the successful uptake or non-uptake of these initiatives.
4. To examine the benefits of alternative livelihood programmes.

1.5 Hypotheses

The following were the study's hypotheses:

H₀: Alternative Livelihood programmes as a result of changing land use patterns do not increase crop and livestock output of small-holder farmers.

H₁: Alternative Livelihood programmes as a result of changing land use patterns increases crop and livestock output of small-holder farmers.

H₀: Reduced income levels do not influence the uptake of Alternative Livelihood programmes by smallholder farmers in Abokobi.

H₁: Reduced income levels influences the uptake of Alternative Livelihood programmes by smallholder farmers in Abokobi.

1.6 Justification of Study

As a mitigating factor, it was expected that alternative livelihood programmes should lead to improvements in living standards of smallholder farmers. Smallholder farmers do not often have the skills and resources to engage in other economic activities apart from farming. As a result, when they lose their land, which is a major source of livelihood, their agricultural outputs and income are adversely affected.

Heifer Ghana, USAID and the Crop and Food Research Institute's alternative livelihood programmes were a recognition of the fact that smallholder farmers were faced with the loss

of their means of livelihood and therefore required substantial amounts of funding and support to successfully mitigate their losses and provide for their households or families. They therefore provided these farmers with training and skills to facilitate acceptance and the practice of alternative livelihood programmes offered to them. Whereas there is enough evidence in literature to suggest that the state, donor agencies and other institutions such as NGOs usually offer farmers who have lost their means of livelihood with alternative innovation, little is known about the extent to which the farmers actually apply these skills to make a living. Many of the studies examine the various alternative strategies provided to farmers or independent strategies farmers take but not much is known about the uptake of planned innovations.

This study is therefore intended to fill the knowledge gap by examining the uptake of alternative livelihood strategies by farmers. It is also to inform stakeholders (principally the government, national and international agencies as well as NGOs) on the extent to which those projects they allocate huge sums of money to achieve the needed results. This will help in the future planning and implementation of such projects to achieve the maximum outcome.

1.7 Limitations of Study

The study has some limitations. First is that the limited time available did not allow for a larger sample of small-holder farmers to be included in the study. Therefore, the findings cannot be generalised to explain the uptake or otherwise of alternative livelihood programmes in places such as Abokobi. Secondly, the non-existence of statistics regarding the actual number of farmers affected by land use change and the absence of a central point as a source of data on major interventions, their classification and uptake did not help in identifying the

activities classified as alternative livelihoods. Thirdly, the research could have benefited from a much detailed analysis such as adopting a multivariate assessment tool but the above mentioned constraints made it impossible. Future research in this area could build on these gaps to advance the arguments indicated further than what the scope of this research has been able to accomplish.

1.8 Organization of the Study

The study is presented in five chapters. Chapter one provides a general introduction to the research by giving an outline of the study, identifying the problem, objectives, limitations and direction of study. Chapter two examines existing literature on land use change and small-holder farmers' uptake of mitigation programmes. As well, the chapter presents types of alternative livelihoods, approaches to livelihood support programmes and the conceptual framework of the research. Chapter three outlines the study area and research methodology while Chapter four is dedicated to presentation, interpretation, analysis and discussion of the findings of the study. Chapter five discusses the key findings of the study, the contribution of the study, conclusions and recommendations.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews the literature and proposes a conceptual framework for studying farmer uptake of alternative livelihood activities proposed by development organizations. The section presents findings in literature on the following thematic areas: the factors influencing land use change, the effects of land use change and the uptake of alternative livelihood programmes offered to small-holder farmers. The conceptual framework is also presented in this section.

2.1 Factors Influencing Land Use Change

Many factors have been identified in literature as influencing changes in land use patterns across the world. Factors including culture, socio-economic and technological applications at the farm level interact with local bio-physical conditions to influence farmers' land-use decisions and to shape the resulting agricultural land-use patterns (Flamant et al., 1999).

Socio-economic factors that have been observed to influence land use change and alternative livelihood activities include population, level of affluence, economic conditions, political structure, attitudes and values, and level of technology. In most developing nations, land use change is linked more to population pressures and urbanization. Population explosion and urbanisation often affects peri-urban communities and rural areas located close to urban centres and leads to reduction in cropland, conversion of agricultural land to urban use and associated increase in cost of land (Masanja, 2003). Veldkamp & Fresco (1994) identified

that Population size and density determine the demands for food and monetary income. Thus, with increased population, there is the need for land to be used for residential and industrial purposes implying that available land for agricultural food production would be minimized. In Ghana for instance, growing population pressures and the rush for cheap land for settlements leads to increases in land transactions due to the emergence of land markets. Indigenes therefore have to compete for less land with migrants (Owusu, 2008). The rate of conversion of land in peri-urban areas surrounding the Accra metropolis is very high with estimates showing that roughly 2,100 hectares of land was converted from agricultural purposes to urban use per year from 1990 to 1993. This figure increased to more than 2,600 hectares per year from 1993 to 1997 indicating a gradual reduction in land for farm use especially in peri-urban communities.

For Level of affluence, Veldkamp & Fresco (1994) acknowledged that it determines the regional food basket and thus the composition of the food demand. The level of affluence immediately affects the regional land use strategy. Thus, at low levels of affluence, food security strategy is applied first, while high levels of affluence often result in financial security strategies and the latter affect the land use pattern. On the economic conditions, Veldkamp & Fresco (1994) mentioned that market mechanisms and trade may influence land use within any specific region. Often trade barriers and other artificial rules frustrate the natural market mechanisms and lead to 'unexpected' agronomic effects. For instance each commercial land use system must meet certain minimal economic conditions to be able to sell its products. Examples are minimum production volumes, minimum quality, an infrastructure to facilitate transport, etc. These minimum requirements make some areas within the simulated region more suitable for commercial land uses than others (Veldkamp & Fresco (1994). In some regions and areas attitudes and values can lead to specific social requirements and objectives which usually influence the specific use of land. For instance

some regions may need land for cattle to gain social status (Veldkamp & Fresco (1994). In Kyrgyz Republic in Central Asia, Atamanov and Berg's (2011) revealed small land size and poor land quality are in part among the reasons for land use change and made individuals choose employment in the non-farm sector over agricultural activities. In a poor region in Malawi, market liberalization as a result of structural adjustment appeared to have encouraged livelihood diversification as a way of stimulating rural trade and services and this affects the use of the land for subsistence to cash crop farming (Niehof, 2004).

With regards to technology, the result of Mottet et al (2006) indicated the local impact of technological change and European agricultural policy. The study found that the introduction of the tractor and the application of Agri-environmental policy contributed significantly to local land-use change. Also Brouwer and Chadwick (1991) added that local land use types reflect regional technology levels, while commercial land use types producing for the national or international markets reflect the usually higher national or international technology level. Thus, yields are closer to potential levels for cash crops as certain types of technology such as irrigation and fertilizer application can potentially overrule natural biophysical limitations. Akabzaa and Darimani (2001) explain that in Ghana, the large-scale mining industry has withdrawn a significant percentage of the labour force from agriculture and other income generating activities by taking farmland for mineral exploration. In Birim North for instance, the introduction of large scale mining activities in the district affect the size of land available for agriculture as it continues to diminish (Hilson & Banchirigah, 2009). A significant increase in built-up land in Haihe River Basin in China was traced to the conversion of cropland for infrastructural purposes (Shi et al, 2008). Turner et al (1994) also attribute changing land use patterns to human activities and, expatiate on the human activities that cause land use change to include the different forms of cultivation, grazing, construction and settlement.

Studies on land use change have found varying implications of the phenomenon for socio-economic development. In Dar es Salaam, Tanzania, Masanja (2003) links urbanization and in-migration to multifaceted impacts on peri-urban communities. In the United States, Plantinga et al (2002, pg. 562) are of the view that loss of agricultural land to urbanization could threaten national security resulting from losses of open space and environmental amenities. The Land Use Change Impacts and Dynamics (LUCID, 2004) study on changing land use patterns in the Eastern part of Africa identifies rapid changes in farming and agro-pastoral systems which in turn impacts on practices of small-scale farmers.

2.2 Effects of Land Use Change

Land constitutes one of the three factors of production and is the main resource utilized for the production of food and housing. It also serves as the backbone of agriculture for most developing economies providing both economic and social benefits to the entire world's population (Wu, 2008). However, changes to land use and their effects have given cause for debates and discussions for and against depending on the standpoints of writers and the evidence available to them.

Owusu (2008) brings to the fore the fact that there are two different views on the effects of urban sprawl and that while the optimists see positive outcomes associated with land use change the pessimists believe that land use change has negative impact on the socioeconomic livelihood of people as well as the environment. The former sees job creation, infrastructural developments (Owusu, 2008) and growth of commerce (Maxwell et al, 1998) as some of the benefits from land use change especially from rural or peri-urban to urban while the latter identifies environmental degradation and reduction in agricultural land by smallholder

farmers. The two sides are described as contending perspectives that seek to interpret the impact of rapid growth in areas bordering large cities.

2.2.1 Socioeconomic Effects of Land Use Change

As noted earlier, land is of major relevance for housing as well as agricultural development and agricultural economies, especially for developing countries that enjoy substantial and economic benefit from land. Even though changing land use pattern is “necessary and essential for economic development and social progress”, it usually comes with a great and social cost to human livelihood especially the poor and vulnerable (Wu, 2008). Basically, the conversion of agricultural land for urban development purposes minimizes the total available land used for food production to sustain the ever increasing urban population.

Wu (2008) identified the following socioeconomic cost of land use change. According to him, apart from the reduction in available land for food and timber production to feed local industries and also for export, the conversion of land reduces the amount of open space and environmental amenities for local residents. Urban development activities are usually associated with soil erosion, salinization, other soil degradations associated with agricultural production as well as deforestation all of which invariably reduces land quality and agricultural productivity. Economically, he noted that land use change reduces the “critical mass” of farmland necessary for the economic survival of local agricultural economies, and the changes not only affect the lives of individuals, but also the ways in which society is organized. Wu (2008) also argues that residential development in the urban areas has encroached upon some rural communities to such an extent that the community’s identity has been lost.

In trying to sometimes reduce the extent of land use change, policy makers usually resort to the use of land use controls and according to Wu (2008), these controls may hinder the function of market forces. The regulations that aim at curbing land development usually end up raising housing prices, making housing less affordable to middle and low-income households. He therefore advised that land use regulation must strike a balance between private property rights and the public interest. In a nutshell, he noted that land use change usually widens the social and economic growth disparity between the rich and the poor.

In the Eastern part of Africa, a decline in grazing land is seen as one of the effects of land use change (Osilon et al, 2004). In Ngleshie Amanfro for instance, a peri-urban community at the periphery of Ghana's capital, Accra, Roth (1996) highlights peri-urban livelihoods and other negative impacts of rapid changes in land tenure and land use. He observed that land is sold rapidly to migrants from Accra for settlement without any meaningful compensation to the indigenes for the land loss. Unfortunately, the livelihoods of the indigenes who are mostly farmers depend on the land and some of them even have usufruct rights over the lands. There is no proper accountability of proceeds from the land sold to the farmers and while loss of agricultural land is also not compensated, affected farmers are compelled to move out to remaining lands resulting in long distance farming from their place of residence while others look for different jobs such as casual labour or trading. In effect, alternative livelihood options are minimal. Thus, the impact of land use change is devastating on the livelihood of farmers in these areas.

Maxwell et al (1998) observed that land use change has created unemployment especially among women and the few who are able to find work provided support to a much larger number of people than previously. Further, in their study, they observed a woman who went into selling of ice water after she had lost her farm land along the road with her two children

who have been forced to drop out of school, in part because there was no money for fees, and in part to help supplement her meager income.

2.2.2 Environmental Impacts

Changing land use pattern does not only affect the people whose livelihood to a great extent depends on the land but the environment is equally affected. According to Wu (2008), changes in agricultural land use to urban development and other human activities have substantially altered the earth's landscape. He states that the earth suffers in the short to medium term and the long term. He highlighted the fact that change in land use management practices have a major impact on natural resources including water, soil, air, nutrients, plants, and animals. The runoff from the surface activities (even in the case of agriculture) is a leading source of water pollution both in inland and coastal waters. Due to urban expansion, some wetlands are even drained for crop production and other uses and this has a negative impact on many wildlife species.

Wu (2008) further added that currently, irrigated agriculture has changed the water cycle and caused groundwater levels to decline in many parts of the world and the intensive farming of limited lands using traditional methods are causes of soil erosion, salinization, desertification, and other soil degradations, which affect the land.

One of the main threats from the environment is the greenhouse effects and Wu (2008) noted that part of the causes can be attributed to land use changes leading to high deforestation and clearing of the earth's surface. The activities of man usually destroy habitat that support biodiversity, affects the hydrological cycle and increases soil erosion, runoff, flooding and landslides (Wu, 2008).

Currently, the quality of air in the urban areas especially is very poor mainly because of the threat of human activities. Many water bodies have been polluted due to clearing off of the land surface, flooding has become a common phenomenon in developing worlds (Wu, 2008). Many species, both in the water bodies and on the land surface are under serious threats of extinction. The health and biodiversity of the marine environment are also under threat of extinction.

Forests provide many ecosystem services. They support biodiversity, providing critical habitat for wildlife, remove carbon dioxide from the atmosphere, intercept precipitation, slow down surface runoff, and reduce soil erosion and flooding. These important ecosystem services will be reduced or destroyed when forests are converted to agriculture or urban development. For example, deforestation, along with urban sprawl, agriculture, and other human activities, has substantially altered and fragmented the earth's vegetative cover (Wu, 2008). Such disturbance can change the global atmospheric concentration of carbon dioxide, the principal heat-trapping gas, as well as affect local, regional, and global climate by changing the energy balance on Earth's surface (Marland et al., 2003).

In a nutshell, change in land use, especially to residential development has been linked to many environmental problems, including air pollution, water pollution, and loss of wildlife habitat. Habitat destruction, fragmentation, and alteration associated with change in land use patterns have been identified as the leading causes of biodiversity decline and species extinctions (Czech, Krausman and Devers, 2000).

2.3 Alternative Livelihood Patterns

Alternative livelihood concept is seen to represent an array of activities that make use of indigenous practices and knowledge to take advantage of available natural resources for the benefit of individual and societal needs (CEDEP, 2004). Alternative livelihood is a form of pathway to provide society, especially, the rural population, with opportunities to improve their lives and earn a livelihood. Two main options are available to farmers who lose their farmlands to the different forms of land use change. They can either adopt alternative livelihood interventions or adopt their own strategies by engaging in different activities.

The livelihood activities vary from country to country, region to region and community to community but in most cases the causes of loss of livelihood also determines the type of livelihood activities introduced or pursued by residents and indigenes of communities. For instance, in Afghanistan, opium growers whose activities represent an estimated 50 percent of GDP are encouraged to diversify from illicit crop to licit crop and livestock to reduce household dependence on drug crop cultivation. This intervention is led by the government and other interested parties such as the donor community for farmers who previously found it prudent to grow both opium poppy and other crops (Mansfield and Pain, 2005). Hong Kong's fishermen currently contribute less than one percent to the country's GDP. Nevertheless, their activities have led to the reduction of certain fish species thereby giving cause for authorities to introduce alternative livelihoods in the fishing communities. Hong Kong's fishers were introduced to alternative livelihood options due to the biological and economic decline of fisheries as a result of unregulated practices (Teh et al, 2008).

The issue of great concern to this study is the extent to which farmers are willing to adopt the alternative livelihood options offered to them due to the change in their land use.

Smallholder farmers in rural and peri-urban communities continue to lose their rights to land in the wake of increasing population and resultant migration to small communities in search of settlements and other opportunities.

In Tanzania, Ricci (2011) posits that peri-urban dwellers including small-holder farmers are diversifying their livelihoods and in so doing tend to lower dependence on natural resource base and rather rely on urban employment services. Unfortunately, most small-holder farmers do not have skills to venture into other occupation when they lose the means of livelihood. Oslon et al (2014) in their report point out that immigrant farmers have been joined by herders who have diversified their economy to include crop production. Their actions are often in response to the impact of drought or of the decreased access of livestock to the water in swamps and rivers which form part of farming activities undertaken in small land areas but is a source of conflict among farmers.

Whereas in some areas the government and other non-governmental organizations provide people with training and skills in non-farm based livelihood, in other instances, the farmers engage in other livelihood activities around them such as petty trading and craft among others. In parts of Ghana, especially in the extractive industry areas, farmers receive some form of alternative livelihood programmes when their landholdings are taken away and given as concessions to mining companies. Newmont Ghana for instance trained small-holder farmers in vocational skills and non-traditional farming practices such as mushroom production and bee-keeping (Temeng and Abbew, 2009). Maxwell et al (1998) mentioned that when farmers in Ngleshie-Amanfro and Abokobi lost their farm lands to buildings, some farmers made a living by sweeping up the spilled grain or beans in the markets, either to sell or to consume. For the farmers in Ngleshie-Amanfro, the market at Kasoa offered alternative opportunities in petty trading. Other related small scale service occupations, such as food preparation, tailoring, hairdressing, etc. have opened up with the influx of more people. The

housing boom that has accompanied the upsurge in land sales created employment opportunities in the construction, brick-laying, carpentry, plumbing etc. But both the construction industry and the market have created opportunities mostly only in casual labour. Further, some farmers in Abokobi switched to more intensive farming enterprises such as swine or poultry.

Abass et al (2013) studied household responses to livelihood transformation in peri-urban Kumasi and found that residents' of peri-urban communities around city, were left with no other alternative after they lost their farm lands to estate buildings than to switch from land-based livelihood activities to non-land based income generating activities. Essentially the most common non-farm activities available in the communities include petty trading/business, artisanry, construction and service provision. Trading in both agricultural produce and manufactured goods remain a significant livelihood activity in the communities most especially for women. After farmers lost their farm lands to the mining company Newmont, the farmers were given training in mushroom production, soap making, masonry, carpentry, welding, painting, apprenticeship programmes for graduates from the catchment communities with an idea to employ them and many other poverty reduction initiatives as livelihood alternatives (Osei Kwadwo et al, 2014). In the areas such as Tarkwa-Bogoso, Bolgatanga, and Birim North, the community members were given training in agrarian activities such as oil palm cultivation, cassava farming, poultry, and grass-cutter and snail rearing as alternative livelihood after their lands were lost to mining companies.

In Uganda, Tanzania and Kenya, diversification for mixture of crops and livestock, cash and food crops and farm and non-farm income yields have aided in reduction of risk in the face of land use changes.

2.4 Uptake of Alternative Livelihood Activities

In the planning, implementation and introduction of alternative livelihood interventions for indigenes and migrants affected by land use change, Hilson and Banchirigah (2009) suggested the involvement of beneficiaries to enable them appreciate the projects. In essence, beneficiaries must be part of the inception of alternative livelihood projects. If they feel part of the whole process, they tend to adopt and apply the skills but if they consider it as an imposition on them, adoption becomes very low.

Mansfield and Pain (2005) caution that pressure to achieve quick impact is generating unrealistic expectations in alternative livelihood programmes for the opium farmers in Afghanistan. They also describe the concept as virtual because the results are yet to be seen. A critical analysis of the method of introducing alternative livelihood to opium farmers is thought to be a factor militating against uptake because farmers are required to stop cultivation before funding is provided. Authors of this study also identify confusion over the terms alternative livelihood and alternative development which also has the potential to derail the course of interventions and provide a clear focus and direction for activities. One of the major criticism of the alternative livelihood interventions in Afghanistan is the danger of activities being reduced to alternative income projects at the expense of the broader institutional issues.

A study by Manzano and Tamoria (1999) found that in an attempt to reduce illegal fishing and over dependence on fishing in Philippines, seaweed farming was established as a supplemental income earner for a community. With technical assistance and start-up materials provided by the project, the seaweed farming project was accepted and supported by the people. The project was successful as it took place during a period of increasing market prices hastening production increases nationwide. The project was also beneficial in

two ways, first as an income earner for households participating, and as a community-based coastal resources management entry point to discourage destructive fishing practices. From other jurisdictions such as Tonga, seaweed farming was successfully introduced in 1982 in Tonga only to be discontinued in 1986 due to low prices among other factors (FFA, 2002). A similar situation occurred in the Solomon Islands, where Eucheuma farming was introduced in 1985, and then abandoned due to market collapses (Kile, 2000). With the seaward fishing project, Crawford (2015) explained that several instances of low market prices collapsed the project. Thus, when there is a seaweed market price drop, seaweed farmers stopped farming and moved into other occupations, most likely, fishing. The seaweed farming only resulted in a temporary reduction of fishing. Further, Crawford (2015) mentioned that livelihood alternatives proposed and attempted may have either been poor economic substitutes or less satisfying occupations for fishers, resulting in fishers re-entering the fishery or reinforcing reluctance to exit.

Gyasi (2006) observed that after farmers in Northern Ghana had their farm lands reduced in size due to land use change, farmers adopted diversification methods such as agricultural diversification which included; livestock-crop integration, drought tolerant crops, and crop intensification; and out-migration. Whereas some of the farmers who had diversified their farming activities acknowledged that their annual yield and productivity increased following the diversification, others on the other hand noted that they had recorded reduction in the volume of annual output. Hilson and Banchirigah (2009), also highlight the nature of alternative livelihood programmes introduced to the unemployed in mining communities in Ghana and concluded that the programmes were identified to be highly unpopular.

Asiedu and Nunoo's (2013) study of fisher folks in some coastal areas of Ghana found that 73% of fishers interviewed indicated willingness to switch jobs. About 26.7% of the fishers will not consider switching jobs. Those willing to consider alternative livelihoods showed

preference for agriculture-related jobs such as boat operating, livestock and aquaculture farming in addition to construction and factory hands. The study found out that between 4% to 20% of the fishers were already involved in self-initiated alternative livelihoods such as crop farming, livestock rearing, teaching and trading of non-farm items. The study was undertaken in Kpong, Small London, Ahwiam and Elmina in Ghana.

The Abokobi Agriculture Project has been promoting various forms of farming such as snail farming, mushroom farming, grasscutter farming and pig farming which do not demand a large farm area but require a substantial investment of capital, and credit which is very difficult to obtain (Maxwell et al, 1998).

Osei Kwodwo et al (2014) indicated that the programme implemented by Newmont for farmers provided a new form of employment for the farmers but it has not had any significant effect on income levels of beneficiaries. Further, although the programme was at its early stages at the time of their study, they found that the farmers had high interest in the programmes but the sustainability was questioned by the farmers. There is a sharp divide in opinion on how effective alternative livelihoods have been in practice in Ghana's mining communities. On the one hand, the parties championing alternative livelihood policies, such as the mining companies, the government and the Chamber of Mines, argue that interventions have made a significant difference on the ground. On the other hand, local level actors, including representatives of target communities, claim that these parties are promoting few desirable income-earning activities. Perhaps the most telling evidence in support of this view is the continued escalation of illegal mining, particularly within the areas where the project work is taking place, a sign that programmes are neither encompassing nor effective (Hilson & Banchiregah, 2009).

The findings from this section clearly showed that farmers usually make rational decisions to change their livelihood activities from farming into other activities, when there is a change in the land use, usually following adverse environmental changes or human-induced factors such as housing developments. Thus, with or without government or institutional intervention, the farmers make rational decision to change their livelihood activities when outputs from their farming activities are not sufficient enough to cater for their household subsistence needs. Even in the midst of interventions, not all farmers will take such activities. Some will prefer to engage in their independent activities while others will take the intervention.

2.5 Conclusion

The findings from the review have shown that many factors that lead to land use change can broadly be categorized into two namely socioeconomic and environmental. Whereas the environmental factors span over a long period of time before they manifest to cause a change in the land use pattern, the socioeconomic factors usually take a short period to manifest. The core drivers among both the environmental factors and socioeconomic factors is increasing population growth and uncontrollable and unplanned urbanization. The review further showed that land use change pose an enormous threat to people's socioeconomic wellbeing and even to the environment.

It came out clearly that even though the state and its institutions as well as other national and international bodies usually intervene with alternative livelihood activities to make farmers who lose their livelihood to land use change patterns maintain some level of livelihood, other farmers find their independent strategies to engage in other non-farm activities to make a living. In the event of an intervention, the review has shown that the funding agency usually commits large resources into it from the planning to the implementation stage. However, not

much was found on the extent to which farmers or beneficiaries of these alternative livelihood outcomes actually implement the skills they have acquired or reject it and the underlying reasons for acceptance or rejection. Thus, the extent to which these interventions achieve its desired objectives of giving affected farmers a livelihood is unclear since there is scanty evidence in literature. This therefore makes this study a crucial one to a holistic understanding of the subject of alternative livelihood strategies.



CHAPTER THREE

RESEARCH METHODOLOGY AND CONCEPTUAL FRAMEWORK

3.0 INTRODUCTION

This chapter presents the scope of study and research methodology. The study combines both qualitative and quantitative research into the selected topic in the Abokobi area. It discusses and outlines the study area, the project, the research design, the target population, the sample and the data collection instrument. The methods adopted for analysis are also presented in this chapter.

The study covered the Abokobi community within the Ga East Municipal Assembly. It sought to assess the level of uptake of alternative livelihood programmes introduced to smallholder farmers to mitigate effects of land use change. It also investigated causes of resistance if any.

3.1 THE STUDY AREA

3.1.1 Demographic Characteristics of the Area

Abokobi is the district capital of the Ga East Municipal Assembly. Some of the indigenes are from Teshie, Nungua and La all in Accra. Most of the natives of the community are members of the Presbyterian Church which has unique role with oversight responsibility as the traditional authority of the land. The community was established by the Basel Missionary who acquired the land originally from the people of Berekuso. The community was established in the 1850s and is an indigenous Ga area (Maxwell et al, 1998). Abokobi was selected for the study because of the availability of information on land use change from

indigenes and literature from other studies. The community which exhibits the characteristics of a peri-urban community on the peripheries of Accra has agriculture as a major occupation with small-holder farmers constituting about 95% of farmers (GSS, 2014).

Abokobi has an estimated population of 2,105 (Municipal Profile, 2008) with a projected growth rate of 4.4%. The area as one of the peri-urban towns of the Ga East Municipality is experiencing urban sprawl due to migration from the city of Accra (Owusu, 2013). The Ga East Municipality where Abokobi is situated has a high population density of 1,214 persons per square kilometer according to the 2000 population census compared to the national density of 79.3 (GSS, 2014). The official website of the Ministry of Local Government and Rural Development on its Ghana website published a projected population of the municipality of 244,226 up from the 2000 National Population and Housing figure of 161,873 and an estimated population density of 1,391 persons per square kilometer in 2010 (<http://gaeast.ghanadistricts.gov.gh/>; accessed 20/08/15). The community therefore suffers from land pressure and has a heterogeneous population resulting from increasing migration.



3.1.2 Overview of Agriculture in the Municipality

Farming is the major economic activity for about 55% of the economically active population. About 70% of the rural population depends on agriculture as their main source of livelihood with about 95% of them being small holders. The major agricultural activities are crop and livestock production. Among the wide range of vegetables produced are pepper, tomatoes, cabbage, okra and garden eggs. Livestock production has a very good potential and the municipality is encouraging it. There are a number of poultry farmers in and around Oyarifa and Abokobi. The municipal capital include Amas Farms and Vida Farms at Oyarifa and the Abokobi Agric Project.

Other livestock production includes the rearing of turkeys and cattle even though not on a very large scale like poultry. About seven farmers are known in the municipality to be rearing rabbits and are located in Akporman, Boi, Ashongman and Abokobi. The production of cash crops like maize, cow pea and cassava are also very encouraging. The women in the rural communities mostly farm and process cassava into gari and cassava dough predominantly in Teiman.

Alternate livelihood in the municipality includes mushroom, snail production, grass cutter rearing, rabbit and poultry farming. The Assembly facilitates and promotes this programme in collaboration with its development partners to ensure that more farmers go into it. This is premised on the rapid urbanization and its attendant loss of farm lands. Petty trading, stone cracking and artisanary are some of the non-agricultural activities carried out in the rural areas of the municipality. Stone cracking is undertaken in areas such as Sesemi, Boi, Kwabenya and Otinibi. Details of major crop and livestock productions in the locality are given in Table 3.1 and 3.2 respectively.

Table 3.1 Major Crops Produced in the Municipality

Crop	Type
Vegetables	Pepper, tomatoes, exotic type (cabbage, carrots)
Fruits	Watermelon
Cereals and Grains	Maize, rice
Legume	Cowpea
Root Crop	Sweet potato, yam, cocoyam
Agro forestry	Cassia, Neem

Source: DFA-MOFA, Abokobi, 2010

Table 3.2 Livestock Production in the Municipality

Livestock	Location	Size per household	Practices
Sheep	All communities	Small scale:10 Large scale: 30-40	Mainly produced by extensive systems
Goat	All communities	Small scale: 10 Large scale: 30-40	Mainly produced by extensive system
Pig	All communities	They are normally Produced on small scale	Mainly produced by extensive system
Poultry	Oyarifa, Pantang, Abokobi, Ashongman Abladjei and Boi	Small scale:20 Large scale: 5000 layers Per farmer	For large scale, it is mechanized. Farmers follow vaccination and feeding regimes

Source: DFA-MOFA, Abokobi 2010

3.1.3 Challenges Facing Farming Activities

Land acquisition for socio-economic and infrastructural development and large scale farming among other land related activities are some of the challenges facing the Municipality and the Abokobi area. Even though farming is a major occupation in Abokobi, output is inadequate to feed residents as food items are purchased from Madina, near the study area (Environmental

Plan, 2008). Small-holder farmers are confronted with reduced level of outputs. The municipal authorities are unable to control activities leading to land use change due to the fact that land ownership belongs to families and clan. However, land could also be acquired through direct purchase, rental, leasehold and share cropping (nnoboboa). Land resource for agricultural activity in Abokobi is declining at a fast pace (Owusu, 2008).

The fact that these parcels of land could be inherited through parents or grandparents has led to a lot of sale and re-sale of land with its attendant land litigations and chieftaincy disputes. This is the outmost challenge facing agricultural activities in the district. Recent activities of real estate developers has raised the price of land so high that land owners and relatives no more prefer to rent or lease lands to farmers for cultivation but rather prefer to sell them (or lease them) to estate developers to make money. The rate of the sale of farmlands to estate developers is so unprecedented that fertile lands are now being converted to building land. The result is seen in the reduction of food production in the municipality. The district used to produce large volume of agriculture produce but in recent times, the volume of agricultural production has reduced drastically mainly due to the land use change pattern. This situation has also contributed to the rapid loss of farm lands with its attendant unemployment and subsequent migration to urban areas.

3.2 HEIFER ALTERNATIVE LIVELIHOOD INTERVENTION

3.2.1 Overview of the Project

Heifer International was initiated by an American Midwest Evangelist and a member of the Church of the Brethren during the Spanish Civil war by sending relief items (milk and later a cow) in 1844 to the marginalized. The name of the project, Heifer, derived from the fact that farmers are given heifer, baby cow, to rear out of which another heifer out of the output is

passed on to other farmers. As the project evolved into the loaning of livestock, more and more poverty stricken resource constraint farmers were loaned animals with the understanding that the same number of animals would be passed on to others. It is seen as a gift that must be passed on to others. The motivation for the Heifer Project was due to low levels of maize and pepper cultivation in addition to a few who were into local fowl production. Farmers were advised to diversify as farmlands gradually reduced in size from increasing housing projects.

The actual project started in Abokobi on 2nd August 2009. At the initial stage, small scale farmers at Abokobi received goats; bee hives which later culminated into rabbits while others received 20 fowls each with feed. The animals were given in the ratio of 3 females and a male each. The project came along with training of carpenters to build cages for rabbits and grass cutters. Zero grazing cattle were received from the Netherlands and South Africa while the goats were ordered from Northern Ghana. The total number of goats used to start the project was 33, which later increased to 528 supplied to 66 farmers in groups with each receiving 8 goats.

The project included training components. Heifer Project dealt with hundred percent livestock. From heifer (Baby cattle), loaned to farmers and the poor to rear for food purposes, the project has become localized in different communities and regions by giving other livestock such as sheep and small ruminants.

The US Embassy under its special self-help initiative gave \$5,000 in 2011 to help the farmers in training, building of cages and expansion of existing livestock breeding under the Heifer Project. Eight farmer groups benefitted from the US support under which eight carpenters were trained to build cages for grass cutter and other livestock farmers. Ambassador Donald

Turtledove commissioned the project following which members of the groups are invited to participate in the annual food and craft fair of the Embassy. This is to help boost production.

3.2.2 Benefits of the Project

The main purpose of the project is to improve the livelihood of the farmers. Even though not all the farmers in the area were part of the project, almost all those who benefited from the project have reaped huge benefits. The major impact of the project is that farmers who once found it difficult to provide for their households can now do so while others who were once idle are now engaged in some form of income generating activities.

It is very interesting to point out that some of the farmers were trained to also offer technical advice to other farmers even after the project expiration. Those farmers are now serving as consultants in the community even though the project has ended. This has ensured some form of continuity, especially in the area of livestock rearing.

There were some spillover benefits. As noted earlier, the farmers were made to form groups before they benefit from the project. In a later assessment, it was found that in some of the groups, the leaders made the members to open accounts with banks or microfinance institutions and encouraged them to save. Farmers who once had no account and no savings are now having one for of savings or the other. Some of the farmers also indicated that because they can now provide for their household, they have earned back their dignity as heads of their families. Some of the women are also benefiting from the production of dairy products of the cows. The women are now using the milk from the cows to prepare local yoghurt for sale and others even sell it fresh to their customers.

3.2.3 Challenges of the Project

Despite the benefits of the project, other challenges, some of which were not expected were encountered. The first unexpected challenge was that some of the farmers sold their animals in dry seasons. In the dry seasons, which affected crop production, it was very difficult for them to provide for their families and hence, they were left with no option than to sell the animals to generate income.

In June 2012, the Ga- East Municipal Assembly, which stretched from Kwabenya to Abokobi to Madina, Adenta and its environs was split into two. Madina, Adenta and its environs became a new municipality called La Nkwantanang-Madina and Abokobi and its environs became Ga-East Municipality. After the split, some of the farmers whose residence and operations fell out of the new municipality did not attend the regular meetings again feeling that the project is for Ga-East Municipality farmers and not La Nkwantanang-Madina.

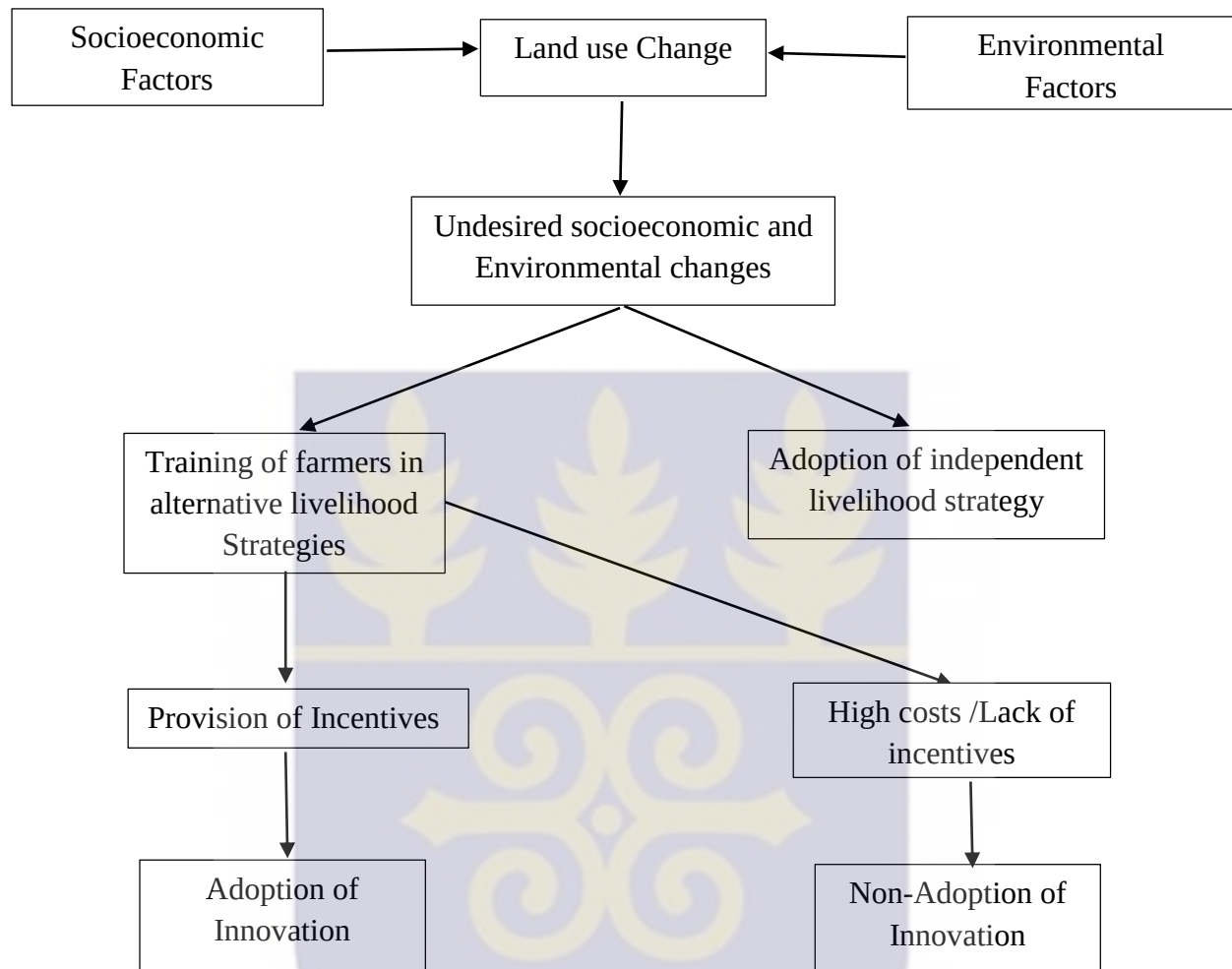
Also, at some point, some JHS and SHS graduates who were unemployed joined the grass cutter project, which required some capital for the construction and expansion of cages. Unfortunately, funding was a challenge to them. There were some few farmers who also faced funding challenges because of the expensive nature in the construction and expansion of cages.

Finally, the project was intended for a specified time period. At the initial stages of the project, some of the farmers were reluctant to participate explaining that the project might be politically motivated. When they started to understand and witnessed the impact of the project and decided to come on board, the timeline of the project was close to completion. The time was thus, short.

3.3 CONCEPTUAL FRAMEWORK

The conceptual framework for the study is based on the review of literature on land use change, alternative livelihood activities, uptake and factors influencing uptake and the adaptation of the “Diffusion of Innovation Technology” conceptual framework developed by Rogers (2003). According to Rogers (1995), diffusion of innovation refers to the spread of ideas and concepts involving technical information and actual practices within a social system. The aim is to influence an adopter’s (a social entity including individuals and groups’) chances of adopting an innovation. Wejnert (2002) traces the development of the adopter’s approach to Tarde’s book ‘The Laws of Imitation’ followed by a more concerted expose by Ryan and Gross (1943) who studied the introduction of hybrid-corn to Iowa farmers which inspired thousands of research work on innovations in agricultural practices. According to Rogers (2003), diffusion is the process by which (1) an innovation is (2) communicated through certain channels (3) over time (4) among the members of a social system” (p. 11). The focus of Rogers (2003) is how and why an innovation is adopted and especially the unique reinvention of an innovation to fit the changing local needs of the individual or group.

This conceptual framework helps one to appreciate and understand the use of innovation theory to measure the level of uptake of support offered to small-holder farmers and the reasons why they accept or reject the alternative livelihood programmes offered to them. The inter-relationships of the factors of uptake or adoption are captured in Figure 1 which illustrates the conceptual framework and explains the uptake of alternative livelihood programmes to mitigate effects of land use change in Abokobi.

Figure 3.1: Conceptual Framework

Source: Adopted from Rogers with Modification (2003)

Based on Rogers (2008) diffusion model, this study conceptualizes that land use change is influenced by socioeconomic factors such as population growth, urbanization, industrialization, location of land, institutional and political decisions, and technology among others as well as environmental factors such as loss of soil productivity, soil erosion and desertification. These factors cause the change in land use pattern. Land use changes subsequently cause certain undesired socio-economic and environmental changes in the livelihood of farmers for which the government and other non-state agencies intervene to provide them with alternative livelihood innovative strategies.

It is worth mentioning that while some farmers will adopt or reject the innovations that will be presented to them, some of the farmers could also adopt independent alternative options outside what has been offered by projects. Usually, the decision to adopt or reject an intervention is dependent on the socioeconomic characteristics of the farmer's livelihood. Other considerations are incentives attached to interventions and the initial costs associated with the adoption. Farmers who have lost everything and are unable to meet their subsistence needs are more likely to adopt as compared to farmers engaged in some economic activities. With reference to farmers who are already engaged in some form of activities, the decision to adopt or reject an intervention results from a cost-benefit analysis that they usually do. If the farmer anticipates the benefits to enjoy from the intervention to be higher than what he/she is making from the current activity, adoption of alternative livelihood activity is more likely to be high compared a benefit presumed to be less.

After the decision has been made to adopt the innovation, the farmers go through training and are equipped with the basic skills and needed starting capital to implement what they have been taught. After some time, assessments are made to examine the extent to which the innovation yielded the needed results.

3.4 STUDY DESIGN

Burns and Grove (2003) define a research design as “a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings” (p. 195). Parahoo (1997) describes a research design as “a plan that describes how, when and where data are to be collected and analysed” (p.142). Thus, the design of a research is basically the roadmap showing how the study will be collected and analysed. In order to assess the level of uptake of alternative livelihood programmes and reasons for resistance if any, the study

adopted both qualitative and quantitative methods in gathering and analyzing data. Quantitatively, a survey was conducted to administer semi-structured questionnaire to some randomly selected farmers. On the qualitative side, some of the farmers were engaged in a focus group discussion. The project officials were also engaged in in-depth interviews. These two qualitative approaches enabled the researcher to gather in-depth information that the survey could not gather.

According to Wisdom and Creswell (2013), mixed method “refers to an emergent methodology of research that advances the systematic integration, or “mixing,” of quantitative and qualitative data within a single investigation or sustained programme of inquiry”. The basic premise of this methodology is that such integration permits a more complete and synergistic utilization of data than do separate quantitative and qualitative data collection and analysis. A clear and well defined research approach thus, gives more credibility to the methods and viability of any study (Punch, 2000). The study therefore adopted qualitative and quantitative approaches to solicit appropriate information required for the study.

3.5 STUDY POPULATION

A population refers to the elements that meet the sample requirements of a study. The study population therefore is all of the farmer population in Abokobi. This includes both the youth in agriculture and adults involved in farming and are residents in Abokobi. The estimated number of farmers in Abokobi is 400.

3.6 SOURCES OF DATA

The study used both primary and secondary data. The primary data was gathered through the use of questionnaire (administered to farmers) and a structured interview guide (with officials of the project). A focus group discussion was also held with the farmers of the area to gather more information to supplement the findings of the survey. Information from observation also helped to analyse certain practices among the farmers.

Secondary sources of data were collected from documentation by the Ga East Municipal Assembly on small-holder farmers' profile and land sizes. Other secondary sources of information were gathered from books, journals, articles and other internet sources.

3.7 SAMPLE SIZE AND SAMPLING PROCEDURE

The sample frame is made up of an estimated 400 farmers, who are located residents at Abokobi (Department of Agriculture, Abokobi). The sample size was determined by Yamane's (1967) formula in determining the sample for the survey. The formula is given by:

$$n = N / 1 + N(e)^2$$

Where:

n = sample size

N = sample frame (population) total farmers

e = margin of error (0.05)

Given a population of 400, $n = 400 / 1 + 400(0.05)^2 = 200$

However, due to time and financial constraints, the number was reduced to 100. The focus of the study was to assess crop and livestock farmers. A simple random sampling method was used to select crop and livestock farmers within the Abokobi area. In using the sampling method, the proportion of males was 93 and that of females was 7. The male dominance in the study is the major limitation to the study.

On the qualitative side, three officials who are the key persons on the project were interviewed. These were the Programme Officer, who also served as a supervisor, Agriculture Department; the Programme Coordinator, Agriculture Department; and Programme Coordinator, Heifer Ghana.

Based on their availability, 12 farmers, 8 of which were males and 4 females and are considered elders of the area were purposely sampled for a focus group discussion.

3.8 DATA COLLECTION

For the survey, the questionnaires were first pretested to check for errors and inconsistencies, with some of the farmers in the same area. After the questionnaires were finalized, two research assistants helped the researcher to gather the information from the farmers. Even though some of the farmers were literates, the researchers filled out the questionnaire after seeking their voluntary participation to ensure consistency and clarity in the writing of the responses.

For the focus group discussion, a conducive place was obtained and with the permission of the participants, a recorder was used to record the responses. All the participants were given the opportunity to express their views on each question. No one person was allowed to dominate the discussion. A similar approach was also used to gather information from the

officials. A date conducive for the officials was scheduled and during the interview, their permission was sought to record responses and contributions.

3.9 METHOD OF ANALYSIS

For the survey, after the questionnaires had been coded and inputted into the SPSS software, descriptive analytical tools such as tables, charts and graphs were used to pictorially present the findings. For the qualitative data, the information gathered from the interviews and focus group discussions were transcribed from the recorder. Thematic analysis method was used to present the findings. Under this method, the statements of the key respondents were summarized under appropriate themes. Where necessary, some direct statements of some respondents were used to explain some of the points that were made.

3.10 ETHICAL CONSIDERATION

An introductory letter from ISSER was given to the District Chief Executive Officer of Ga East Municipal Assembly for permission after which copies were given to all officials at the Agricultural Department of the Assembly as well as the official of the Heifer Project to seek their consent to gather data from their office and interview them.

After the permission was granted, informed consent was ensured, as all the participants were informed about the purpose of the research. It was made known to them that the research was solely for academic purpose and there were no known risks involved in one's participation.

Voluntary participation was another ethical issue that was adhered to by the researcher. Participants were not forced to participate in the research; they were made aware of their

voluntary participation to the research. Again, they were informed about their freedom to withdraw from the study at any point in time.

Another important ethical issue that was considered was confidentiality. Participants were assured that their information would not be disclosed to anyone and for that matter their names and identity would feature in the research.

Finally, all references and information sources have been dully acknowledged in the work.



CHAPTER FOUR

PRESENTATION AND DISCUSSION OF RESULTS

4.1 INTRODUCTION

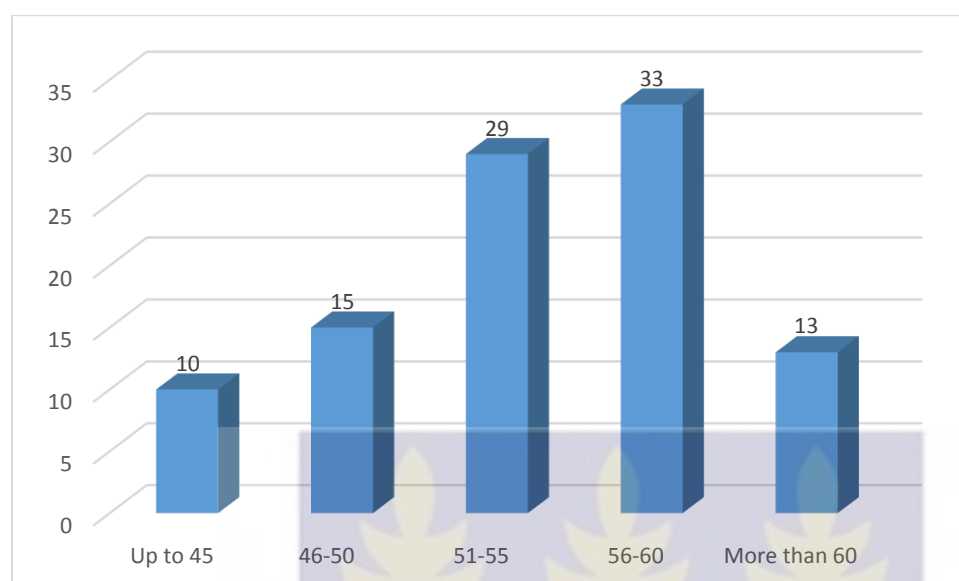
The study examined the level of uptake of alternative livelihood strategies to small-holder farmers who have lost their landholdings due to land use changes in Abokobi in the Ga East Municipal Assembly in the Accra. This chapter focuses on the findings and results of the data gathered from the field by comparing it to empirical literature. The specific discussion areas are the socio-demographic characteristics of respondents. This is followed by types and size of landholdings, the types of crops grown and livestock reared by farmers, the level of output and income before and after land use change. The third part is the presentation of livelihood strategies after land use change and the level of uptake of alternative livelihood programmes and associated benefits. The household characteristics of respondents are discussed next. The final part is a presentation of the influence of uptake of alternative livelihood programmes.

4.2. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

This section gives a brief background of respondents by presenting their ages, educational levels, marital status and gender. In all, 100 respondents from Abokobi in the Ga East Municipal Area in the Greater Accra Region were interviewed.

4.2.1 Age

A greater proportion of the respondents were aged 56-60 years (33%), followed by those aged between 51-55 years (29%). 15% of the respondents were also aged 46 – 50 years and 13% were aged more than 60 years. The smallest group (10%) of respondents were aged up to 45 years.

Figure 4.1 Age of respondents by sex

Source: Student's field data (July 2015)

4.2.2 Education and Marital Status of Respondents

A significant proportion of the respondents were senior high school leavers (41%) and basic school leavers (40%). About 7% of the respondents did not have any formal education whereas 11% and 1% were vocational and technical, and teachers' training school leavers respectively. All the female respondents were either basic school leavers (57%) or senior high school leavers (43%). Senior high school leavers (41%) and basic school leavers (39%) dominated the male respondents.

Only 3% of the respondents were not married. All the respondents who were not married were males. One respondent had no child whereas three people had as many as 8 children. The average number of children was 4 but a greater proportion of the respondents had 3 children. Also, majority of the respondents had dependents (78%). Some respondents had as many as 9 dependents but the average number of dependents was 4.

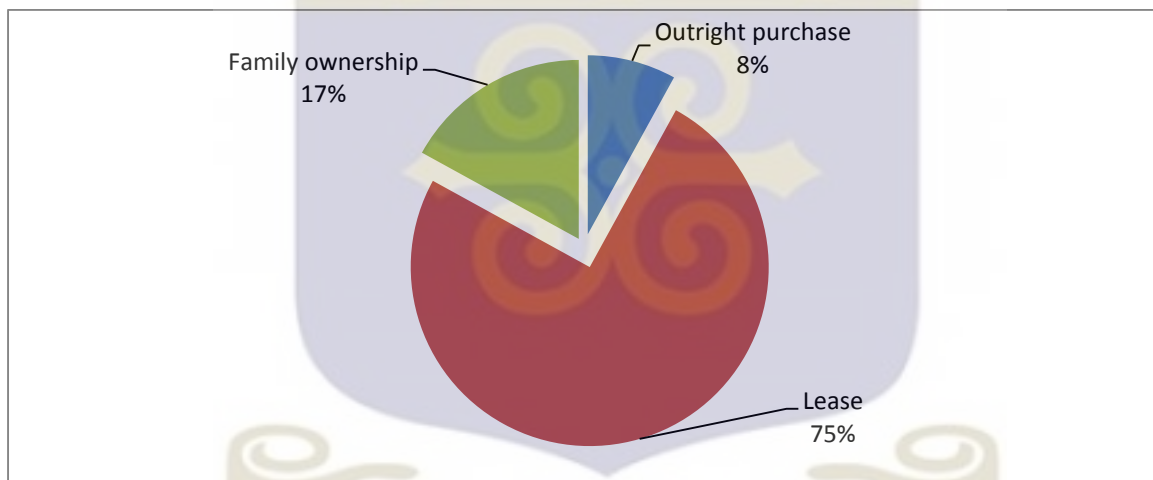
4.3 CHARACTERISTICS OF LAND OWNERSHIP AND CROP OR LIVESTOCK TYPE

This section examines the land ownership types, the size of landholdings and established the level of loss of land.

4.3.1 Type of Land Ownership

In the survey, three-quarters of the lands in Abokobi are leased whereas 25% are either owned by families or have been purchased outright (Figure 2). This emphasises the fact that small-holder farmers do not have control over landholdings.

Figure 4.2 Distribution of forms of land ownership



Source: Student's field data (July 2015)

4.3.2 Size of Land Holdings before Land Use Change

Majority of the respondents reported they had lost their landholdings in the past (84%). During the focus group discussion, one of the major factors the farmers cited to have contributed to the loss of farmlands is the unprecedented residential developments in the area. They explained that initially, many of the farmers used to rent farmlands from landowners for farming but over the last decade, the landowners sell the lands to estate developers. One

farmer complained that because the estate developers do not care whether you have just planted or about harvesting, after they have acquired the land, they clear the land without allowing the farmers time to even harvest their crops and this affect them. All the three officials who were interviewed agreed that the conversion of farmlands into residential facilities is the major reason accounting for the loss of lands.

Table 1 presents the size of land the households owned or had access to before any land loss. A greater proportion of the respondents owned 4 acres (34.7%) and 3 acres (32.7%). The mean size of land owned by the farmers before any land loss was 3.63 acres with a standard deviation of 1.09. This confirms the broad FAO threshold measurement of small-holder landholdings of not more than 2 hectares. 1 hectare equals 2.47 acres.

Table 4.1 Size of land households owned before land use change.

Area	Frequency	Percent
1 acre	2	2.0
2 acres	11	11.2
3 acres	32	32.7
4 acres	34	34.7
5 acres	14	14.3
More than 5 acres	5	5.1
Total	98	100

Source: Student's field data (July 2015)

4.3.3 Size of Land Holdings Lost

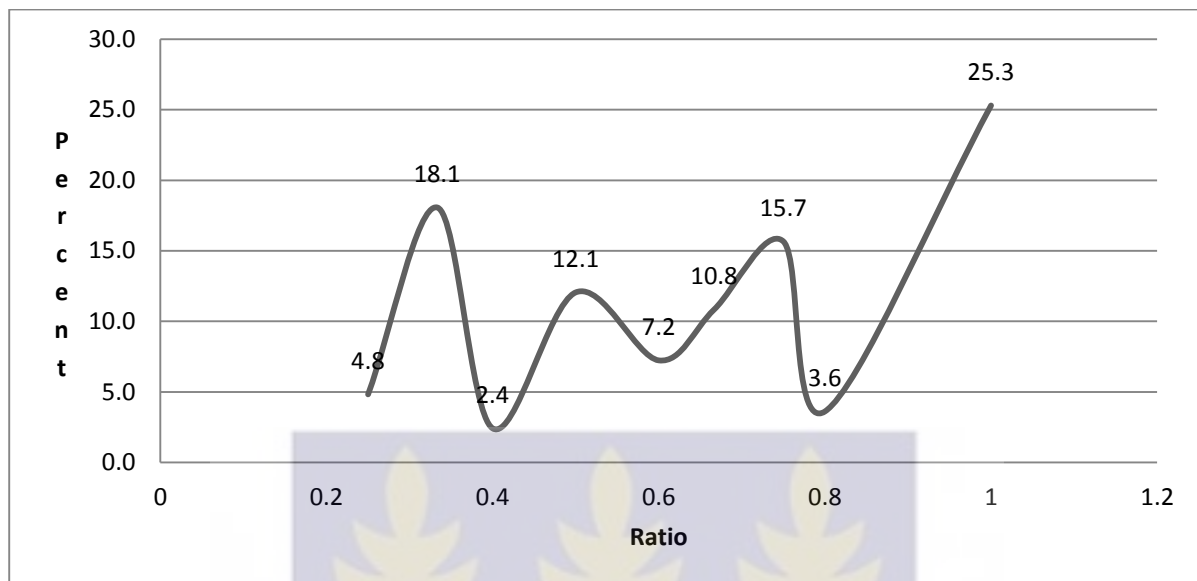
Most households lost 3 acres (31%), 2 acres (26.2%) and 1 acre (26.2%). The average amount of land that the households lost was 2.48 acres with a standard deviation of 1.26. The table below shows the distribution of land lost by the farmers.

Table 4.2 Size of land households lost

Area	Frequency	Percent
1 acre	22	26.2
2 acre	22	26.2
3 acre	26	31.0
4 acre	9	10.7
5 acre	2	2.4
More than 5 acres	3	3.6
Total	85	100

Source: Student's field data (July 2015)

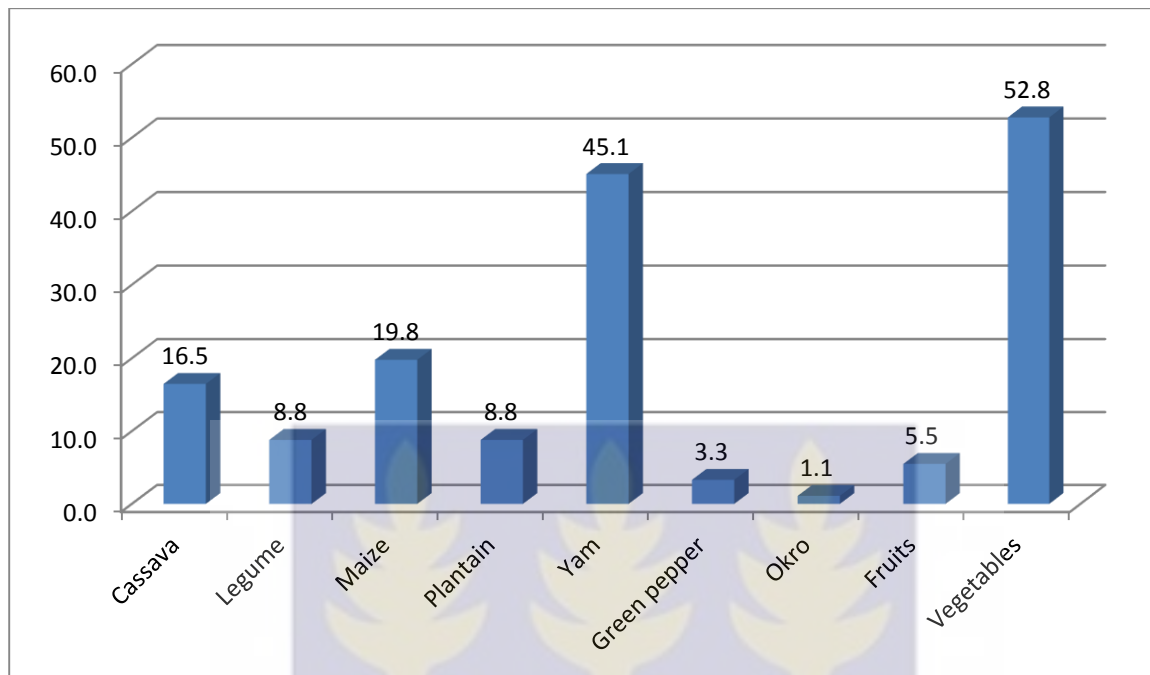
One household reported it lost all the 2 acres of land it had. As much as 25.3% of the households which reported they lost their land had the whole lot taken away from them. Also, over 16.6% lost three-quarters of their land whilst about 12.1% lost half of their land. Moreover, about 18.1% lost one-third of their land. Figure 3 throws more light on the above presentation.

Figure 4. 3 Proportion of respondents and the proportion of land that was lost

Source: Student's field data (July 2015)

4.3.4 Crops Cultivated Before Land Loss

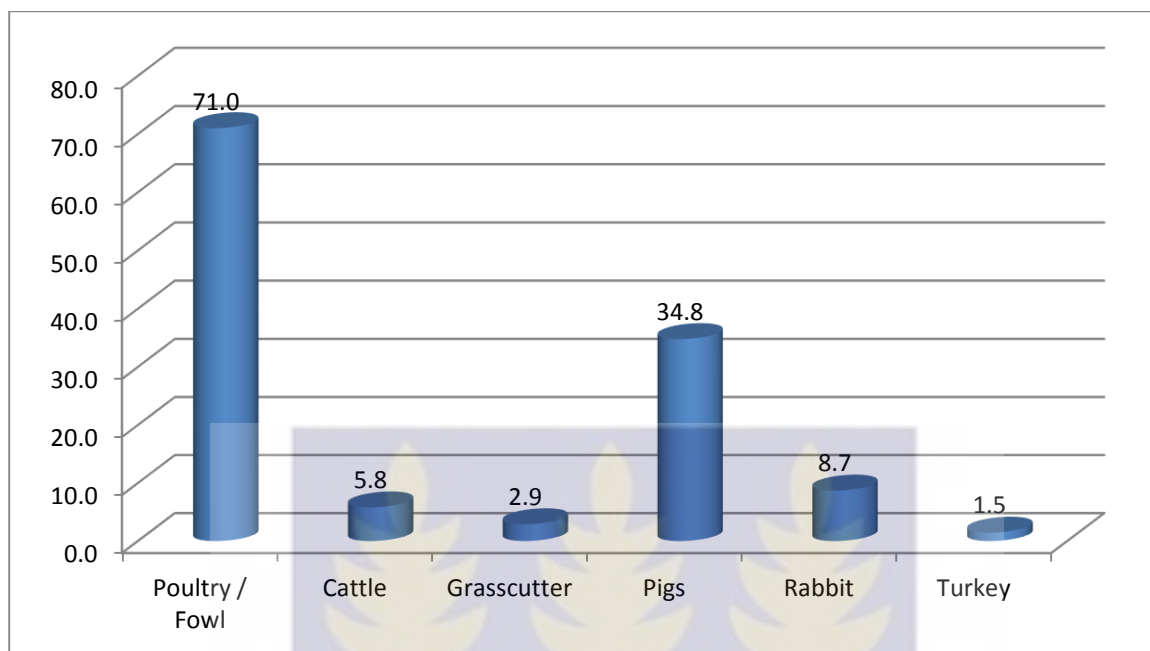
The main crops produced by the farmers before their land was taken away from them were yam (45.1%), maize (19.8%) and cassava (16.5%). Some farmers were not specific on the particular kind of crop they cultivated and just stated vegetables and fruits. More than half of the farmers were cultivating vegetables (52.8%) before they lost their land. This is similar to results of the focus group discussion. The farmers indicated that they usually planted more than one crop so that if one crop failed them, they could depend on the others. Some stated that they usually planted cassava, yams and maize alongside vegetables with the explanation that the maturity period of vegetables is shorter than the other crops. Hence, while they are waiting for the crops to mature, which usually spans more than four months, within three months, they could harvest vegetables such as cabbage, green pepper among others to give them money to supplement household income.

Figure 4.4 Distribution of crops cultivated by farmers prior to losing land

Source: Student's field data (July 2015)

4.3.5 Livestock Type per Farmer

Most of the farmers were keeping poultry before they lost their land (71%). Also, a significant proportion also kept pigs (34.8%) and rabbit (8.7%). Other livestock the farmers were rearing have been shown in Figure 6 below. Almost all the farmers who participated in the study indicated that they kept livestock but many of them noted that they are not solely into poultry farming but just rear them in their homes. A few of them they reared pigs on a small scale in addition to their crop farming activities.

Figure 4.5 Distribution of livestock reared by farmers prior to losing land

Source: Student's field data (July 2015)

4.3.6 Farmers' Output¹

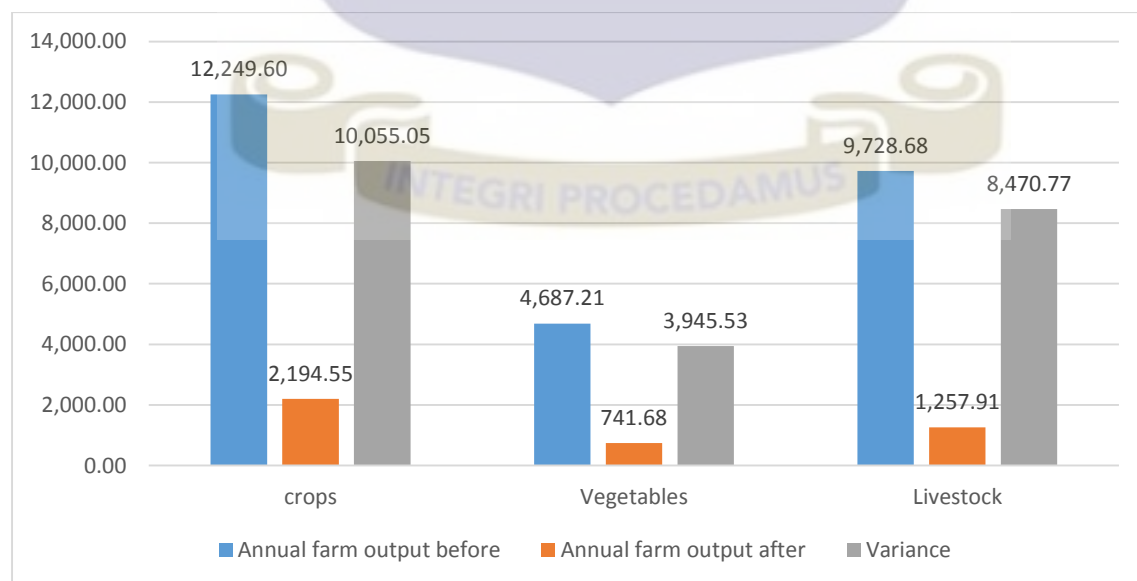
Farmers were asked to state the income they used to get annually when their lands had not been taken away from them and how much they make now that their farmlands have been taken away. The results presented in the figure below shows that for crops, farmers used to make GH¢12,249.60 annually from the sale of their farm output when their lands had not been taken. However, they currently make about GH¢2,194.55 from the sale of their crops, showing a huge variance of GH¢10,055.05. Under vegetable cultivation, farmers used to make GH¢4,687.21 annually but this reduced drastically to GH¢741.68, showing a variance of GH¢3,945.53. Finally, under livestock production, farmers were making an average of GH¢9,728.68 annually but this has reduced to GH¢1,257.91 in recent times, showing a

¹ The figures presented in this section are hypothetical figures. Many of the farmers did not actually keep records of their exact income and hence gave hypothetical figures. These figures can therefore not be considered exact figures.

remarkable variance of GH¢8,470.77. During the study, it was observed that many of the farmers have sheep and goat pens but the number of animals was not more than 7. It was also observed that many of the farmers brought some of the livestock to the market for sale, even though they were small and not mature. When I asked one of the farmers why he would sell a little sheep and not wait for it to grow to get a higher price, he explained that life was very hard for him and his household so *“I know I will get a small unsatisfactory amount for it but if I refuse to sell it, I don’t know how I will fend for my family in the coming days”*. This showed the severity of the condition of some of the farmers after their lands were taken from them.

A participant who still farmed on a reduced land size said that he used to cultivate maize and cabbage and could harvest more than 10 bags after a planting season but the maximum number of bags (maize) he has harvested over the last three years is 4 bags because there has been a reduction in his farmland. All the other participants agreed that their farm output had reduced drastically because of the reduced size of their farm lands.

Figure 4.6: Output on original size of landholding before land loss (GH¢)



Source: Student's field data (July 2015)

4.3.7 Income Distribution Before and after Loss of Landholdings

However, a slightly lower proportion of the farmers indicated the income received from their previous landholding was very high (62.2%) whilst 34.7 had a moderate income. The remaining 3.1% had low incomes from their landholding prior to losing their land. About three-quarters of the farmers (75%) revealed their output have been low since their lands were taken away from them. Also, about 13.5% did not have any land to produce with or use as an income generating asset at all. On the other hand, a slightly lower proportion (11.5%), reported a moderate output level after losing part of their land. A greater proportion of the farmers estimated they could receive about GH¢1600 - 2000 (36.6%), GH¢1,100-1,500 (17.1%) and GH¢2,100-2,500 (17.1%) after the loss. Some of the farmers reported other income levels like GH¢600-1,000 (9.8%), GH¢2,600 -3,000 (8.5%), GH¢100-500 (6.1%) and above GH¢3,000 (4.9%).

During the focus group discussion, the participants explained that before their lands were taken, the income they derived from the sale of their farm output was relatively much higher than what they earn today. One of the participants explained that before his land was taken away from him, he used to earn about GH¢7,000 annually. However, presently, his annual income is less than GH¢4,000 because he is now a labourer with a construction company. Another participant said *“my sister, I barely have any savings because I live on hand to mouth and what I earn now from the rearing of grass cutters is far less than what I used to make when I had a land to farm”*. Deducing from the survey responses and the focus group discussion, it can be concluded that farmers now make less income as compared to periods when they used to cultivate their farms.

4.4 ALTERNATIVE LIVELIHOOD ACTIVITIES UPTAKE

Of the total number of farmers interviewed in the survey, 82 of them indicated that they were engaged in alternative livelihood activities following the loss of their land. The remaining 18 of the respondents were currently not engaged in any alternative activity. 11 out of the 18 respondents noted, they were still farming the small pieces of land they had left. They also added that they were farming on plots people had bought but were yet to develop. The remaining 7 of the respondents did not indicate anything they were doing at the moment. Few reasons were highlighted for the non-uptake of the alternative livelihood program. Among these reasons are that, the project was considered cost intensive hence adequate capital to undertake the project. Another challenge that was indicated was the issue of incentives by project initiators which is unlikely to benefit all the farmers willing to take up alternative livelihood options. They also debated that it was a political initiative while others had a pessimistic view of the project. A few others also noted that even though they did not accept initially, when they were ready to join the project, some of the people who were beneficiaries complained of unfair treatment meted out to them by project managers. At the focus group discussion, of the 12 farmers who participated in the study, 9 of them were engaged in alternative livelihood activities while the remaining three were not.

It was however realized that not all the 82 farmers were engaged in activities Heifer introduced to the farmers while 49 of them were beneficiaries of Heifer alternative livelihood activities, the remaining 33 were not. A large proportion of the 49 farmers (32) were into farming, while 17 were into livestock rearing. This confirms what the agricultural extension officer stated that, the assembly supported Heifer by introducing the farmers to improved and high yielding seedlings with short maturity period as part of the project. She further explained that they realized the farmers were more comfortable with crop farming as

compared to livestock rearing hence providing farmers who still had small farmlands “with improved seedlings that have a short maturity period and can yield much with little inputs”. This underscores the reason many of them are into farming under the project. According to the Agriculture extension officer, under the project, farmers who already have lands up to the size of 2 to 4 acres and can afford to farm on it for a few months before its conversion into buildings are supplied with high yielding cassava and maize. The high yielding cassava is known as Bankyehemaa, Ampong and Etuhya. The reason for this initiative is to ensure a multiplier effect from the cultivation of the cassava so that other farmers can benefit from it. Apart from selling the cassava fresh to market women, some farmers turn the cassava into starch, gari, kokonte while the peels are fed to pigs and other livestock as food.

As conceptualized in chapter two based on Rogers (2008) diffusion model, although some of the farmers will accept the alternative livelihood activities under the Heifer project, others will also prefer to adopt their own independent activities.

Behind this backdrop, some of the farmers engaged in activities such as trading, carpentry, security services, sewing, driving, masonry and teaching as presented in Table 3 below. At the focus group discussion, some of the farmers who were engaged in their own independent activities were asked the reason they did not take the Heifer option but chose their own path. One of the participants explained that *“after losing my land for farming, I wanted an activity that will give me regular income and I will have control over it even in my old age. That is why I decided to be a mason because after enrolling myself as an apprentice and becoming a master after four years, I have now been able to buy land on which my wife is farming vegetables to support the income I make”*. Others also explained that they did not see livestock rearing as an activity that will give them regular income given the size of household they have. Trading and such activities were good, which will give them regular sources of income.

Table 4.3 Alternative livelihood programmes for respondents

Alternative Livelihood Programme	Frequency
Heifer Livelihood Activities	
Farming (with improved seedlings)	32
Livestock rearing	17
Independent Livelihood Activities	
Trading	19
Carpentry	7
Security officer	2
Sewing	2
Driving	1
Masonry	1
Teaching	1
Total	82

Source: Student's field data (July 2015)

In terms of the success of uptake of alternative livelihood programmes, of the 49 farmers who took the alternative livelihood activities provided, as high as 43 of them indicated that they had been very successful. Of the 43, 32 of them were crop farmers and 11 were livestock farmers. Thus, all the farmers under the Heifer project indicated that they were able to reap high produce within a short period. Some of them also explained that the crops on the farm were pest and drought resistant and performed well even with little rainfall and little or no application of fertilizers. However, of the remaining 6 livestock farmers who indicated that the project was not successful, they explained that they had challenges with the startup capital to build expanded fences for rearing the livestock. They accepted that those who had some initial capital to expand their livestock rearing activities really enjoyed the benefits of the project but those who had financial challenges could not reap any significant output from the project.

Analysis of control experiment

The study observed that 43 farmers were successful under the project, while 18 did not take up any alternative livelihood activities. In terms of income, the former were better off than the latter. A measure of incomes as a successful factor of alternative livelihood up-take, showed that 43 farmers under the Heifer alternative programme were successful. Thirty-three farmers who adopted an independent livelihood activities did not show significant difference. It is imported to note that as economic activities increase income as likely to rise. The incomes of the two groups who adopted alternative livelihood activities were however higher than those who did not adopt any alternative livelihood activity. The income of the 43 successful farmers ranged between GH¢1,100 and GH¢2,500. As high as 39.5% earned GH¢2,100 - GH¢2,500, 34.9% earned between GH¢1600 - GH¢2000, and 25.6% earned between GH¢1,100 - GH¢1,500. However, for the 18 who were not under the Heifer project, their incomes were far lower, ranging between GH¢100 and GH¢2,000. Half of them (50%) earned between GH¢100-500, 38.9% earned between GH¢600- GH¢1,000 and only 11.1% earned between GH¢1,600 - GH¢2,000.

Based on this, it can be concluded that as additional economic activities are introduced to farmers, it is likely to influence alternative livelihood programmes positively, hence improve farmer income. Even though both alternative livelihood practitioners and non-practitioners under the survey experienced different levels of output they could not quantify farm or livestock yield. Participants in the focus group discussions experienced increased levels of output in yield with respect those who participated in alternative livelihood for both Heifer and independent programmes. Farmers who did not participate in any form of alternative livelihood programmes experienced declining levels of output.

This study's findings are however, consistent with similar studies elsewhere in Ghana. In Northern Ghana, Gyasi (2006) observed that after farmers had their farm lands reduced in size due to land use change, they adopted agricultural diversification which included

livestock-crop integration, drought tolerant crops, and crop intensification; and out-migration. Asiedu and Nunoo's (2013) study of fisher folks in Kpong, Small London, Ahwiam and Elmina found that majority of the fishermen were willing to consider alternative livelihood activities such as boat operating, livestock and aquaculture farming in addition to construction and factory work. The study found out that between 4 to 20 percent of the fishermen were already involved in self-initiated alternative livelihoods such as crop farming, livestock rearing, teaching and trading of non-farm items. In the Ahafo areas, where Newmount Ghana is operating, the effect of the mining activities on the lives of the farmers has made Newmont Ghana to train small-holder farmers in vocational skills and non-traditional farming practices such as mushroom production and bee-keeping (Temeng and Abbew, 2009) as a way of giving them some means of subsistence.

4.4.1 Factors Influencing Alternative Livelihood Uptake

The in-depth interview with the three officials revealed that the main reason for the introduction of the alternative livelihood programme was the loss of farm lands due to the conversion of the lands into residential development. The Agricultural Extension Officers also added that in addition to land conversion, sand winning activities were also destroying large acres of the farmlands.

The 49 respondents who took the alternative livelihood activity provided by Heifer Ghana had different motives for being involved in particular livelihood programmes. Two dominant factors influenced the respondents' selection or uptake of one alternative livelihood programme over the other. The first major reason is that the continuous loss of farmlands, led to decrease in annual incomes and because many of them used to hire lands from landowners, they did not own the land as an asset they had control over. However, by taking

alternative livelihood activities their income will increase and they will be able to inherit assets. Others also indicated that they were likely to accept the options presented to them if they were in line with their expectations. Thus, many of the farmers who were only crop farmers were eager to accept the alternative interventions when the Agriculture Extension Officer added short maturity crops as option. Many preferred that option to livestock rearing because it met their expectations. However, those who took that option had 2 to 4 acres of land. Others also accepted because they could make a living out of it to support their families. Interestingly, some of them indicated that they had limited choice after losing their lands and hence with limited alternatives, they had no choice than to accept the available best option presented to them.

During the focus group discussion, the participants noted that they accepted the alternative livelihood activities because of the unbearable economic hardships they were going through. Some of the men who have completely lost their farmlands explained that they have to sell their labour to masons and carpenters to get something to feed their families. Some said they sometimes have to weed around people's houses before they can get money. The initiatives by Heifer Ghana were therefore seen as a means of providing them with a regular source of income.

Farmers usually take alternative livelihood programmes mainly because of their inability to generate enough income to provide subsistence for their households from their current livelihood activities. The literature had explained that in some places, whereas factors such as population growth and urbanization drove man to convert farmlands into construction activities, in other places, crude and bad agricultural practices gradually reduced the ability of nature to produce enough subsistence for people. In Hong Kong for instance, unregulated fishing practices affected the volume of fish that fishermen could catch and this ultimately affected their livelihood and hence the need for interventions (Teh et al, 2008). In the herder

regions of sub-Saharan Africa, Oslon et al (2014) found that uptake of alternative livelihood activities was in response to the impact of drought or of the decreased access of livestock to the water in swamps and rivers, which invariably affected income levels. In Ghana, the Northern sector of the country suffer from periodic loss of income due to drought.

Table 4.4 Factors for choosing alternative livelihood activity

Motives	Frequency	Percent
Low income from farming	80	98
Ability to inherit assets	57	70
Programmes meeting farmer's expectation	36	44
Support family	24	29
I have no choice	13	16
Other	8	10
Total (in row)	82	100

Source: Student's field data (July 2015)

4.4.2 Benefits from Alternative Livelihood Programmes

The study also wanted to learn whether alternative livelihood programmes the respondents subscribed to have been able to increase their income. The survey results show that over 93.4% of those who were beneficiaries of the alternative livelihood programme reported an increase in income. It is interesting to know that all those who did not realise any increase in income did not have income generation as their primary motive for going into that livelihood programme.

About 52.7% of those involved in alternative livelihood activities were able to provide their food needs from farming. Others who were carpenters also made furniture for themselves (10.9%). It is only one respondent who indicated there has not been any increase in income or other benefits from the alternative livelihood programme. This respondent was in this programme just for the excitement / love of it. Respondents identified the ability to provide for the family (12.7%), job satisfaction (10.9%) and increase in market share (3.6%) as other benefits apart from income (Table 5).

The in-depth interview with one of the Agriculture Extension Officers revealed that apart from the Heifer Project that supplied the farmers with livestock at no cost, the Agricultural Department is currently giving interested farmers pigs, cockerels and ducks at cheaper cost from different parts of the country. She further added that the project has helped some female farmers and other family members of farmers who are into zero grazing cattle rearing to produce local yoghurt from the cow milk, which adds to their household income.

The Programme Coordinator of Heifer Ghana said that it was difficult to measure or determine the impact of the project because it did not establish any form of indicators for measuring successes or otherwise. However, as a baseline, the project only received annual reports or visited Abokobi to assess progress looking at the before and after conditions. He added that the farmers made money from the project which some used to build their own houses and paid hospital bills. He explained that *“we have records of a farmer who sold three quarters of his grass cutters to pay for surgical fees of his wife”*.

From the focus group discussion, the participants noted that farmers who have been successful under the programme received both livestock and input support from the Heifer Project. The farmers also received technical advice from the agriculture department. But without support, some of them are finding it difficult to maintain the livestock. For instance,

one of the participants, explained that his farmland was reduced from 2 to 1 acre. He lives with his 4 children, a wife and 2 family members. He currently rears ducks, turkey, poultry and owns a piggery. He had about 520 turkeys in 2013 but this number reduced to 71 due to rising feeding cost.

Thus, despite the enormous contribution of the project to the farmers, there are other known challenges. Some of the participants at the focus group discussion indicated that the project coordinators were sometimes not fair in the distribution of logistics to the farmers. Some beneficiaries of the project indicated that some of the farmers were given preferential treatment because they knew the project coordinators. To the Programme Coordinator, there was some initial resistance from a few farmers who did not believe in the project. The Heifer Programme Coordinator also added that because most of the livestock, example the grass cutter was domesticated, it was easy for people to steal. A number of them just sold all of the animals rather than to wait for thieves to steal them. Funding for the project was not big enough to lift all of the farmers from poverty to wealth creation or to empower them.

Unlike this study, which found that the project had positive impacts on the income of farmers, in other places in Ghana where similar projects have been implemented, studies have found that they did not have significant changes in the income levels of the farmers. Osei Kwodwo et al (2014) found that the alternative livelihood programme implemented by Newmont for farmers in the affected mining communities had not had any significant effect on the income levels of beneficiaries. Although the programme was at its early stages at the time of their study, they found that the farmers had high interest in the programmes but the sustainability of the programme received mixed feelings from the farmers.

Table 4.5: Other benefits of alternative livelihood programme

Benefits	Frequency	Percent
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Food	29	52.7
Provide for the family	7	12.7
Job satisfaction	6	10.9
Furniture	6	10.9
Able to cater of myself	3	5.5
Increase in market share	2	3.6
Keeps me occupied	1	1.8
None	1	1.8
Total	55	100

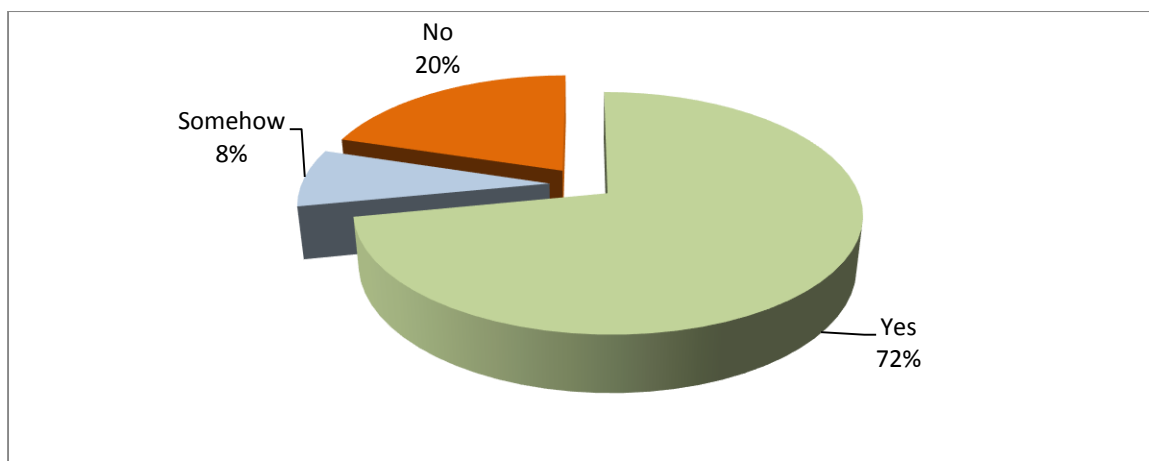
Source: Student's field data (July 2015)

4.4.3 Alternative Sources of Income

The respondents were asked whether they had alternative sources of income apart from the alternative livelihood programme. It came out that majority of the respondents who had alternative livelihood activities did not have any alternative source of income (90.2%).

On the question of whether respondents were able to depend on their income from land after losing part of it, majority of them responded in the affirmative (71.9%) with 7.9% indicating just a little or sometimes. All the female respondents who responded to this particular question indicated they could depend on their income from the part of their land that was left compared to 69.9% of the male respondents.

Figure 4.7 Dependence on income from land after losing part of it



Source: Student's field data (July 2015)

4.5 FACTORS INFLUENCING SUCCESSFUL UPTAKE OF ALTERNATIVE LIVELIHOOD ACTIVITIES

A critical assessment was made to examine the factors that influence a successful uptake of alternative livelihood programme. The first major factor that was found was expectation. Where the alternative livelihood programmes presented to farmers were what the farmers were expecting, there was successful uptake. This was mostly those who were previously into livestock rearing. Since Heifer Ghana was more involved in giving farmers livestock to rear, those who were previously into livestock rearing were able to identify with the project and hence accepted the offer. 49% of the respondents also noted that the package Heifer Ghana offered them was attractive to make them accept it. They explained that the alternative livelihood activities first involved training in skills acquisition and after a successful training, they were offered livestock to rear free of charge and this attracted them more into taking it.

Aside expectation, the incentives that came along with being members of the project also influenced successful uptake. The respondents indicated that they took the livelihood

activities because under the project, the livestock and seedlings for farming were given to them free of charge. Aside the livestock and seedlings, they were given technical advice on how to properly manage the seedlings and livestock to achieve higher yield.

Other demographic characteristics were also found to influence successful uptake of alternatively livelihood programmes. The first is education. They explained that those who properly understood the objectives of the project and how imperative the project was to their livelihood easily took the project but those who could not understand the essence of the project felt reluctant to take up the offers, thinking it was partisan in nature. As high as 78% of the respondents also noted that the size of the households and the number of dependents also played a role. As noted above, many of the respondents noted that they have a household of 8, showing that the household size is big. The large household size translated into high consumption. Loss of farmland therefore meant high burden to meet household expenditure. Finally, 33% also indicated that the age of the farmers also played a role in influencing the decision to take the livelihood activities; with the aged farmers expressing no or little interest in it but the energetic and those within the 40s and 50s expressed high interest in it.

During the interviews, the three key officials under the project also indicated that the farmers accepted the alternative livelihood activities mainly because they lost their livelihood to the reduction of farmlands and they were left with little options. This was not different from what was said at the focus group discussion. One of the participants explained that *“after I lost my farmland, life became unbearable and I had to struggle a lot to even get money to give to my children to continue schooling. My children used to attend a private school but after I lost my farmland, I was forced to withdraw them to a public school and it was even difficult to get pocket money for them”*. Others also shared in the sentiment of this female participant

chousing that all the farmers who lost their farmland struggled to make a living. The alternative livelihood activities that Heifer Ghana introduced to them was the best option they have had since they lost their farmland. One farmer said *“if you lose your integrity in your own home because you can’t provide for your household and someone asks you to lie down for him to trample upon you so that he/she gives you something to support your household, you will gladly do it”*. This indicates the extent to which some of the farmers who had lost their farmlands were willing to go because they wanted to meet their household needs.

Table 4.6 Factors that influence successful uptake of alternative livelihood initiatives

Factors	Percentage
Alternative activities meeting farmer’s expectation	54
Incentive and benefits from the program	49
Educational level	57
Age of respondents	33
Household size	78
Others	14

Source: Student's field data (July 2015)

4.6 TESTING OF HYPOTHESES

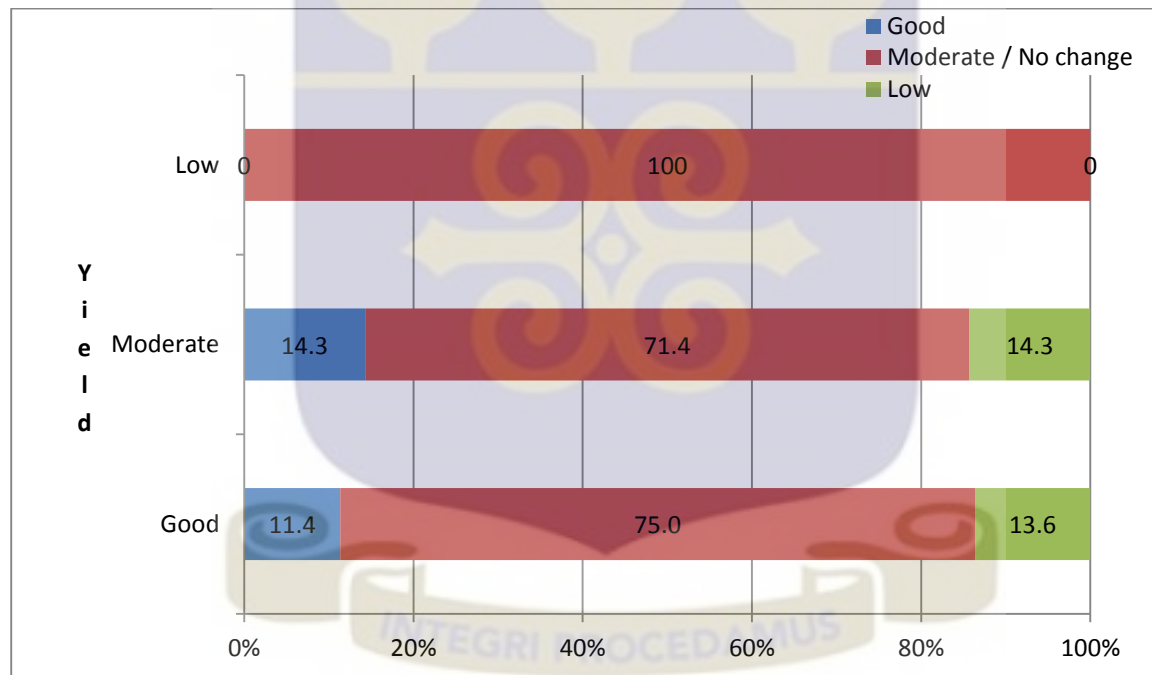
Hypothesis 1

This hypothesis states that Alternative Livelihood programmes as a result of changing land use patterns do not increase crop and livestock output of small-holder farmers. The

alternative hypothesis suggested that Alternative Livelihood programmes as a result of changing land use patterns increases crop and livestock output of small-holder farmers.

About 91.7% of the respondents indicated they had very high and good yields prior to losing their land whereas about 7.3% and 1% indicated they had moderate and low yields, respectively. However, none of the respondents reported a very good yield after they lost some or the entire land. About 11.4% of the respondents reported a moderate yield, whilst 75% and 13.5% reported low yields and no production respectively.

Figure 4.8 Output level prior to land loss for each level after land loss



Source: Student's field data (July 2015)

Even though as much as 75% and 11.4% of those who reported very high and good yields from their land before losing part of it experienced low and moderate yields after the loss respectively, a Pearson's chi-square test resulted in a p-value of 0.983. Thus, alternative

livelihood programmes as a result of changing land use pattern increases household income and not crop or livestock output of small-holder farmers.

Farmers now have smaller plots of land to grow crops and to raise livestock, hence the introduction of alternative livelihood programmes increases the sources of income irrespective of declining output from original farming activities. The alternative livelihood programmes introduced additional income generating economic activities that influenced livelihood of farmer households positively.

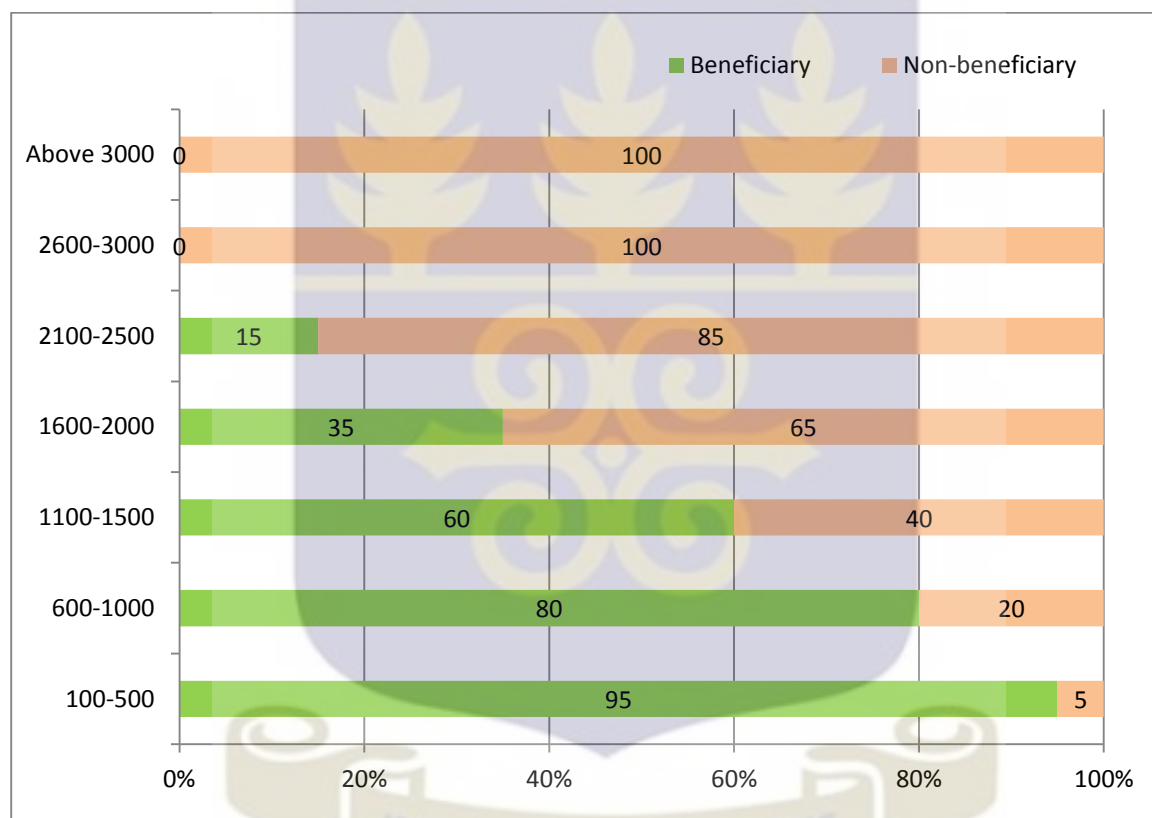
Hypothesis 2

Hypothesis 2 states that reduced income levels do not influence the uptake of Alternative Livelihood programmes by small-holder farmers in Abokobi. The alternative hypothesis states that reduced income levels influences the uptake of Alternative Livelihood programmes by small-holder farmers in Abokobi.

A large proportions of farmers with low monthly income adopted alternative livelihood programmes compared to farmers with higher income. All the respondents with monthly income of between GHC2600 and above did not adopt the programme compared to 95% of those whose monthly income is GHC500 or less. The findings therefore show that those whose monthly income was GHC1500 or less adopted the program as compared to those whose monthly income was more than GHC1500. These differences were found to be significant at 1% as a Pearson's chi-square test gave a p-value of 0.001. Hence, it can be concluded that the uptake of alternative livelihood programmes by small-holder farmers is influenced by their income level.

This hypothesis attempted to ascertain if the current income levels of farmers influenced their choice of adoption of alternative livelihood programmes. Based on the descriptive analysis and chi-square test, it can be agreed that income of famers influences their choice of up-take of alternative livelihood programmes.

Figure 4.9 Distribution of income levels of households by uptake of alternative livelihood programme



Source: Student's field data (July 2015)

4.7 Conclusion

The results presented above have shown that the uptake of alternative livelihood programmes positively impact on improving the incomes of small-holder farmers. Of all the respondents, 82 were engaged in different alternative livelihood activities and only 18 were not engaged in

any livelihood activity. Of the 82, who were engaged in livelihood activities, 49 were under the Heifer Project while the remaining 33 were engaged in independent livelihood activities. Under the Heifer Project, farmers were presented with two major livelihood activities namely farming (with improved seedlings) and livestock rearing. Of the 49 farmers under the Heifer Project, as high as 43 had achieved success in the uptake of the livelihood activities. An income comparison with those who did not take any alternative programme showed that the uptake of alternative livelihood activities significantly improves the income level of small-holder farmers.



CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 INTRODUCTION

The study examined the uptake of alternative livelihood programmes by small-holder farmers whose landholdings had been converted into settlements in Abokobi, a peri-urban community in the Ga East Municipality. It also examined factors influencing uptake or otherwise by farmers affected by land use change in the area. The study adopted a triangulation method by combining quantitative and qualitative methods of gathering data in addition to focus group discussions with the farmers and in depth interviews with officials of the department of agriculture and Heifer Ghana stationed at Abokobi and East Legon. A simple random sampling method was used to elicit responses from farmers using semi-structured questionnaire. One hundred respondents were interviewed on prevalent land use change effects on their land holdings. A focus group discussion with 12 selected leaders of the farmers as well as interviews with three key officials on the project were also conducted to obtain in-depth knowledge on the project. This section presents a summary of the findings.

5.1 SUMMARY OF FINDINGS

The study sought to achieve four main specific objectives namely: to establish the effects of land use change patterns on small-holder farmers' landholdings and outputs; to determine the level of uptake of the livelihood support programmes by the small-holder farmers; to identify the factors that influenced the successful uptake or non-uptake of these initiatives; and to examine the benefits of alternative livelihood programmes.

5.1.1 Land Ownership, Size and Output

The results of the study showed that very few of the respondents had rights or ownership of the land tilled for their livelihood. A greater proportion of the respondents had their land leased, rented or owned by family members. Some of the respondents were migrants who had stayed in the community for a long time and hence considered themselves as indigenes who did not own lands but entered into arrangements with land owners to rent for farming.

The Ga-East Municipal Assembly does not have statistics on the proportion of land before and after the land conversion. However, the results from the study, which are hypothetical figures given by the farmers, showed that the average size of land lost by small-holder farmers at Abokobi was 2.48 acres, lower than the estimated farm size of 3.63 acres owned by small-holder farmers before land loss. The reduction in small-holder farmer land size was a confirmation that prevalent land use change had affected landholdings. In terms of crop output, the figures hypothetically given by the farmers in Abokobi showed a reduction in farm output from an estimated GH¢12,249.60 annually before land conversion to GH¢2,194.55 after land conversion. Vegetable output had also reduced from GH¢4,687.21 annually before land conversion to GH¢741.68 and livestock had also reduced from an estimated GH¢9,728.68 annually to GH¢1,257.91 in recent times. Even though the results were not authenticated against any official figure and hence cannot be totally reliable, it showed that the conversion of farmlands to residential facilities had resulted in a reduction in output.

In depth interviews with farmers and officials of the department of agriculture at Abokobi indicated the land owners were currently selling many acres of fertile farmlands to estate developers and this was the major cause of land loss. This unprecedented sale of farmlands to estate developers had totally reduced the output of farmers since they had only limited land

spaces to cultivate and others had become totally landless because their farmlands had been sold out.

5.1.2 Uptake of Alternative Livelihood Support Programmes

The results showed that of the 100 farmers who were engaged in the survey, as high as 82 of the respondents had taken some alternative livelihood programme while the remaining 18 were not. It also revealed that not all of the 82 were under the Heifer Project. Of the 82, 49 were into crop farming (high yielding and short maturity period) and livestock rearing under the Heifer alternative livelihood programme while the remaining 32 were engaged in independent alternative livelihood programmes such as trading, carpentry, security work, masonry among others. Those who were engaged in independent alternative livelihood activities explained that the Heifer activities were deemed not to yield sustainable substantial regular income.

Under the project, the crops planted by small-holder farmers included cassava, plantain, maize, fruits green pepper and okro with some of them combining new crops with livestock farming. Most of the farmers kept poultry while others reared pigs and rabbit. Prior to the loss of land, 71% of small-holder farmers in Abokobi kept poultry, followed by pigs, rabbits and cattle. Grass-cutter and turkey were of the least interest with 2.9 and 1.5% of farmers rearing the two respectively. Majority of the farmers recorded high yields or outputs of crops and livestock in the community. The department of agriculture in collaboration with Heifer Ghana also distributed cattle, grass cutter, rabbits, fowls and goats to the farmers.

5.1.3 Factors Influencing successful uptake of Alternative Livelihood Activities

The factors that influenced the uptake of alternative livelihood programmes were the loss of farmlands and the low income farmers made due to the small size of the farms that they cultivated. Others also explained that they did not have any landed assets and as such taking the alternative livelihood activities would enable them to acquire assets they could fall on in times of shock. Another factor that influenced successful uptake of the alternative livelihood programmes was the expectation of the farmers. Farmers successfully adopted the programmes that met their expectations. Some farmers noted that they did not have any option after the land use change, that is, loss of land. Others noted the need to support their families influenced the adoption of alternative livelihood programmes.

5.1.4 Benefits of the Uptake of Alternative Livelihood Activities

Overall, 93.4% of farmers who adopted alternative livelihood programmes from the department of agriculture and self-initiative reported an increase in income as the main benefit. The remaining 6.6% of the small-holder farmers who said they did not realize an increase in income were the farmers who could not get the needed capital to expand the activities they were engaged in especially the livestock rearing. The main benefit that was cited from the survey was the fact that under the alternative livelihood activities (Heifer or independent), they are able to provide subsistence for their families and meet their basic needs. Some also stated that they have acquired assets under the project some of which were bicycles, motor cycles, television sets, electric fan, refrigerator and radio.

The in-depth interview with the project officials also revealed that farmers under the project are able to acquire livestock such as pigs, cockerels and ducks at cheaper cost from different parts of the country. Some of the women in the area have gained employment by using the

milk from the zero grazing cattle reared to produce local yoghurt for sale. Farmers are also able to cover their household expenditures such as food and medical bills.

5.2 CONCLUSION

As small-holder farmers continue to lose landholdings to land use change, specifically, real estate development, it is becoming increasingly necessary to introduce such farmers to alternative livelihood programmes. The conversion of farmlands into settlements is a major cause of land use change in the study area of Abokobi. Most of the farmers with land size averaging 3.6 acres have had part or all of their landholding taken from them. This is mainly because, majority of the small-holder farmers do not own the land; they rent the land from the landowners to farm. However, due to population growth and urbanization, the housing needs of the populace in Accra has increased to the point that farmlands are now being sold at higher prices to individuals and real estate developers for housing purposes. This affected their output and income drastically. It can therefore be concluded that, with the continuous conversion of farmland, uptake of alternative livelihood activities is very cardinal for the sustainable livelihood of small-holder farmers, especially in the peri-urban areas.

Given the situation where small-holder farmers have little or no control over landholdings and the fact that their livelihood begins to deteriorate, majority of victims accepted or adopted alternative livelihood programmes. Thus, the major reason accounting for the farmers taking alternative livelihood strategies is the fact that they have lost their farmlands and at the same time, are unable to meet the needs of their families. The findings of the study revealed that some of the farmers adopted the Heifer alternative livelihood activities while others adopted independent livelihood activities, which they think will fetch them more income as compared to the Heifer's. There was however no difference between the income

levels of those who took the Heifer alternative livelihood activity and those who took their independent alternative activities. Under the Heifer Project, farmers were introduced to livestock rearing. The Ministry of Agriculture in Abokobi also provided farmers who had some lands to farm with improved seedlings which has high yields and short period of maturity.

The resultant effect of the alternative livelihood activities that the farmers adopted is that their incomes have improved and they are now able to meet the subsistence needs of their families. They are also able to cover all household expenditure such as medical bills and payment of children's fees and at the same time, get some money to acquire household appliances and other transportation assets. It can therefore be concluded that uptake of alternative livelihood activities after land conversion has positive effect on improving people's living standards and their overall socioeconomic wellbeing. However, in the introduction of alternative livelihood activities to any community, the interest and expectation of farmers are to be taken into consideration else such programmes may not yield the intended objective.

5.3 RECOMMENDATIONS

Based on the findings, the study recommends the following:

First and foremost, some of the farmers did not take the alternative livelihood activities presented to them by Heifer Ghana but rather engaged in independent activities mainly because they could not properly identify themselves with the project. Even under alternative livelihood interventions, it was found that majority of the farmers still engaged in farming with improved seedlings presented to them by Ministry of Agriculture. For any alternative

programme to be successful, the providers should engage the farmers or the affected people to know what would be in the interest of majority of them. Else, much funds will be wasted without making any significant impact.

Also, it is an undeniable fact that no country can achieve sustainable development without investment in agriculture. Given the fact that increasing urbanization poses significant threat to agricultural activities at the fringes of the city requires policy and institutional regulations. The development of the city must be properly controlled and coordinated such that development does not significantly affect the agricultural activities. The rate of land loss and its adverse impact on livelihoods in the peri-urban residents of the Greater Accra Metropolitan Areas calls for proper and efficient planning of urban areas with much consideration for the preservation of space for agriculture.

The government and the Local Government Ministry should devise and introduce farmers to diverse kinds of alternative livelihood activities in the peri-urban area. The real "losers" in the struggle over tenure change and land use conversion are those with few options outside agriculture. While viable alternatives are few, efforts must be made to equip people for those alternative livelihoods that are viable, both in terms of training and in terms of access to the capital they need for starting up. This will also require the intensification of public education and the engagement of farmers in public sensitization and forum to educate them on the need to take other alternative livelihoods and not live only on farming, especially those living in the peri-urban areas like Abokobi.

Finally, some of the beneficiaries and non-beneficiaries of the project all complained about the lack of fairness in the way they treated the farmers on the project. The level of confidence people have in any system influences the level of uptake. To achieve a successful uptake of

any alternative livelihood activity, there needs to be fairness and transparency in the execution of the project.



References

- Abass, K., Afriyie, K. & Adomako, J. A. A. (2013). Household Responses to Livelihood Transformation in Peri-Urban Kumasi. *Journal of Sustainable Development*, 6(6):121 - 136.
- Akabzaa, T. and Darimani, A. (2001). Impact of Mining Sector Investment in Ghana: A Study of the Tarkwa Mining Region. Washington DC: SAPRIN.
- Allen A., Frediani A. A. and Wood-Hill M., (2014). Land and Planning for Urban Agriculture in Accra: Sustained Urban Agriculture or Sustainable Urbanization? Colombia University: Millenium Cities Initiative, The earth Institute.
- Asiedu, B. and Nunoo, F. K. E. (2013). Alternative Livelihoods: A Tool for Sustainable Fisheries Management in Ghana. Department of Marine and Fisheries Sciences, University of Ghana. *International Journal of Fisheries and Aquatic Sciences*.
- Atamanov, A., & Berg, M. (2011). Microeconomic Analysis of Rural Non-farm Activities in the Kyrgyz Republic: What Determines Participation and Returns? Wageningen, The Netherlands: Maastricht Graduate School of Governance, University of Maastricht.
- Brouwer, F.M. & Chadwick, M.J. (Ed.) (1991). *Land Use Changes in Europe*. Kluwer: Dordrecht.
- Burns, N., & Grove, S. K. (2003). *Understanding Nursing Research* (3rd ed). Philadelphia, Saunders.
- CEDEP (2004). Adoption and Impact of Livelihood Activities in the Kumasi Peri-Urban Interface. CEDEP Report No. 1.
- Chamberlin, J. (2008). It's a Small World After All, Defining Smallholder Agriculture in Ghana. International Food Policy Research Institute Discussion Paper 00823. Development Strategy and Governance Division, Michigan State University.
- Chambers, R. and Conway, G.R. (1991). Sustainable Rural Livelihoods: Practical Concepts For The 21st Century. IDS Discussion Paper 296.
- Crawford, B. (2015). Seaweed farming: An alternative livelihood for small-scale fishers. Coastal Resources Center working paper.
- Czech, B., Krausman, P.R., and Devers, P.K. (2000). Economic associations among causes of species endangerment in the United States. *BioScience*, 50, 593–601.
- Dale, H.V. and Haeuber, R.A. (2000). Perspective on Land Use. *Ecological Applications*, 10(3), 671-672.
- FFA (2002). Summary. Forum Fisheries Agency. www.ffa.int/tonga.html
- Flamant, J.C., Beranger, C., & Gibon, A., (1999). Animal production and land use sustainability—an approach from the farm diversity at territory level. *Livestock Prod. Sci.*, 61 (2/3), 275–286.
- GSS (2014). 2010 Population and Housing Census: District Analytical Report, Ga East Municipality. Accra: Ghana Statistical Service.

- Gyasi, E. A., Karikari, O., Kranjac-Berisavljevic, G. and Von Vordzogbe, V. (2006). Climate Change Vulnerability and Adaptation Assessment Relative to Land management in Ghana.
- Haller, A. (2013). The “Sowing of Concrete”: Peri-urban smallholder perceptions of rural–urban land change in the Central Peruvian Andes. *Land Use Policy*. Innsbruck, Austria: Institute of Geography, University of Innsbruck, Innsbruck.
- Hilson, G. & Banchirigah, S. M. (2009). Are Alternative Livelihood Projects Alleviating Poverty in Mining Communities? Experiences from Ghana. *Journal of Development Studies*, 45(2):172–196.
- Hilson, G. & Banchirigah, S.M. (2007). Are Alternative Livelihood Projects Alleviating Poverty in Mining Communities? Experiences from Ghana. *Journal of Development Studies*, 45(2), 172 – 196, February 2009.
- Kile, N. (2000). Solomon Islands marine resources overview. *Pacific Economic Bulletin*, 15(1):143-147.
- Mansfield, D. and Pain, A. (2005). Alternative Livelihoods: Substance or Slogan? Afghanistan Research and Evaluation Unit <http://dspace.cigilibrary.org/jspui/bitstream/123456789/9806/1/Alternative%20Livelihoods%20Substance%20or%20Slogan%202005.pdf?1> [Accessed: 21/2/2015]
- Manzano, S., and N. Tamoria. (1999). *Small Enterprise, Large Success*. Philippines: Bandillo Magazine.
- Marland G., R.A. Pielke Sr., M. Apps, R. Avissar, R.A. Betts, K.J. Davis, P.C. Frumhoff, S.T. Jackson, L. Joyce, P. Kauppi, J. Katzenberger, K.G. MacDicken, R. Neilson, J.O. Niles, D.D.S. Niyogi, R.J. Norby, N. Pena, N. Sampson and Y. Xue. (2003). The climatic impacts of land surface change and carbon management, and the implications for climate-change mitigation policy. *Climate Policy*, 3:149-157.
- Masanja, A. L. (2003). Drivers of Land Use Changes in Peri-Urban Areas of Dar es Salaam City, Tanzania. A paper prepared for presentation at the Open Meeting of the Global Environmental Change Research Community, Montreal, Canada.
- Maxwell, D. (1996). Highest and Best Use? Access to Urban Land for Semi-Subsistence Production. *Land Use Policy*, 13(3): 181-195.
- Maxwell, D., Larbi, W.O., & Lamptey, G.M., Zakariah, S., and Armar-Klemesu, M. (1998). Farming in the Shadow of the City: Changes in Land Rights and Livelihoods in Peri-Urban Accra. IDRC Cities Feeding People Series Report 23.
- Mottet, A., Ladet, S., Coque, N. & Gibon, A. (2006). Agricultural land-use change and its drivers in mountain landscapes: A case study in the Pyrenees Agriculture. *Ecosystems and Environment*, 114:296–310
- Niehof, A. (2004). The significance of diversification for rural livelihood systems. *Food Policy*, 29, 321–338
- Olson, J. M., Misana, S., Campbell, D. J., Mbonile, M. and Mugisha, S. (2004). The Spatial Patterns and Root Causes of Land Use Change in East Africa. LUCID Project Working Paper 47, Department of Geography, Michigan State University, East Lansing.

- OseiKwadwo, S., Twum Barimah, P. &, Oppong, D. (2014). Assessment of the Socio-Economic Impact of Alternative Livelihood Programmes of Newmont Ghana Gold Limited on Selected Communities in Asutifi District, Ghana. *International Journal of Innovative Research in Science, Engineering and Technology*, 3 (12), 18157 – 18164.
- Owusu, G. (2013). Coping with Urban Sprawl: A Critical Discussion of the Urban Containment Strategy in a Developing Country City, Accra. Planum. The Journal of Urbanisation, 1 (6), 1 - 17.
- Owusu, G. (2008). Indigenes' and Migrants' Access to Land in Peri-Urban Areas of Ghana's Largest City of Accra. *International Development Planning Review (IDPR)*, 30 (2), 177-198.
- Parahoo, K. (1997). *Nursing research: Principles, Process and Issues*. Basingstoke: Macmillan.
- Plantinga, A.J, Lubowski, R.N and Stavins, R.N. (2002). The Effects of Potential Land Development on Agricultural Land Prices. *Journal of Urban Economics*, 52, 561 – 581.
- Punch, K.F. (2006). *Developing Effective Research Proposals*. London: Sage Publications.
- Ricci, L. (2011). Peri-Urban Livelihood and Adaptive Capacity: The Case of Dar Es Salaam. 5th AESOP Young Academics Network Meeting 2011, The Netherlands.
- Rogers, E.M. (1995). *Diffusion of Innovations*. New York: Free Press.
- Roth, M. (1996). From Administrative Allocations to Commercial Land Transactions: Factor Market Constraints to Economic Growth in Three Peri-Urban Household Economies. Madison: Land Tenure Center (mimeo).
- Scoones, I. (2009). Livelihoods perspectives and rural development. *Journal of Peasant Studies* Vol. 36, No. 1. Institute of Development Studies, University of Sussex, Falmer, Brighton BN1 9RE, UK.
- Shi. Y, Xiao. J. and Shen. Y. (2008). Landscape Pattern Change and Associated Environmental Implications in Haihe River Basin, China. Centre for Agricultural Resources Research, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences. 286. Huaizhong Road., Shijiazhuang 050021, China.
- Teh, L., Cheung, W.W.L., Cornish, A., Chu, C., Sumaila, U.R. (2008). A survey of alternative livelihood options for Hong Kong's fishers. *International Journal of Social Economics*, 35 (5), 380 – 395.
- Temeng, V.A., and Abbew, J.K. (2009). A review of alternative livelihoods projects in some mining communities in Ghana. *European Journal of Scientific Research*, 35,217-228.
- Turner, B. L., Meyer, W. B. and Skole, D. L. (1994). Global Land-Use /Land-Cover Change: Towards an Integrated Study. Integrating Earth System Science, pp. 91. Royal Swedish Academy of Sciences.
- Ubink, J. (2006). Land, Chiefs and Custom in Peri-Urban Ghana. Paper prepared for Presentation to the Workshop on “Indigenous Peoples’ and Community Rights and Tenure Arrangements” as part of the International Conference on Land, Poverty, Social Justice and Development, ISS, the Hague, The Netherlands.

UNFPA (2007). 'Unleashing the Potential of Urban Growth', State of World Population 2007. New York: UNFPA.

Veldkamp, A., & Fresco, L. O. (1994). CLUE: a conceptual model to study the Conversion of Land Use and its Effects. *Ecological Modelling*, 85:253-270

Wejnert, B. (2002). Integrating Models of Diffusion of Innovations: A conceptual Framework. *Annual Review of Sociology*, 28: 297 – 326.

Wiggins, S. and Keats, S. (2013). Leaping and learning: linking smallholders to markets. UK, London: Overseas Development Institute.

Wisdom, J. and Creswell, J.W. (2013). Mixed Methods: Integrating Quantitative and Qualitative Data Collection and Analysis While Studying Patient-Centered Medical Home Models. Rockville, MD: Agency for Healthcare Research and Quality (AHRQ) Publication No. 13-0028-EF.

Wu, J. (2008). Land Use Changes: Economic, Social, and Environmental Impacts. *Choices*, 23(4), pp. 6-10

Yorke, C. and Margai, F. M. (2007). Monitoring Land Use Change in the Densu River Basin, Ghana, Using GIS and Remote Sensing Methods'.



Appendix 1: Semi-Structured Questionnaire

My name is Emily Nyarko, an MA student in Development studies at the Institute of Statistical, Social and Economic Research (ISSER) at the University of Ghana, Legon. I am collecting data for my research paper on Small-holder farmers' uptake of initiatives to mitigate the livelihood effects of changing land use patterns in Abokobi in the Ga East Municipality.

The information you give will be confidential.

DEMOGRAPHICS

1. Are you an indigene of Abokobi

- a) Yes b) No

2. Age

- a) 16 – 20 b) 21 – 25 c) 26 – 30 d) 31 – 35 e) 36 – 40 f) 40 – 46
g) 46 – 50 h) 51 – 55 i) 56 – 60 j) 61 – 70 k) post 70

3. Sex

- a) Male b) Female

4. What is your educational level?

- a) No formal education b) Basic c) Senior High d) Vocational & Technical
e) Teacher training f) University education

5. Marital status

- a) Married b) Not married

6. How many children do you have?

.....

7. Do you have dependents?

a) Yes b) No

8. If yes, how many dependents do you have?

.....

9. What number of your children is in school?

.....

10. If not, why are they not in school?

.....

11. What type of housing do you live in?

a) Cement b) Mud house

12. What type of roofing?

a) Aluminum roof b) Thatch roof

13. Which of the following assets do you have in your house?

a) Car b) Radio c) TV d) Bicycle e) Motor cycle f) Refrigerator g) Electric fan
h) Other (Please specify)

14. How did you own your land?

a) Outright purchase b) Lease c) family ownership d) Squatting e) Other

15. Have you lost your landholding in any form?

.....

16. What factors are accounting for the land loss in this area?

.....
.....
16. What was the size of the land you owned (in acres)?

a) 1 acre b) 2 acres c) 3 acres d) 4 acres e) 5 acres f) Any other (Please specify)

17. What size of your land did you lose?

a) 1 acre b) 2 acres c) 3 acres d) 4 acres e) 5 acres f) Any other (Please specify)

18. What is the remaining size of land available to you?

a) 1 acre b) 2 acres c) 3 acres d) 4 acres e) 5 acres f) Any other (Please specify)

19. What type of crops or livestock did you produce before you lost your landholdings?

.....

20. What was your output on the original size of landholding?

.....

21. What was your income level from the previous landholding?

.....

22. What was the output on your landholding after the loss of land?

.....

23. What was your income/year in GHS after the loss of land?

- a) 100 – 500 b) 600 – 1000 c) 1100 – 1,500 d) 1,600 – 2,000 e) 2100 – 2,500
f) 2,600 – 3000 g) Above 3000 (Please specify)

24. Are you able to depend on your income from your land after losing part of it?

.....

25. Are you engaged in any alternative livelihood programmes?

- a) Yes b) No

26. If no, why are you not engaged in any alternative livelihood programmes?

.....

27. If yes, what programmes have you benefitted from?

- a) Heifer b) Independent Activity

28. What independent activity are you engaged in?

.....

29. Under the Heifer programme, what activity are you engaged in?

.....

30. How long have you benefitted from the Heifer programme?

.....

31. What influenced your acceptance of the Heifer alternative livelihood programmes?

.....

32. Has your income increased since you subscribed to the programme?

(a) Yes (b) No

33. What is your annual income after you took the Heifer alternative livelihood programmes?

.....

34. Would you consider yourself as successful after taking the Heifer alternative livelihood programmes? (a) Yes (b) No

35. If yes, what has been the effect of taking the Heifer alternative livelihood programmes on your livelihood?

.....
.....

36. Would you continue to be part of the alternative livelihood programme in future?

a) Yes b) No

37. Do you have alternative sources of income apart from the alternative livelihood programme?

.....

38. What challenges have you encountered in taking the Heifer alternative livelihood programmes?

.....
.....

34. Please do you have any additional comment

.....

Appendix 2: Interview Guide

1. What does Heifer Ghana do?
2. What year did Heifer Ghana begin its support programme in Abokobi?
3. What support did Heifer Ghana give to farmers in Abokobi?
4. What was the duration of the project?
5. How much worth of support did Heifer Ghana give to the farmers?
6. How did Heifer Ghana select Abokobi for its alternative livelihood programme?
7. What criteria did Heifer Ghana use to identify the farmers?
8. What role did the officials of the Department of Agriculture play in the support given to the farmers?
9. How many farmers were supported at Abokobi?
10. In what specific areas were they given support?
11. Were the farmers given training?
12. What kind of training was given to the farmers?
13. What commitments were the farmers made to give to entitle them to the support?
14. How did Heifer Ghana measure impact of the support on the farmers?
15. How often were farmer activities assessed or evaluated?
16. How receptive were the farmers to the Heifer Ghana support?
17. How many of the farmers affected by land loss accepted Heifer Ghana support?

18. How successful were the farmers who accepted the support?
19. Did Heifer Ghana monitor farmers who did not accept the support?
20. What reasons did they give for not accepting the support?
21. How did Heifer Ghana deal with resistance?
22. Did Heifer Ghana monitor the living conditions of farmers who accepted and those who did not?
23. Does Heifer Ghana have any plan to improve programme uptake by the farmers?
24. What challenges did the programme face during its implementation?
25. Any other comments on issues not highlighted in the interview?

PROGRAMME OFFICER – DEPARTMENT OF AGRICULTURE

1. What do you think are the causes of land use change at Abokobi?
2. On the average, about how many farmers have lost land?
3. What type of land use change is prevalent at Abokobi?
4. Are the farmers migrants or indigenes?
5. Do the changes in land use affect crops and livestock?
6. What have been the strategies to mitigate the effects of land use change by the Department?
7. What has been the effect on farmer output and income?
8. What alternative livelihood strategies has the Department offered to farmers so far?

9. How many farmers accepted alternative livelihood strategies from the Department?
10. How many farmers did not accept the alternative livelihood strategies and why?
11. What were the sources of the alternative livelihood strategies?
12. How did the Department access the alternative livelihood programmes for the farmers?
13. How did the Department assess the impact of support for the farmers?
14. What alternative livelihood support programmes did the farmers undertake on their own?
15. What were the outcomes of the independent strategies?
16. How helpful has the Heifer Ghana support programme been helpful to the farmers?
17. What challenges did the farmers face with the Heifer Ghana programme?
18. Any other comments on issues not highlighted in the interview?

FOCUS GROUP DISCUSSION

1. What are the major factors of land use change in Abokobi?
2. How have land use change activities affected your farming activities?
3. Have you lost land?
4. What size of land did you own?
5. What size of land did you lose?
6. What type of crop or livestock do you plant or rear?

7. What was the size of output from your farm before land loss?
8. What was the size of output after land loss?
9. What was your level of income per year before loss of land?
10. What was the level of your income per year after loss of land?
11. Have you been introduced to alternative livelihood programmes?
12. What was the source of the alternative livelihood programme?
13. Have you accepted livestock alternative livelihood support from Heifer Ghana or hybrid crop support from the Department of Agriculture?
14. What kind of support did you receive from Heifer Ghana (Monetary, training, input, etc)
15. What kind of support did you receive under the hybrid crop support programmes?
16. What was the process used to identify farmers for alternative livelihood programmes?
17. Did all of the farmers who lost land accept alternative livelihood programmes?
18. What were the reasons for accepting either Heifer Ghana support or hybrid crop support programmes?
19. What have been the benefits from the alternative livelihood programmes?
20. How easy was it to access either Heifer Ghana support or hybrid crop programmes?
21. How were farmers selected for alternative livelihood programmes?
22. What were the reasons for farmers who rejected alternative livelihood programmes?

23. Have the Heifer Ghana alternative livelihood programme been successful?
24. What challenges did the farmers face with the alternative livelihood programmes?
25. Any other comments of issues not highlighted?

DEPARTMENT OF AGRICULTURE OFFICER

1. How is the Department dealing with the impact of land loss by farmers?
2. What other alternative livelihood programmes did the department offer the farmers apart from the Heifer Ghana programme?
3. What were the sources of the support programmes?
4. What types of crop variety were offered to the farmers?
5. How many farmers were receptive of the crop alternative livelihood programmes?
6. What were the reasons for accepting the crop alternative livelihood programmes?
7. What were the reasons for those who did not accept the crop alternative livelihood programmes?
8. How did the Department select the farmers for the crop programmes?
9. How did the Department measure successes?
10. How did the Department deal with resistance from farmers?

BACKGROUND

Uptake of alternative livelihood programmes by smallholder farmers who have been affected by land use change.

1. What kind of support did the USAID give to farmers in the Abokobi area?
2. What was the motivation for giving the support?
3. Why did the USAID provide support to farmers in the community?
4. How did the USAID select the community for the support programme?
5. What criteria did the USAID use to select beneficiaries of the support programme?
6. Was the support programme offered to only farmers?
7. Did the beneficiaries fall under the category of farmers who have lost landholdings due to increasing land use change?
8. How receptive were the beneficiaries of the support?
9. Has the USAID done any study on the impact of the support programme and what have been the results?
10. Did the USAID measure the success of the programme (income or output)

