ASSESSING THE EFFECTS OF URBAN SPRAWL ON THE LIVELIHOODS OF PERI-URBAN CROP FARMERS OF ACCRA: THE CASE OF BORTIANOR

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JULY, 2016
DECLARATION

I, Sylvester Kudjo Ewordu, declare that this research and its entire contents represent my own work. I remain answerable to every question pertaining to this work and duly acknowledged all sources in the list of references. There is no Institution here in Ghana, Africa or the whole world at large that has awarded or honoured anyone of their own on the merit of presenting in whole or part of this particular work.

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(CO-SUPERVISOR)
DEDICATION

To my dear and beautiful wife, Theodora Agape Yirenkyi, my lovely son, Christopher Elorm Yaw Yirenkyi, my dad, the Late R.K. Yirenkyi Ewordu, my mom, Monica Ama Boamah Yirenkyi, and the entire lovely family of mine who have remained my strength and support throughout the duration of this work.
ACKNOWLEDGEMENT

Unto God Almighty I ascribe all the glory, honour and praise for His divine protection and guidance throughout my journey in completing this course. Many thanks and sincere gratefulness to my indefatigable supervisors, Professor Mariama Awumbila, and Dr. Ebenezer Nikoi for their ingenious, assistance and useful suggestions that engineered the efficacious accomplishment of this work. I acknowledge the immeasurable help and effort of Christopher Kofi Yirenkyi, Welbeck Yao Ewordu, Benjamin K. Yirenkyi, Divine Mawuli Asafo, Christian Emmanuel Bruku, Louis Frimpong, Ian Nii Osuteye Jnr, Diamond Asare and Festus Kwame Yalley for their selfless prayers and words of encouragement that inspired the achievement of this work. I appreciate the wonderful contribution of chiefs and the Assemblymen for the Bortianor area during my field work. Finally, my heartfelt thanks goes to all and sundry who contributed in diverse ways to make this thesis a success. God bless you all for your benevolence.
# LIST OF ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBD</td>
<td>Central Business District</td>
</tr>
<tr>
<td>DFID</td>
<td>Department for International Development</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
</tr>
<tr>
<td>GAMA</td>
<td>Greater Accra Metropolitan Area</td>
</tr>
<tr>
<td>GSS</td>
<td>Ghana Statistical Service</td>
</tr>
<tr>
<td>KPUI</td>
<td>Kumasi peri-urban interface</td>
</tr>
<tr>
<td>PUI</td>
<td>Peri-Urban Interface</td>
</tr>
<tr>
<td>SLF</td>
<td>Sustainable Livelihood Framework</td>
</tr>
<tr>
<td>SSA</td>
<td>Sub Saharan Africa</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>UNFPA</td>
<td>United Nations Population Fund</td>
</tr>
<tr>
<td>WCR</td>
<td>World City Report</td>
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</table>
ABSTRACT

The demand for, and conversion of agricultural lands into non-agricultural land-use is rapidly increasing at an alarming rate due to the fact that urban population is sharply rising in recent times. Land is difficult to access and afford in the city. In areas in the city where land seems to be available, there is the aligned challenge of inadequacy and affordability. The need for space for both residential and non-residential use has shifted attention of urban dwellers and newcomers from the urban core towards the peri-urban enclaves of cities. The result of the shift in demand and use of land from the urban core to the periphery is consequently bringing about conversion of agricultural lands in these peri-urban areas to non-agricultural uses such as infrastructural development. The livelihoods of peri-urban crop farmers continue to be threatened over the years of rapid development in cities.

This study assessed the effects of urban-sprawl on the livelihoods of peri-urban vegetable and crop farmers and the strategies adopted by these farmers in adapting to the challenges that urban sprawl pose to their livelihoods. A mixed method approach was adopted in examining the underlying key research questions of the study. A multistage sampling technique was used in sampling respondents for the study and data was gathered from both primary and secondary sources. For the quantitative data, 192 respondents were sampled. Furthermore, six (6) key informant interviews were conducted to obtain detailed qualitative data. These key informants comprise traditional authorities, government officials, and local people. They include the chief of the community, the queen mother, the District Planning Officer, the Assembly member, and two elderly farmers.
The results indicated that most farmers representing 87.5% have lost their farmlands to residential and business developers. It is also found that the main livelihoods activities of indigenous residents which used to be mainly farming and fishing has declined from 85.0% to 37.5% for farming, and 4.3% to 3.5% for fishing. Occurring alongside the decline in farming and fishing is the witnessing of an increase in trading activities from 7.0% to 51.0%.

The study concludes that most peri-urban vegetable and crop farmers are shifting towards non-agricultural livelihood activities. The study noted that this shift in livelihood activity is not a result of non-agricultural activities being more lucrative than agriculture activities, rather, it is a result of the loss of land in the peri-urban areas to infrastructural development, and thus the ability to engage in sustainable vegetable and food crop production is hindered considerably. The study recommends that interventions be positioned to reduce encroachment on farmlands. Also, support systems to ensure land intensification should be enhanced so that the maximum output can be achieved from the available land so that farmers can sustain their livelihoods.
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CHAPTER ONE

INTRODUCTION

1.1 Background

Significant urban growth and expansion has occurred in the annals of world in the recent past decades (Araya & Cabral, 2010; cited in Njiru, 2016). The urban population of the whole world has increased from 0.73 billion in 1950, 1.51 billion in 1975 to 3.42 billion people in 2009, and this is projected to double (6.29 billion) by 2050 (UNDESA, 2010; cited in Njiru, 2016). Urban population in Africa is estimated to upsurge geometrically from its 2007 level of 373.4 million by 2030, and by 2050, African city dwellers will be more than 1.2 billion (UN-HABITAT, 2008). The continent of Africa as a case has registered a rapid growth of urban population and infrastructural expansion in a haphazard manner which is mostly associated with the challenge of uncontrolled informal settlements (Alaci, 2010). Towards the end of the twentieth century, the region of Sub-Saharan Africa has experienced rapid urbanization leading to urban poverty (Alaci, 2010, cited in Muluwork, 2014).

In Ghana, Maxwell et al. (2000) estimates that 2600 hectares of peri-urban agricultural land is converted to urban use yearly. It is noteworthy that much of this conversion of agricultural land is occurring in peri-urban areas, where urban inhabitants purchase up major agricultural lands for the purposes of housing or commence outside the main city centre (Appiah et al., 2017). Indeed, Amoateng et al. (2013) explains that access to land remain the driving force or pull factor drawing people to peri-urban areas regardless of the distance they may take in accessing the city centre. Certainly, the quest for shelter for the ever increasing population and the deteriorating housing situations and insufficient
urban amenities, coupled with the higher economic gains over the agriculture returns have become driving forces influencing agriculture lands to be converted to housing as farmers divert into these other higher earnings on their lands other than the agriculture activities. (Masanja, 1999, as cited in Appiah et al., 2017). Thus, Friedberg, 2001 noted that peri-urban areas have become exclusive areas that are concurrently sustained and threatened by the urban economic forces.

In recent years, the phenomenon of urban sprawl is aggravating this conversion of agricultural land in peri-urban areas into non-agricultural uses. Appiah et al (2017) note that as cities get congested and land in the urban core attract a great deal of demand pressures, attention seem to have shifted to arable land for the purpose of urban land uses such as residential, commercial and recreation. This method of land use changes from agricultural to residential and industrial go together with transformations in livelihood activities of diverse class of people - with the poorest obviously losing out (Tacoli, 2004). The wealthy are able to shed off the challenges of sprawl of the city on the fringe zones, the poor however, in the fringe zones of the city who are mostly vegetables and crop farmers find it difficult in adjusting to these spatial and socio-economic changes that result from the sprawl. As the fringe zones surrounding the city core continue to receive the effects of sprawl, diverse livelihood activities consequently continue to evolve. Thus, the evolution of this geographic space and its effects on the livelihoods of especially vegetable and crop farmers who depend directly on land for their livelihood warrants some investigations.
1.2 Problem Statement

Over the last three decades, Accra has grown to encompass its surrounding districts (Owusu, 2013). According to the most recent census figures, the population of Accra has seen an increasing spate of growth 1960-2010 (see Table 1.1) respectively with a current growth rate of 4.2 per annum (Twum-Baah, 2000; GSS, 2010). Significantly, this growth is not limited to only population increase but also the expansion of Accra. Studies by some urban scholars (Twum-Baah, 2000; Oteng-Ababio, 2010) have revealed that the spatial coverage of Accra which was 103.599 km\(^2\) in 1982 has increased to 241km\(^2\) in 2000 and this continues to expand in recent times resulting in increasing sprawl. According to Owusu (2013), much of the sprawl of the city has occurred in the West and East sections of the city with growth rates over 30% per annum. Table 1.1 shows the population growth and rate of growth of Accra in the censual years.

Table 1.1 Population Growth and Growth Rate of Accra (1960-2010)

<table>
<thead>
<tr>
<th>Year</th>
<th>Population Growth of Accra</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>338,396</td>
<td>-0.09%</td>
</tr>
<tr>
<td>1970</td>
<td>636,667</td>
<td>4.81%</td>
</tr>
<tr>
<td>1984</td>
<td>969,195</td>
<td>*4.3%</td>
</tr>
<tr>
<td>2000</td>
<td>1,658,937</td>
<td>3.34%</td>
</tr>
<tr>
<td>2010</td>
<td>1,848,614</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

*Annual growth rate of Accra between 1984-2000
Source: Owusu (2010); Twum-Baah (2000); GSS (2010); World Population Review (2018)
Like many African cities, this expansion and sprawl of Accra has greatly changed the peri-urban landscape from being primarily agricultural to more of residential and to some extent commercial areas. Several factors have accounted for this recent development, and significant among them include increasing cost of land and rent charges in the urban core, relative cheaper cost and availability of large parcels of land in the urban peripheries. As identified by Appiah et al (2017) that the increasing demand and use of land in the peri-urban areas of cities including Accra stems from its relatively cheaper cost and also ease of access. Moreover, the housing market in the peri-urban areas of Accra which is largely produced by individuals, and to some extent estate developers has transformed such areas to become tenure hotspots. Typical areas experiencing this sprawling and conversion include the Ga west municipalities, Ga East municipalities, Kpone-Katamanso municipality and the Ga South municipality, all located along the south eastern and western parts of Accra (Gough and Yankson, 1999; Owusu, 2013).

Consequently, this growth and expansion, as well as the land use changes currently occurring in peri-urban Accra is strongly threatening resident’s traditional livelihoods such as farming and its related activities, increasing their level of poverty and vulnerability. In other words, the conversion of agricultural lands to residential, recreational (hotels, guest houses) and commercial uses as a result of the upsurge in population has caused most farmers who are predominantly crop and vegetable farmers to lose their farm lands (Owusu, 2013; Appiah et al, 2014; Gebregziabher et al., (2014). According to McGregor et al (2006) this has also affected negatively, agricultural employment and crop yield as a result of the decrease in the quality and quantity of arable lands available for agricultural activities. Significantly, majority of the farmers in this
areas are into vegetable and crop farming. As a result, many of these farmers are seen taking up alternative livelihoods such as building and renting, driving and petty trading among others. Moreover, this development is further characterised by unplanned and haphazard nature of development amid lack of social infrastructure and services such as water, roads, health facilities and well planned public spaces (Owusu, 2013).

The rapid transformation of peri-urban Accra has seen considerable amount of studies conducted across developmental issues. Gough and Yankson (2000) examined the land markets in the cities of Africa using peri-urban Accra as a case and discovered how peri-urban agricultural lands have been largely converted to residential and commercial land use. Appiah et al. (2017) also examined land use conversion decision in the Asante Akim South District of the Ashanti Region and noted that one of the key determinants of agricultural land use conversions in the district is easy accessibility to peri-urban lands. Besides, Owusu (2013) also examined how the rapid sprawl of Accra has resulted in the development of peri-urban land with its consequential challenges such as poor spatial planning and inadequate availability of social services. Although these studies highlight significant studies on the effect of urban sprawl on agriculture and its related activities, there is still a paucity of literature that assesses the effects of urban sprawl on the livelihoods of specific farmers such as vegetable and crop farmers, and how these farmers strategize to cope with the emerging challenges. This study therefore examined this gap in literature and provides empirical results, drawing from the case of Bortianor, a peri-urban community within the Ga south Municipality in Greater Accra Metropolitan Area (GAMA).
1.3 Research Questions

1. What are the previous and current major livelihood activities of residents in this peri-urban interface?

2. How has urban sprawl affected the livelihoods of crop farmers in this geographic space?

3. What adaptation strategies have farmers adopted to address the challenges they face from urban-sprawl?

1.4 Study Objectives

The main objective of the study is to investigate the effects of urban sprawl on livelihoods of crop farmers in Bortianor. Specifically, the study will:

(i) Examine the previous and current livelihood activities of local people in the study area.

(ii) Investigate the effects of urban sprawl on livelihoods of farmers in the study area

(iii) Identify the strategies farmers adopt in order to cope with urban sprawl.

1.5 Hypotheses

\( H_A: \) There is a significant relationship between changes in land-use pattern and changes in incomes earned

\( H_0: \) There is no significant relationship between changes in land-use pattern and changes in income earned

\( H_A: \) There is a significant relationship between individual socio-demographic factors and the adoption of specific coping strategies
H₀: There is no significant relationship between individual socio-demographic factors and the adoption of specific coping strategies

1.6 Significance of the study

As urban centres are growing rapidly, cities demand for the conversion of large mass of farmlands to urban uses for the purpose of built up areas for investments and construction of houses for residence. Urban expansion has reversely affected the livelihood assets of the displaced crop farmers found in the peri-urban areas when evicted from their farmlands. Although rural-urban linkages have been extensively explored by many studies, limited studies exist on the implications of urban expansion to its periphery on livelihoods of peri-urban vegetable and crop farmers and the strategies adopted to cope with the effects. This is due to the fact that many academic studies and development efforts by governments seem to focus on areas which are entirely rural or urban in nature, neglecting the peri-urban interface (PUI) and the negative economic, social and environmental effects. There is therefore the need for empirical research such as this to be carried out to highlight the need to direct attention to the peri-urban interface. To this end, the findings of the research will have paramount significance for development policy makers, practitioners, decision makers, researchers, and academics in making informed decision based on realities on the ground. The outcome of this study would serve both practical and academic purposes.

Practically, this work presents information that can assist policy makers and planners to formulate and evaluate development strategies that address effects of urban sprawl on livelihoods of crop farmers in the fringe zones and also to bring to focus areas of needed
interventions. Thus, local and international organizations interested in helping local people especially the peri-urban crop farmers to better cope with the effects of urbanization will benefit from this study. Academically, the study adds to knowledge by assessing the effects of urban sprawl on the livelihoods of the peri-urban communities and measures taken by indigenes to cope with the sprawl. The research findings further serve as a source of information and literature review for researchers interested in conducting their study on the strategy for livelihoods situation among the displaced landless farmers in the study area.

1.7 Limitations
Due to the incidence of low educational levels on the part of the respondents in the study community, there was the need for the researcher to translate the questions into the local language for them to understand. This problem was overcome by translating the information into the local language and recording the information for transcription. Moreover, many studies have pointed out the situation whereby respondents are unwilling to give accurate data on variables such as income level for fear of paying high taxes. This study might not be free from these limitations but to mitigate this problem as much as possible, the researcher used the best approach possible to convince respondents about the objectives of the research and assured respondents of the confidentiality of information.

1.8 Scope of the Study
Bortianor is the study community. It is one of the peri-urban communities in Accra. This research is a survey of only a percentage of the population of the peri-urban community
selected in Accra which is used to generalize for most peri-urban communities of Accra. Although the effects of urbanization and coping strategies may be dynamic and diverse across geographical areas, this study emphasized only on vegetable and crop farmers level situations in the context of the selected peri-urban community in Accra.

1.9 Organization of the Study

The research is structured in six chapters. Chapter one highlights the introductory information or the background of the thesis which includes topic on the research problem, the research questions and the hypotheses, the objectives of the study, and the study’s significance. The subsequent chapters are organized as follows: Chapter two explores the literature review on urban sprawl and its effects on the livelihoods of vegetables and crop farmers in the study area.

Chapter three presents the Geography of the study area with a description of the natural environment, economic activities and demographic characteristics of selected community. The methodology, data collection instruments, population sampling technique, and method of statistical analysis are also presented in this chapter. Chapter four analyses the results of the field research on the effects of urban sprawl and coping strategies in peri-urban Accra, where key issues of sprawl on the livelihoods of vegetable and crop farmers in the fringe zones, the strategies adopted by these farmers to cope with the resultant effects of urban sprawl and alternative livelihoods are discussed.

Chapter five presents effects of urban sprawl on issues of land accessibility, vegetables and crop farming in Bortianor, the effects of urban sprawl on farmland size in Bortianor, the effects on crop production and changes in the income level of the crop farmers. It also
looks at alternative livelihoods and coping strategies of farmers in Bortianor. Chapter six is the summary of findings and conclusions upon which recommendations are made; it focuses on emerging themes, observations and theory generation, suggestions and recommendations for future work.

1.10 Chapter Summary

This chapter provided a background of urban sprawl and peri-urban agriculture in the Greater Accra Metropolitan Area with Bortianor as the study area. Literature was reviewed around issues which involved the effect of urban sprawl on crop farmers and their livelihoods in this peripheral area of the city were discussed. The chapter further highlighted the objectives of the study, and the hypotheses guiding the study were stated.
CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL ISSUES

2.0 Introduction

This chapter looks at literature on the general view of urban Sprawl with particular reference to Africa and Ghana, the impacts of the sprawl on the livelihoods of peri-urban crop and vegetables farmers in Accra. Issues such as the global trends in urbanization, the concept of urban sprawl and its social, economic and environmental effects are reviewed in this chapter. Finally, the chapter also deals with the conceptual framework which provides theoretical basis of how the residents with the fringe zones strategize to cope with the effects of urban sprawl.

2.1 Global trends of urbanization, urban sprawl and expansion

The topic of the sprawling of cities into the adjoining areas has been studied by many academicians using major themes such as, geographical sprawl, economic sprawl and transportation sprawl. There are a number of other lovers of research who have explain urban sprawl as stemming from a cumulative effects urban population growth, weak land use policies as well as racial segregation. Based on the foregoing view, the subject of urban sprawl has been defined as a non-contiguous and a haphazard spreading out of cities which are characterized by low basic infrastructural development (Cobbinah & Amoako, 2014).

The concept of ‘sprawl’ was put forward by Earle Draper in 1937 in the United States of America, and this concept has been used by city architects to refer to a careless type of urban growth. Urban sprawl signifies a form of unrestrained development surrounding
the fringe zones of a city. Urban sprawl diminishes the beauty of the biotic landscape that supports proficient land use and management at the peri-urban areas of fast growing cities. Peri-urban zones become the direct recipients of attendant impacts of the growth of urban areas. The spontaneous effects of sprawl of the city on the peripheral communities manifest in the form of the development is patchy and scattered settlements which spread out in discontinuity in the layout (Cobbinah & Amoako, 2014).

In conjunction with the linkages between rural and urban areas, numerous geographical studies had been done on the impacts of cities on surrounding areas. The logic is that the advancement of the urban front affects rural areas. Most of these impact studies tend to concentrate on the changes in the structure of land use morphology particularly the changing land use pattern and the resultant planning problems (Xie et al., 2007; Lei and Bin, 2008; Olujimi, 2009), impacts on the environment (Trzyna, 2007), and rural-urban linkages (Tacoli, 2004, Gantsho, 2008).

Gilham and Maclean (2002) relates the changes that occur in peri-urban areas to urban sprawl and note that urban sprawl fundamentally denotes a development less clustered settlements outside the boundaries of urban centres. A major outcome from this conceptual perspective connecting urban sprawl to the adjoining peripheries is the disappearance of indigenous livelihood activities of the inhabitants of peri-urban communities such as subsistence and peasant farming due to the conversion of arable lands into residential and industrial use. Thus, peri-urban residents tend to venture into economic activities such as petty trading, construction, small and medium-scale artisanry, security services, and other non-agricultural activities that people engage in as a means of livelihood (Cobbinah & Amoako, 2014). The effects of the sprawling of urban centres on
the adjoining peripheral communities will always lead to the conversion of large agricultural lands to non-agricultural uses so long as the urban centres continue to register rapid population growth without efficient development of infrastructural capacity to support the growth. The woes of the poor resourced peri-urban farmer begins when as a result of the sprawling of the city into adjoining fringe zones leads to high demand for peri-urban lands for residential and industrial purposes thereby raising the value of peri-urban lands above the ability of the poor resourced farmers. The out is that the poor resourced peri-urban farmer is kicked out of the competition, and thus peri-urban lands are lost to middle and high income earners from the city core.

A new dawn is come in the annals of world that is characterised by rapid of metamorphoses of geographical phenomena and causative agent precipitating this change is the upsurge in the figure the world human population. The world is experiencing now than at any time in history, indiscriminate movement of people from the rural communities into the urban centres at an alarming rate (UN-HABITAT, 2006: cited in Njiru, 2016). The availability of good social amenities and better economic opportunities in the city, which is lacking in the rural areas, serves as a seductive magnet pulling a great number of people from rural areas to urban centres though a large proportion of the increase occur as a result of high natural birth rate (Zemenfes et al, 2014).

Available census data indicates that the world registered a total population figure of 6.1 billion in the year 2000 with an annual growth rate of 1.2 % and it is expected to reach 8 billion by 2030. As the world’s population increases, the world cites are getting swelled up with population growth and expansion in physical infrastructure in all regions of the
Towards the end of the year 2050, cities are expected to register about 86% of the total population with the developed regions of the world and in the developing regions 66% (FAO, 2008). Africa is expected to register about 61.6% of its total population in her urban regions by 2050. (UNDESA, 2010; UN, 2009; Rimal, 2013: also cited in Njiru, 2016).

Currently, Africa is touted as one of the continents with the largest and fastest-growing cities in the world and going forward, there is a growing recognition among development experts for the fact that about 93% of urban growth is expected to occur in Africa (UN-HABITAT, 2006). Undeniably, as urban population increases, there arises a competition for space, either for residential purposes or other urban use. High rent value, coupled with limited access to land within the city, has caused an increase in the demand for agricultural lands surrounding cities. In Africa, especially in the Sub-Saharan regions, the epidemic of high demand for peri-urban lands as a result of urban sprawl is leading to livelihood displacement and food insecurity (Thuo, 2010). According to Owusu and Agyei (2007), the change of arable lands into non-agricultural uses is posing as a serious threat to agricultural production and other systems like land ownership and land market in fringe zones of the city.

2.2 Urbanization and the sprawl of Accra

Accra has developed from a status of being typically a traditional fishing hamlet in the 16th century into the status of becoming the hub of Ghana’s politics and commerce (Gough & Yankson 2000). Today, the city of Accra if flaunted as one of the fastest-growing cities in West Africa. Available statistics shows that Accra registered a total
population figure of 1.67 million in the year 2000 and this figure is expected increase to 3.04 million by 2020 (UNCHS, 2008). With the advance of urbanization, lands which, pursuant to government policy, are officially preserved for future development are handled as commodities and sold to individuals and groups without regard to previous restrictions.

Massive expansion of Accra, as influenced by liberalized financial markets both within the country and across the globe, has led many Ghanaians to acquire funds to purchase lands and to build houses. As a result, the majority of agricultural lands have been converted to residential developments as land in the cities and their respective peripheral areas face significant pressures to adapt to these changes (ISSER, 2008). In addition, the establishment of corporate and institutional developments such as schools, hotel resorts and factories, further threatens the existence of these agricultural lands (Owusu, 2008). Allen, (1999) argue that the facial change of adjacent rural communities surrounding the cities is an unstoppable outcome of urban sprawl.

As urban sprawl engulfs peri-urban areas, the desire to own land for business and/or residential purposes is a factor contributing to peri-urban migration from nearby cities. Such a move is desirable as a means of avoiding the high rents in the city. The high influx of population and the boom in building developments in the city turn to compound the overflow into its peripheral areas (Pandey, 2010). Kasanga and Kotey (2001) reports that land sales and other dealings have increased in the adjacent communities that consequently leads to the eviction of the entire indigenous population.
Consequently, land which seemed inexhaustible in the past in these peri-urban areas is now in short supply. It follows that the poor with the fewest livelihood assets become vulnerable in the midst of these spatial and socio-economic changes. With high demand for this limited space of land in the peri-urban zone, there is high volume of disputes and litigation challenges regarding land ownership and distribution. Issues around land management spring from encroachments, multiple sales, and multiple claims of ownership, questions of the seller’s capacity to transfer land, and indeterminate boundaries among several others.

2.3 Defining the ‘Peri-Urban Interface’

The term peri-urban interface lacks a definite definition because it is subjected to different interpretations among the institutions and development technocrats. In spite of the lack of a common definition for word, there is widespread acceptance of the fact that the term per-urban interface is used to refer to the occurrence and dominance of rural and urban characteristic phenomena within the city and its fringe zones. It is also evident that government and developmental professionals do not design and factor very efficient policies and proficient schemes in their systems of planning to addressing the environmental and developmental challenges that accompany the sprawling of cities into the fringe zones (Allen, 2003). The nature of the peri-urban interface is constantly changing, and this gives rise to a different livelihood and natural resource challenges specifically to the peri-urban interface (PUI) (Gregory, 2005). Allen (2003) expounds that the peri-urban interface develops as a result of growth of urban centres and the sprawling of the city into the adjoining communities and thereby converting large tracts
of agricultural lands into non-agricultural uses, causing changes in indigenous livelihood choices. Therefore, the adoption of bad or effective steps towards the conservation biotic landscape located within the peri-urban interface immensely affects both the urban and its adjacent communities.

While, Simon et al. (2004 cited in Gregory, 2005) note that rapid of urban centres has the tendency to distort the indigenous livelihood activities that characterise ‘urban’ and ‘rural divide. Aberra and King (2005) further assert that the type of the peri-urban interface differs extensively in according with the patterns of urbanization, the economy and the geographical position of urban centers. Consequently, Brook and Dávila (2000) highlights the immense significance of understanding the concept of the peri-urban as a chain of interdependence between the rural and urban structures, marked by movements of goods, money, workers, information and services among others.

Peri-urban livelihood dynamism is a key feature of the definition which is given by Aberra and King (2005). Thus, how livelihoods are constantly being transformed from a simple agrarian source of livelihood to multiple sources of livelihoods is of key consideration. The complex nature of the peri-urban interface informs the view expressed by Hudala et al. (2008) who point out that the process of peri-urbanization is characterized by social-economic transformations and labour systems from agrarian to industrial rural-urban drift, multiple land uses, high cost of peri-urban lands, migration and population explosion. They further note that peri-urban interface has unique features including considerable reliance on the urban centres, access to capital and the availability of mixed rural-urban livelihood ventures.
Peri-urban interface therefore comprises a range of livelihood ventures such as vegetables and crop farming, raising of farm animals, pottery, carving, buying and selling of land and so on and so forth (UNFPA, 2007). This diverse land use stem from the fact that most often, the inhabitants of peri-urban interface are not homogeneous but a mixture of different tribes and races including the indigenous dwellers who are mostly migrants, herdsmen, farmers, tourists, miners and traders (Thuo, 2010).

In spite of this, Marshall (2008 cited in Chirisa, 2010) expounds that the topic of peri-urban interface has been conceptualised in many perspectives. He holds that some consider peri-urban interface as a receptacle for receiving spill over dwellers of the city in the process of urban sprawl as a conduit for paving way for modernity in the city. It can also be observed as a source of danger to natural environmental landscape within the fringe zones of cities since it has the element for the conversion of the natural environment to man-made. He further explains that regarding the peri-urban interface as a process brings to fore the tendency of it causing changes in the traditional livelihood patterns of peri-urban dwellers. On the contrary, Narain and Nischal (2007) allude to the fact that viewing the concept of peri-urban interface as a process leads to a concrete awareness of the occurrence of rural-urban phenomena and the practical connections of the rural to the urban and vice versa, such as the movements of goods and services.

Allen (2003) provides a clarification of the fussiness of the concept noting that the disappearance of fertile soil, arable lands, biotic landscape and the likes are the attributes of urban sprawl on the adjoining peri-urban communities. The overriding issues that catalogue all these varied definitions and conceptualization of the peri-urban interface is that, agricultural lands are undergoing rapid conversion and are being replaced by
residential and industrial facilities in order to mitigate the demands of a sprawling population from the urban centres.

2.4 Effects of urban sprawl on peri-urban Areas

Cities do not exist in vacuum. They are constantly interacting with their adjoining rural areas (Tali et al, 2014). The Rural-urban linkages have been extensively explored by researchers and varied views have been put forward concerning nature of interactions that relate cities to their adjoining communities. While proponents highlight the many positives of urban sprawl, opponents have presented the undesirable outcomes of this process. Researchers and other development professionals who belong to the school that holds urban sprawl as a positive agent change to livelihood characteristics found in both cities and the adjoining communities have contended that urban sprawl has offered adequate satisfaction of residential choices, serves as a good ecosystem to its inhabitants, better social amenities and lower crime rates (Glaeser & Kahn, 2003, as cited in Owusu, 2012). Opponents of urban sprawl on the contrary argue that the phenomenon leads to amplified cases limited job access, concentrated poverty, degradation of the green vegetation cover, air and noise pollution, congestion, conversion of agricultural lands into non-agricultural uses and other manifold undesirable outcomes (Owusu, 2012). The effects of urban sprawl on the peri-urban enclaves can thus be categorized mainly into environmental, economic, and social.
2.4.1 Environmental Effects of Urban Sprawl

Much of the livelihood threats that the pressures of urban sprawl inflict on the adjoining communities are seen ways like increasing in the demand for peri-urban resources such as peri-urban arable lands, water, air and forestry products (McGranahan et al., 2004). Peri-urban lands are also used by the activities of city core as sinking grounds or dumping sites for urban solid and liquid wastes. In view of this, environmental degradation becomes inevitable in the expansion of the built environment since most often no attempt is made to protect the environment from sprawling consequences.

The extraction and use of resources such as water forest products, sand, mineral deposits within the environment leads to the pollution degradation of the environment and thus making people vulnerable and susceptible to diseases and contaminations. Particularly in the adjoining communities surrounding the city, this problem is more daunting on the people since they lack the needed support services to cope with the new environmental challenges that urban sprawl poses to them. The allocation of peri-urban lands for citing of industries in the lack of effective regulation gives rise to a host of serious health risks to the peri-urban dwellers especially the poor residents because of the discharge of industrial wastes in the environment (UNFPA, 2007).

Chirisa (2010) asserts that most adjoining communities of African cities are hyped as disaster prone zones, as places liable to outbreaks of epidemics and other social hazards because non-existence of institutional integration and managerial capacity.
2.4.2 Economic Effects of Urban Sprawl

One of the most notable changes that occur around the city as a result of urban sprawl is land use changes (Mends & Meijere, 2006). Many studies have established that, the indigenes of the city’s adjoining communities whose livelihoods are dependent on natural resources are most vulnerable of increasing outward expansion of the city as they mostly lose their farmlands to non-agricultural uses (Davila, 2002; Ubink, 2006; Edusah, 2008).

The sprawling of city dwellers into the adjoining communities inevitably converts large portions of arable lands into non-agricultural uses and raises land values in peri-urban areas thereby pricing out the poor rural dwellers whose livelihoods are dependent on tilling the land (Satterthwaite et al., 2010). In effect the peri-urban areas are adversely influenced by growing demand for space leading to the displacement or decline in agricultural employment. For this reason, peri-urban dwellers whose livelihoods depend on agriculture are rendered more vulnerable to the extreme effects of urbanization as Lei and Bin (2008) expounds that is practicable measures are taken to curb the sprawling of cities into the adjoining communities, then, the mission sustainability of agricultural lands for future generations remains a mirage.

Although progressively, the phenomenon of urban sprawl leads to a rise in cost of food and rent value of land making cost of living high for the dwellers of fringe zones, it is important also know that the economic effect of urban sprawl on the peri-urban areas is not entirely negative. Peri-urban areas are influenced positively by urban centres by offering ready markets to peri-urban produce, availability of job opportunities to peri-urban residents (Edusah, 2008). Urbanization creates livelihood opportunities for people in the peri-urban interface whilst also assisting them to access better social amenities and
infrastructure. Peri-urban residents who have been displaced can benefit from urban sprawl by venturing into petty trading and wage labour or cultivating higher value agricultural produce to supply urban demand (Aberra & King, 2005). Thus, the argument is about finding a bearing that minimizes the negative economic effects and enhancing the positive effects on livelihoods.

2.4.3 Social Effects of Urban Sprawl

Population re-composition is one of the key characteristics of peri-urbanization with a heterogeneous nature of inhabitants who are mostly farmers, urban middle class folks, informal settlers and local industrial entrepreneurs (Narrain and Nischall, 2007). The traditional form of social network serves as a major social capital in the peri-urban interface. For instance, in the analysis of social capital in India, Brook and Dávila’s (2000) study revealed that members of a particular household who co-exist as one family play a significant role in the provision of opportunities and social links to its members. Thus although traditional social institutions such as the extended family and kinship networks promote communal living, strong family ties and basic support to members, they are increasingly being replaced with greater individualism and single family system. Thuo (2010) established in his work that the non-recognition for extended family ties leads to loss of communal cohesion, the negligence of orphans and the aged and also raising the prevalent rate of crime and social vices in the Nairobi rural-urban fringe. The cohesion among community members is weakened because newcomers do not get socialized in order internalise the norms of society.
2.5 Sustainability of peri-urban agricultural lands

There are several conceptions of the word sustainability. The 1987 Brundtland Report defines the term as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” According to Lynam & Herdt, (1992), sustainability is an indispensable basic factor to integrate into any developmental project planning and evaluation. Sustainable livelihoods assets are those that are measured statically over time with cognisance to their ecological viability and resilient to shocks and adverse conditions of the environment (Maxwell & Smith 1995). Sustainable livelihood systems must be potent to yield an increasing output at a satisfactory rate giving cognisance to population growth over time. Sustainability, in ecological literature, is conceptualised in terms of the capacity of the ecosystems to remain resilient to human interference, not declining in producing out. Conway (1985) defines sustainability as ‘the ability of a system to sustain efficiency in spite of adverse interference, such as is triggered by intensive human pressure.

Urban sprawl is major danger to agricultural lands in peri-urban areas. Urban sprawl develops diverse ways that relate to urban dynamics. A model of sustainability of effective land control should seek to prudently satisfy the economic demands of the present through good ecological means, giving respect to environment not to decline in capacity to meet needs of the future generation. Imperatively, in the process of planning settlements, it important to understand the baseline that agricultural lands or soil fertility is an important key for retaining biodiversity, hydrological and biochemical balances, in order to pursue socially and environmentally sustainable development.
Conservation of arable lands is a key ingredient for “filter-function” between human activities and biotic landscape (Carmelo. et al, 2017). An appreciable number out of the 17 SDGs adopted centre on the prudent and sustainable use of environmental resources so as to meet the needs of the present without compromising the ability of future generations to meet their own needs. Goal eleven (11) of the Sustainable Development Goals (SDGs) epitomizes the relevance of keeping cities in a sustainable way such that they are resilient to current urban challenges. It is incumbent on city authorities in collaboration with the planners to design sustainable policies for implementation, policies that are effective efficient in the preservation of agricultural lands in the fringe zones of the city. There should be an agenda to promoting environmental sustainability, integrating wildlife growth in urban planning and management, agenda that leads to a positive change, instituting a sustainable relationship between the environment, population growth and governance, giving recognition to environmental resource use such as land, energy consumption, land tenure system and climate change (UN-Habitat-[World Cities Report], 2016: 169).

2.6 Livelihood Strategies

The effects of urban expansion have a profound impact on improving or worsening the livelihood conditions of peri-urban dwellers. Urbanization can be expected to bring about changes in the livelihood strategies of households in villages close to the urban areas (Brook & Dávila, 2000). As a result, a variety of livelihood activities are undertaken to mitigate the negative effects of urbanization or take advantage of opportunities presented by urbanization. Most often, the numerous geographical studies that seek to establish the
linkages between rural and urban areas ignore the effects on peri-urban households and how they construct their livelihood strategies in response to urbanization process. Most peri-urban households devise their coping strategies based on the nature of the impacts that urbanization presents.

2.6.1 Classification of Livelihood Strategies

To respond effectively to opportunities or constraints, individual members of households must have the capacity to make free and informed choices, access livelihood chances using the available resources. Such a step is influenced by the amount livelihood assets that the people are able to mobilize. The choices opened to people are reflected in the way they use their possessions and determine their well-being (DFID, 1999).

Livelihood strategies have been variously classified. Most of these strategies aim to spread risk through income-enhancing or expenditure reducing (Farrington et al., 2002). It is also critical to note that the strategies or their patterns of activities adopted are not static, but rather are frequently subject to review, adapted to take advantage of opportunities or mitigate risks, or substituted to cope with contingencies. Within the PUI, Gregory (2005) broadly categorises peoples’ livelihood activities into cash based and non-cash based activities. Non-cash based activities such as household food production, fuel, fodder or medicinal herb collection or access to building or artisanal materials depends on free access to communal natural resources (or ancestral land ownership for subsistence food production in India). Depending on the time limit of a particular activity, Farrington et al. (2002) and Brook and Dávila (2000) classifies livelihood strategies into coping and adaptive strategies. Coping strategies have been defined as ‘a
short term response to a specific shock’ and adaptive strategies as a ‘long-term change in
behaviour patterns as a result of a shock or stress’.

Rakodi (1999 cited in Farrington et al. 2002) distinguishes between the following types
of strategy according to the nature of the activities that they are involved:

- **Investment** in securing more of an asset which promotes security and also allows
  for diversification or intensification of activities;
- **Substitution** of one asset for another which may compensate for the declining
  availability or quality of natural capital by increasing inputs of physical capital;
- **Disposal** which includes sale of assets such as livestock, land or jewellery, to
  compensate for a consumption shortfall or to release funds for investment;
- **Sacrifice** – for example, not investing time and resources in fostering reciprocal
  social relations, thereby reducing future ability to draw on social capital;
  sacrificing children's ability to earn adequate income in the future by withdrawing
  them from school because of the inability to pay fees.

Although livelihood strategies or components of livelihood strategies have been widely
classified according to different criteria, the most frequently cited typology of livelihood
strategy is given by Scoones (1998). He identifies three broad types of livelihood
strategies which cover a range of options and activities open to rural people: agricultural
intensification or extensification, livelihood diversification, and migration. Agricultural
intensification or extensification strategies depict the continuous dependence on
agriculture either by intensifying resource use through increased labour and capital
investment per given area of land or using more land for cultivation or grazing.

Diversification on the other hand is basically broadening the range of off-farm income
earning activities, while migration involves moving away to seek a livelihood, either temporarily or permanently elsewhere. These classifications are not necessarily mutually exclusive and trade-offs between option types and the possibility to combine elements of different options will exist.

2.6.2 Agriculture as a Livelihood Strategy

The sprawling of cities into the adjoining communities has a substantial effects on farming systems in the fringe zones of the city because agriculture serves the traditional and basic economic occupation (Tacoli, 2004). Many people in peri-urban areas gain more of their livelihood from agriculture (including livestock rearing, aquaculture, forestry etc.) through processes of intensification (more output per unit area through capital investment or increases in labour inputs) or extensification (more land under cultivation) (Scoones, 1998). Although there has been pressure from peri-urban expansion due to immigration which has contributed to decreasing land holding sizes, agriculture still remains a critical economic activity in peri-urban areas (Mandere et al., 2010). In a situation where farming is affected by various factors that make it economically unviable, farmers respond in a variety of ways including diversifying crop production, change in crops grown and looking for off-farm jobs (Thuo, 2010).

In response to the declining agricultural land, most farmers change their mode of farming by shifting from traditional extensive agriculture towards intensive agricultural practices where crops with shorter gestation period as well as with high market value are cultivated as a survival strategy (Mandere et al., 2010, Thuo, 2010). The intensification of
production is stimulated by the increasing demand from urban markets and consumers for high-value crops and perishable horticulture.

Aberra and King (2005) discovered that farmers in peri-urban Kumasi respond to the pressures on land by adopting short term coping strategies such as reduction in fallow periods. As a result, food crops and vegetables are mostly cultivated. They further indicated that for instance, crop production continues to be a significant source of subsistence for Kumsi peri-urban interface inhabitants, both as a major and supplementary source of income.

2.6.3 Diversification as a Livelihood Strategy

With the expansion of the urban front, peri-urban dwellers are left with no other alternative than to switch from land-based livelihood activities to alternative income generating activities that do not require land. The traditional occupation of majority of residents in peri-urban areas can officially be classified as agricultural or rural in character. However, with the increasing urbanization, the traditional rural sector can no longer function as a major income generating activity in the peri-urban areas (Hudala et al., 2008).

The findings of Mandere et al. (2010) reveals that agriculture still remains one of the predominant economic sectors in peri-urban Nyahururu in Kenya, although its economic value is significantly diminishing as a result of declining number of households that engage in agriculture as full time economic activity. The increasing pressures from urban expansion compel most people to adopt non-farm income generating activities as a coping strategy. Poor people, hitherto relying on the natural resource base for survival,
have no other alternative than to engage and rely on new income generating activities (Adu-Ampong et al., 2008). This has been one of the means by which peri-urban households minimise risk and raise income to meet household needs. The same story is told by Aberra and King (2005) in peri-urban Kumasi. They explained that farmers in KPUI seek to diversify into non-farm livelihood activities in response to urbanization pressures.

In peri-urban areas therefore, many people diversify to a range of off-farm or non-farm income earning activities to supplement household income. It may be undertaken by choice for accumulation or reinvestment purposes, or of necessity either to cope with temporary adversity or as more permanent adaptation to the failure of other options (Morris et al, 2000). However, Tacoli (2002) is of the view that the nature of diversification can vary widely, according to who undertakes it- wealthy or low-income households, urban-based or rural-based, etc. According to her, among low-income households, diversification is often a survival strategy for risk minimisation and income stabilisation. On the other hand, among higher-income groups, diversification is often accumulation strategy aiming at maximising profits by investing across sectors.

Decreasing incomes from farming, especially for small-scale producers who, because of lack of land, water, or capital, are unable to intensify and switch to higher value crops, means increasing numbers of rural residents engage in non-farm activities often located in urban centres (Tacoli, 2004). With diversification becoming the norm, individuals are more likely to engage in multiple activities rather than rely on only one, and that there will often be variations over time, either seasonal or related to individuals’ life course (Tacoli, 2004). The adoption of multiple sources of income is meant to complement the
dwindling earnings from farming (Thuo, 2010). Diversification involves wage work in agricultural, non-agricultural activities, non-farm self-employment and remittances from urban areas and from abroad (Brook & Dávila, 2000).

Migration forms a central component of livelihood diversification (Hussein & Nelson, 1998). It may be voluntary or involuntary, temporal or permanent. Most often, people are compelled to migrate when they cannot gain a secure livelihood in their homelands. As a critical strategy to secure off-farm employment, they may rely on and/or stimulate economic and social links between areas of destination and origin. Migration will have implications for the asset of those left behind, for the role of women and for on-farm investments in productivity (Morris et al, 2000). One important aspect of non-farm diversification is that landless poor and people with no skill in farming can engage in it. Diversification of livelihoods can be both positive and negative: positive if diversification makes livelihoods more secure and reduces adverse impacts of seasonality, but negative if diversification results in lower agricultural productivity (Brook & Dávila, 2000).

According to Barrett et al. (2001), multiple motives prompt households and individuals to diversify assets, incomes, and activities. He asserts that diversification is influenced by both ‘pull and push’ factors. The first set of motives comprise what are traditionally termed ‘push Factors’: risk reduction, response to diminishing factor returns in any given use, such as family labour supply in the presence of land constraints driven by population pressure and fragmented landholdings, reaction to crisis or liquidity constraints, high transactions costs that induce households to self-provision in several goods and services. Tacoli (2004) describes this type of diversification as a survival strategy for vulnerable
households and individuals who are pushed out of their traditional occupations and who must resort to different activities to minimise risks and make ends meet.

The second set of motives comprises ‘pull factors’: realisation of strategic complementarities between activities, such as crop-livestock integration, specialization according to comparative advantage accorded by superior technologies, skills or endowments (Barrett et al., 2001). In line with these set of motives, Tacoli (2004) is of the view that wealthier groups with better education and skills can be pulled by new opportunities, and their accumulation strategies aim to draw maximum benefits from the changing context.

Increase in residential land uses and particularly with city population moving into the peri-urban area brings some opportunities into the area. People moving to such areas create business opportunities for the indigenous residents and other groups such as former farm labourers in that they present needs that must be met daily (Thuo, 2010). The proximity of peri-urban areas comes with it availability of job opportunities to the indigenous residents, who are being edged out from their farming activities by land conversion and the problems associated with it.

2.7 Conceptual Framework

The concept of livelihood has gained widespread currency from development agencies and analysts in recent years. Livelihood thinking dates back to the work of Robert Chambers in the mid-1980s which was further developed by Chambers, Conway and others in the early 1990s. Livelihoods are based on income (cash, kind, or services) obtained from employment, and from remuneration through assets and entitlements
The definition of livelihood has widely been cited in development literature and as Carswell et al. (1997 cited in Scoones, 1999) pointed out: “definitions of sustainable livelihood are often unclear, inconsistent and relatively narrow. Without clarification, there is a risk of simply adding to a conceptual muddle…” However, a widely accepted definition is the one given by Chambers and Conway (1992, in Brook & Dávila (2000))

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, both now and in the future, while not undermining the natural resource base.

Scoones (1998) further disaggregated the above definition into five elements. The first three focus on livelihoods, linking concerns over work and employment with poverty reduction with broader issues of adequacy, security, well-being and capability. The last two elements add the sustainability dimension, looking, in turn, at the resilience of livelihoods and the natural resource base. The term ‘sustainable livelihood’ came to prominence as a development concept in the early 1990s, drawing on advances in understanding of famine and food security during the 1980s (Haidar, 2009). Since then, a number of livelihood approaches have been developed to mediate the poor from external shocks and stresses. A significant livelihood framework largely adopted is the DFID’s Sustainable Livelihood Framework (SLF) developed in 1999, which has been adopted and modified by a number of organizations such as FAO, CARE, UNDP among others.

For instance, CARE proposed a Livelihood framework; the Household Livelihood Security which ensures the extension of Care’s focus on relief strategies to the
accommodation and strategic development of livelihood opportunities for poor people in
the world. Additionally, the framework ensures that poor people reside in secure and
dignified environment through the lens of three attributes; possession of human capital,
access to tangible and intangible assets and the existence of economic activities
(Lindenberg, 2002). Another framework is the International Fund for Agriculture
Development (IFAD) livelihood framework which is a built-up on the Sustainable
Livelihood framework with much focus on people as well as expounding on the
interaction of institutions, processes and their linkages in ensuring effective livelihoods
(Hamilton-Peach and Townsley, 2004). Largely, these frameworks though centred on
how to enhance the existence of poor population by introducing strategic livelihood
opportunities to them however, focuses so much at the micro-level issues and neglecting
governance, policy and national global economic development as factors which are
capable of influencing and enhancing livelihoods approaches.

Considering the need to examine livelihood from a holistic point of view, the study
therefore adopts the extensively used livelihood framework, the DFID's Sustainable
Livelihood Framework which has largely been tested and its results include improving
the general livelihoods of poor people. More so, it has widely been used to study
livelihood issues both in rural, urban and peri-urban areas. For instance, in a study
conducted in Indian cities, Farrington et al (2002) used the framework to analyse how the
urban poor in India make a living through the interaction of their socio-economic
characteristics, institutions and their state of vulnerability. The findings revealed that
poverty among urban dwellers in India is significant and that the poor adapts and engage
in several activities to secure their livelihood. In addition, the effectiveness or otherwise
of state institutions does affect the outcome and sustainability of these livelihood strategies.

Therefore, setting the background for the study, the research adopts and modifies the Sustainable Livelihood Framework from DFID to explain how farmers navigate through the developmental pressures associated with peri-urban development and how it is affecting their livelihoods. Inherent nature of the framework is its focus on poverty reduction interventions which empowers the poor to build on their own opportunities, supporting their access to assets, and developing an enabling policy and institutional environment (Haidar, 2009). Furthermore, the sustainable livelihood approach further aids the notification of realistic opportunities that are based on taste and preferences of those who opt for them but this does not become a panacea for substituting other tools like sector-wide approaches, participatory development and integrated rural development (Serrat, 2008, Haidar, 2009).

The framework also seeks to understand the multifaceted nature of poverty and improve on the livelihoods of the poor through the various resources and capacities needed to escape poverty. Besides, it is based on evolving thinking about the way the poor and vulnerable live their lives and the importance of policies and institutions (Serrat, 2008). More significantly, the attractiveness and adoption of the framework stems from the fact that it is development objective, analytical framework and has a set of principles at the core. The principles that underpin the framework are

- It is responsive and participatory in drawing ideas from various stakeholders, be it public or private.
It is dynamic and sustainable.

It provides a more holistic approach to better understand the range of resources and capabilities which are used to build livelihood strategies and outcomes.

It is people centred rather than governments or resources. It places people's views and priorities at the centre of analysis but they are not a panacea.

The framework can also be applied at a range of different scales—from individual, to household, to community, to regional and even to national levels to assess the livelihood outcomes at different levels.

The approach identifies the vulnerability context of the poor where shocks and stresses that influence livelihoods of the poor are identified.

Incorporation of the poor, women as well as those in rural areas into research and development programmes.

As a result, the study adopts and examines the following interacting elements; contexts (effects of urbanization), livelihood resources/assets, institutions, livelihood strategies and how their outcomes are identified and highlighted as factors influencing livelihood. Explaining this, the study reveals that urbanization as the external environment over which peri-urban households develop have limited or no control and as the context within which peri-urban livelihood is organized. In the development of the parallel growth of urban centers, and their subsequent succession of arable lands, assets of various kinds are induced whiles others are destroyed. This is evident in the nature of constrictions and prospects that urban sprawl presents including the morphology of land use, lost farmlands, access to urban market and urban wage employment opportunities. In other words, these are micro and macro level externalities that either constraint or enhance
household asset status. For instance, rapid conversion of agricultural land to urban use and the use of peri-urban natural resources (water, land, and air) as sinks for urban waste directly destroy natural capital assets such as land from which peri-urban dwellers depend for food, water and fuel (Brook & Dávila, 2000), forcing farmers to abandon or prematurely dispose of farmland, as part of their coping strategies. At the same time, livelihood opportunities are created as peri-urban areas are exposed to urban monetary economy. People can abandon their farmlands and engage in non-farm income generating activities such as trading or non-farm wage employment. People can also trade natural capital with financial capital as farmlands are sold. However, specific problem arises if the returns from the sale of farmlands are not used by the displaced people themselves for productive purposes.
Figure 2.1: Framework on Crop Farming and Livelihoods in Peri-Urban Accra

Source: Adapted from DFID, 1999
In an attempt to adapt the approach on how the changing peri-urban space is causing vegetable crop farmers to adopt alternative livelihood mechanisms the study (see Figure 2.1) discusses three key topmost variables that impinge on the livelihood of people: vulnerability context; access to capital assets and the ability to judiciously put these assets to productive use. Also, the policies, institutions and processes that shape and influence livelihood strategies and the outcomes of livelihoods which people define as their priorities is also discussed. The vulnerability context in this framework shows the external environment or factors that affect crop farming negatively in the peripheral enclaves of cities. DFID (1999) identify vulnerability elements such as shocks, trends and seasonality. In this context of the framework on crop farming and livelihoods in peri-urban Accra, urban sprawl and its effects including the conversion of agricultural lands into non-agricultural uses is identified as key elements of vulnerability. This vulnerable conditions further indicate the nature of trends (population, migration etc), shocks (flood, death of family member etc) and seasonality (employment opportunity, prices) over which people have imperfect control or absolute loss of control. These factors make people susceptible as well as having direct impacts on people's assets status by creating or perpetuating vulnerability and poverty.

In addition, there is the need for institutional and policy intervention through transforming structures and processes to manage vulnerability context. This is managed by helping people to become most irrepressible by assisting the poor to build up their assets and transmogrify these assets into strategies and outcomes that enhance their living conditions. Moreover transforming structures and processes do not only enable people to build assets, they also act as barriers to achieve positive livelihood outcomes. They create
assets, determine and influence rates of access. This means that the transforming structures be it from institutional action or policy initiatives should impinge profoundly and positively on access to assets. On the contrary, although policies affect the livelihood options of poor individuals and communities, the poor affect policies and institutions as well. People with better access to assets usually do have a broader range of options and are thus able to switch between multiplicities of strategies to sustain their livelihoods.

The livelihood assets available to household, individual or community represent the basic platform upon which livelihood may be built. The approach is founded on a belief that people need a range of assets to cope with stresses and shocks to achieve positive outcomes. This is typical of low income communities where people out of poverty have limited access to resources. Consequently, they have to find through innovative ways, more plausible means of combining the available assets that yields more satisfaction and is more sustainable. Due to the existence of varied sources of shocks, seasonality and trends in space, assets are constantly going through recreation and destruction. Poverty assessments have indicated that an individuals’ chance of escaping the vagaries of poverty and its aligning problems hinges on his or her access to critical assets on which livelihoods are built. For every livelihood outcome, there are specific assets that are needed to be induce desired positive outcomes.

The framework is however seen as being generic framework in its use in urban and rural setting (Singh & Gilman, 1999, as cited in Brook & Dávila, 2000). According to Brook and Dávila, (2000), there are limited examples of its use in peri-urban setting. Although they identified that using the sustainable livelihoods framework in the peri-urban context raises issues regarding who and where are the households affected by peri-urban process,
using it in this study on peri-urban population, specifically crop farmers is a new addition to knowledge. In other words, the framework generally focus on the poor population without defining the context of this poor population. Hence, as an addition to the framework, vegetable crop farmers are identified as the poor population. In that, it identifies the precise category of population that are undergoing livelihood challenges as a result of the pressures of development. In other words, superimposing the framework on peri-urban setting results in new form of knowledge generation.

**Summary**

This chapter was devoted to the review of related literature and conceptual frameworks for the study. Specifically, the first part focused on understanding the concept of urban sprawl, and peri-urbanization. Further, the chapter provided an overview of peri-urban agriculture and livelihood strategies. Finally, agriculture and livelihood in the study area was conceptually examined with guidance from the DFID sustainable livelihood framework.
CHAPTER THREE

STUDY AREA AND RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the study background and the methodology guiding the study. The chapter is organized into two sections. The location and physical characteristics of the study area which include; the relief, drainage, vegetation, climate, the study population and the socio-economic characteristics were presented in the first section. The second section also presents the methodological approach of the study. Specifically, the methodology delved into the research design, research strategy, data sources, data collection methods, sampling techniques, and data analysis.

3.1 Geography of the Study Area

3.1.1 Peri-Urban Accra and Greater Accra Metropolitan Area (GAMA)

The head city of the study region, Greater Accra Area (GAMA) is Accra, which is made up of Tema Metropolis and ten (10) municipalities. Long before the capital of the then Gold Coast, Cape Coast was moved to Accra in 1877, the whole Region of Greater Accra within which the city of Accra is located was largely rural, comprising farming and fishing settlements (Parker, 2000). Though, by 1891, Accra had developed into an urban centre with a population of 19,999, which later dropped to 18,574 in 1911 and subsequently rising again to 38,049 in 1921 and 61,558 in 1931 (Ahuno, 1992; Apt, 2000). By 1960, Accra became a well-developed city with a population of 377,446 (Twum-Baah, 2000), which signified nearly a quarter of the Ghana’s urban population as
at that time. The population of Accra increased sharply during the period of 1960 - 2010, from 377,446 to 2,076,546.

The formal boundaries of Accra as that time, before the recent re-demarcation of districts, covered only 300 sq. km, or 7.4% of Greater Accra Region’s total land area (Twum-Baah, 2000), which brought about a substantial spillover into peri-urban settlements in the surrounding municipalities as a result of the limited capacity to accommodate such a huge urban population which is growing rapidly with all its economic activities.

The available census data as the time shows that nearly half of GAMA’s population growth between 1960 and 2010 happened outside the formal boundaries of Accra. Table 1 displays the proportion of Accra’s population which stood at 70% out of GAMA’s total population growth during the 1960-1970 inter-censal period. The percentage of Accra’s population later declined to 40% during the 2000-2010 inter-censal period. The sharp growth Accra’s population had come with enormous corresponding effects on the fringe zones. High demand for land housing, industrial and other non-agricultural activities to serve the swelling urban population of Accra were some of the corresponding effects. There has been countless rapid transformations in the physical and socio-economic characteristics of peri-urban communities surrounding the city of Accra as a result of the engulfment of the sprawl of Accra, (Kassanga, Cochrane, King & Roth 1996; Yankson, et al., 2005).
Table 3.1. Population Growth Distribution in GAMA

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Growth (Absolute)</td>
<td>429,688</td>
<td>660,431</td>
<td>1,220,550</td>
<td>1,040,618</td>
<td>3,351,287</td>
</tr>
<tr>
<td>Proportion of Growth of Accra in (%)</td>
<td>70.1</td>
<td>46.7</td>
<td>55.0</td>
<td>40.1</td>
<td>50.7</td>
</tr>
<tr>
<td>Proportion of Growth occurring outside Accra in (%)</td>
<td>29.9</td>
<td>53.3</td>
<td>45.0</td>
<td>59.9</td>
<td>49.3</td>
</tr>
</tbody>
</table>

Source: Based on census data taken from 1960 to 2010.

The phrase “peri-urban Accra” in the context of this study, is taken to comprise the part of the GAMA located outside the Metropolises of Accra and Tema, La Dade-Kotopon Ledzokuku-Krowor Municipalities. The others are Ashaiman, Madina and Adenta.
communities (see Figure 3.1). The area of peri urban Accra is made of large communities such as Ofankor, Gbawe, Dome, Amasaman, and Kwabenya as well as smaller communities which were characterized by farming as their major economic activity. The entire zone was rural in character with farming being a major occupation until recent decades that agricultural activities have diminished drastically as a result of the conversion of arable lands into residential and industrial uses. This reason for such a development is based on the fact that the peri-urban zone is a transitional zone comprising of both rural settlements where farming is predominant and communities from where a large percentage of inhabitants shuttle to the city (Aberra & King, 2005).

3.1.2 The Study Community

The focus of this study is to bring to fore an in depth examination of transformations in livelihood assets and livelihood strategies in one peri-urban community- Bortianor, which was selected based on its proximity to Accra (see Figure 3.2). This is because relative location of peri-urban communities has an influence on the extent and intensity of the impact of urban growth on such communities (see Linard, Tatem & Gilbert, 2013).

3.1.3 Geographical Location & Climate of Bortianor

Bortianor is a wetland located in the south-western part of central Accra, the capital of Ghana. It is geographically located 332 kilometres south east (146°) of the approximate centre of Ghana and 13 kilometres west (254°) of Accra, and is known for its beautiful beaches and serene environment. Bortianor is bounded to the south by the Atlantic Ocean, and 112 km from Cape Coast (the capital city of Central region) of Ghana to its
west. The features of the environment and geographical location of the study area are shown on the maps below:

**Figure 3.2 Map showing location of the study area (Bortianor), (taken from Danso, 2013; p.46)**

Communities such as Amanfro, Aplaku, Kokrobite and Oshiyee, located on the east and west ends of Bortianor, share both linguistic and cultural affinity.
The Densu River feeds the wetland, and has been dammed a few kilometres up-stream (Weija dam) to provide water to a number of areas in Accra. Bortianor falls within the dry equatorial climate region of Ghana, with the climate governed by three district air masses, namely; the harmattan, the monsoon, and the equatorial air masses. In addition, it lies within the coastal savannah belt where rainfall is seasonal with two peaks in June and September. Mean annual rainfall for the area is 800 mm with an average yearly temperature average of 26ºC. The area is mainly undulating with relief ranging from 20 to 100 m above sea level. The vegetation in this area is predominantly shrub and grassland (Teley, 2001).

3.1.4 Occupation & Livelihood

The climate and vegetation as described above supports farming and fishing, which has been the main traditional occupations in Bortianor. Crops such as okra, tomatoes, cassava and other food stuffs are produced at subsistence levels by farmers in the various family units (areas) in the community. The head farmer from the various family units is called Akwashontse. Each family unit has its specific demarcated plots of land for farming. (See Figure 3.3 below).

The other major occupation of the residents in the community is fishing. The various fishing groups are comprised of individuals from the various family units and headed by an appointed leader known as Woleitse (Head fisherman). The Woleitse manages the contributions made by the fishing groups and settles any disputes that may occur among the fishermen. Other members of the community, who are neither farmers nor fishermen,
engage in construction/building activities, commercial driving, and other trading activities.

3.1.5 Land Tenure System and Land Allocation in Bortianor

All lands in Ghana are partially or fully owned by a group, individual, or an institution. There is no land in Ghana without an owner; every inch of land is vested in somebody. This statement holds true when it comes to land ownership in Bortianor; some portions of the land have been acquired by the Government for irrigation farming, while the remainder is vested in the stool through family lineages of the first settlers (Danso, 2013). In the past, family land were controlled and managed by their respective families. However, this changed under the late Chief, Nii Kwei Arku IV in 1977, who changed the family lands to stool lands (i.e. controlled and managed by the chief in terms of Article 295(1) of the 1992 Constitution), (Danso, 2013). Nevertheless, the de facto ownership of land in Bortianor is controlled by the respective families, as directed by family heads, who are responsible for the management of their family lands (see Figure 3.3 below).

3.2 Research Methodology

3.2.1 Research Design

The study adopted both qualitative and quantitative approaches for achieving the study’s objectives. The mixed methods were deemed relevant in view of the advantages and disadvantages of individual methods. The qualitative method is said to be flexible and effective for getting in-depth understanding of socio-economic situations, yet it is not very effective for measuring associations between phenomenon (Holland & Campbell,
The quantitative approach however, allows for generalization, prediction and comparison (Holland and Campbell, 2005; Teye, 2008), however, it is difficult since it involves some sorts of calculations. Some researchers have argued that the use of both qualitative and quantitative approaches in one research is tedious. It has also been argued that the qualitative method is based on subjective as compared to the quantitative method which is described as objective and value free (Holland and Campbell, 2005; Teye, 2008).

The quantitative approach falls within the positivist’s paradigm that perceives science as value-free, neutral and objective that aims to explain generic behaviour pattern (Teye, 2012) and very useful for analysing quantifiable data and also suitable for generalisation and predictions. In view of the advantages of both methods given above, the researcher adopted the mixed method in order to gain in-depth understanding of socio-economic data on the livelihoods of crop farmers in the study area.

3.2.2 Data Sources

3.2.2.1 Primary Data

Research technique for primary data collection depended on a questionnaire survey, key-informant interview as well as focus group discussions. The qualitative aspect relates to the in-depth interviews guide and the questionnaires relate to the quantitative aspect of the data collection technique.

3.2.2.2 Secondary Data Sources

Considering the nature of this research, relying on official documents and other journals or reports were deemed fit for this research. Official documents such as administrative
records, reports etc. from the various local organizations, including District Assemblies and NGOs, were used for the analysis. Other secondary data sources include journals, articles, thesis, official reports and internet sources.

3.3 Data Collection Methods

3.3.1 Quantitative Data

An open and close-ended questionnaire was used to obtain data from 192 respondents from the community. Specifically information was sought on such issues as: livelihood activities in the area some two decades ago and current livelihood activities; effects of urban sprawl on agricultural lands in the community; current livelihood diversification activities among others.

3.3.2 Qualitative Data

Qualitative techniques such as interviews, focus group discussion and analysis of documents, were useful in analysing the problem under investigation. Key informants for the interviews were purposively selected. In all, four key informants representing State and Non-state actors were selected. They include Chief Planning Officer of the Greater Accra Metropolitan Assembly, the Chief of Bortianor, the Assembly Member of the community, and the Chief Farmer. In all, two Focus Group Discussions were held in the study area. The FGDs were done for adults and youths with mixed gender composition. The interviews and document reviews enabled the researcher to adequately explain the kind of physical changes occurring in the peri-urban and how these influences of the urban on the peri-urban is affecting livelihoods of local crop farmers specifically and by extension other livelihood options in the community. For instance, through a combination
of in-depth interviews and focus group discussions, it was possible to understand the experiences, perceptions, different views and daily activities of local farmers. As postulated by Teye, (2008) “the qualitative methods provides access to the motives, aspirations and the relations that account for how people and events are represented across space”.

### 3.3.3 Sampling Method and Selection of the Study Community

Bortianor is a peri-urban community lying within 30 km radius from the city of Accra was purposively selected to represent peri-urban Accra. The selection was based on the co-existence of rural and urban livelihoods, proximity to Accra and the fact that this is a place where multiple livelihood types are evolving in response to the effects of urban sprawl. The selected community, Bortianor, represents various spatial locations of the peri-urban continuum: urban, intermediate and rural respectively. These classifications are based on the level of exposure to urban influence and the proportion of the population engaged in the agricultural sector since one of the criteria for delineating urban areas is based on the proportion of the labour force employed in non-agricultural activities (Gantsho, 2008; Thomas, 2008).

### 3.3.4 Sampling Technique

The sampling technique is the method used to select sample from a target population. The sample design also forms part of the various stages or steps in drawing sample after the target population and an appropriate sampling frame has been selected. For the purposes of ensuring that all members within the study areas had equal chance of representation in the sample a probability (random) method was employed in the selection of respondents.
Moreover in doing this a two-stage sampling procedure was adopted. This involves the process whereby samples are first selected within a frame, however this may not constitute the final sample for the study and therefore a final stage, which may either be a simple random, stratified or systematic sampling is then used to select the final sample.

Bortianor constitutes the study area of this research. It is quite big in size and so the researcher deemed it prudent to divide the community into four clusters based on his familiarity with the community. The clusters are named zone A, B, C and D. For the purpose of fairness, the total sample size which is 192 was put into four divisions in accordance with a four zones created by the researcher giving a total of 48 respondents sampled from each of the zones just to ensure reliable responses are sought across the length and breadth of the Bortinor community.

The first stage of the three-stage sampling procedure was a sampling of clusters within the community of study. Cluster sampling involves sampling from naturally occurring groups or clusters, which may include towns, buildings etc. In the case of this study, the community was divided into four cluster zones from which respondents were drawn. This cluster was done using streets and paths to create boundaries from which houses were drawn for the interview. One key reason for the clustering was to ensure all areas in the communities were covered. While this sampling technique may be associated with more errors, its relative strength lied in the fact that it was more economical and appropriate in situations where the target population is more spread or within a larger geographical area. From the clusters, a systematic sampling approach was used to select every third house (structures considered as houses), and in all 192 houses were listed. The last stage was a simple random sampling of household heads from the various houses sampled. In houses
where there were more than one household, we randomly chose of the households and interviewed the household head. The choice of the household head as the respondent is due to the fact that they are often involved in farming activities in the community. Furthermore, the cultural system of the community is such that males are mostly the household heads and play the critical role in providing the livelihood needs of the house. In the case of the qualitative data, key informants were purposively selected for both interviews and focus group discussions.

3.3.5 Sample size determination

With regards the sample size, a total sample of 192 households was arrived at. This was guided by Yamane (1967) formula for arriving at a sample size using the level of precision and the confidence interval. The level of precision can also be referred to as the sample error and involves the range within which the true value of the population is estimated (Israel, 1992). The larger the level of precision the higher the error, margin. With a population of 10,432, and using a level of precision of +/-7, and a confidence level of 95% the 192 figure was arrived at (the actual calculation is 204, but difficulty in getting respondents meant that the researcher could arrive at the study sample, which in any case is closer to 204). This 192 was used to list the houses in the community which subsequently translated to identifying the heads of households in these houses. As Table 3.2 shows, Bortianor has experienced rapid population growth in recent times.

Table 3.2. Population growth and composition of study community.

<table>
<thead>
<tr>
<th>Community</th>
<th>1984</th>
<th>2000</th>
<th>2010 (Estimate)</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bortianor</td>
<td>3,298</td>
<td>5,446</td>
<td>10,432</td>
<td>216.3</td>
</tr>
</tbody>
</table>

Source: Based on 1984, 2000 and 2010 population censuses.
3.3.6 Data Analysis

Data was analysed both qualitatively and quantitatively. The qualitative data were subjected to intensive content analysis; quotations were used to emphasize certain statements and assessments. All the completed questionnaires were sorted and collated and were being subjected to analysis.

Responses to questions were coded and entered into Statistical Package for Social Scientists (SPSS). Descriptive statistical analysis techniques were used to analyse the data. Quantitative data was analysed by the use of frequencies, tables, percentages, correlation, and chi square and cross tabulations. The analysed data were presented in the form of tables, graphs, pie charts and other appropriate presentation techniques.

3.3.7 Ethical Consideration

Ethical principles for dealing with special issues in social science research were taken into consideration throughout this research. Since the study focused on participation and concern seeking from individuals within a well-defined geographical area, confidentiality in terms of issues presentation were also taken into cognizance. Most of the information was obtained from individuals that participated in this research. The ideal purpose of the study was explained to all concerned people and their participation was optional. Participants were also assured of confidentiality.

3.4. Chapter Summary

This chapter dwelt on the study area and the methodology for the study. The discussion on the study area was on the location, physical and socioeconomic characteristics. The
methodological issues of the study were discussed in second section of the chapter. Key areas discussed are the study design, the research strategy, sources of data, and the approaches used in sampling, gathering of data, and the analysis of the data gathered.
CHAPTER FOUR

ASSESSMENT OF PREVIOUS AND CURRENT LIVELIHOOD ACTIVITIES OF LOCAL PEOPLE IN BORTIANOR

4.0 Introduction

The chapter presents results and discussion of livelihood changes associated with peri-urbanization and urban sprawl in Bortianor. The analysis begins with the socio-demographic characteristics of respondents. It is then followed with previous and current major livelihood activities, and the farming experiences in the wake of Accra’s sprawling and residents perception of land-use changes in Bortianor.

4.1 Socio-demographic characteristics

In order to understand some relationship among the socio-demographic characteristics of respondents, a number of cross-tabulations were generated for these demographic characteristics. Table 4.1 shows a cross-tabulation between gender and age of respondents. The result shows that 87.5 percent of respondents are males whiles 12.5 percent of respondents are females. This result is quite surprising since the skewed distribution in favour of males is at variance to both the national figure as well as the Municipality one which stand at 50.8 and 51.1 respectively in favour of females (GSS, 2014). Nonetheless a number of factors may account for the skewing of the gender representation of respondents including the sampling procedure itself and the purpose of the study. Since the focus was on household head available at the time of the survey, it was the case that the main head encountered was the male and as such his availability meant that the researcher obtained all information at the household level from him.
Table 4.1: Gender and age of respondents

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age of respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Under 30 yrs</td>
<td>Between 30-60 yrs</td>
</tr>
<tr>
<td>Male</td>
<td>0 (0.0)</td>
<td>144 (100.0)</td>
</tr>
<tr>
<td>Female</td>
<td>12 (100.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Total</td>
<td>12 (100.0)</td>
<td>144 (100.0)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2016

Further the result indicate that the gender distribution within the age cohort less than 30 years were females only, which amount to 100 percent. For those within the age bracket of 30-60 years, all 144 respondents falling within this age group were males, also amounting to 100 percent. For those in the over 60 years age bracket, the result shows that 66.7 percent were males whiles 33.3 percent were females. These findings reaffirm the earlier submission that most of the respondents are household heads and more so are males and thus were also available at the time of the study. This study also brings to the fore the predominance of men in landholding and farming issues, especially where access to land is an important factor here. Nonetheless the participation of women in the study was also important as it also gave insight to the investigation and to provide a balance to the perspectives provided by the male counterparts.

Table 4.2 is a cross-tabulation between level of education and gender. The result show that out of the total respondents, 12.5 percent have had no formal education, 6.3 percent have had primary education, 56.3 percent have had middle school education, 18.8 percent have had middle/secondary education and only 6.3 percent have had tertiary education.
This result resonates with national statistical data which indicate that about 54 percent of the country’s population has had middle school education (JHS level) with just 15 percent of the population having had secondary education (GSS, 2014). When looked at the result within the specific gender groups, it shows that 60 percent of the men have had middle school education whiles 100 percent of the women have also had middle school education.

Table 4.2: Gender and level of education

<table>
<thead>
<tr>
<th>Gender</th>
<th>level of education</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Primary</td>
</tr>
<tr>
<td>Male</td>
<td>24 (14.3%)</td>
<td>12 (7.1%)</td>
</tr>
<tr>
<td>Female</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>24 (12.5%)</td>
<td>12 (6.3%)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2016

Table 4.3 shows a cross-tabulation between the household sizes of respondents and the age cohort distribution. This is import in determine whether size of the household is a function of age. The result shows that majority of the households representing 50.0 percent have a size of 4-6 persons. Households with 7-9 persons make up 37.5 percent of the respondents, and households with 1-3 persons represent 12.5 percent of respondents. The household size is reflective of the District’s household structure which according to GSS (2014) has an average of 4.0 persons. Further, the result indicated that those with
household size of 4-6 persons are within the 30-60 years age cohort, which is not surprising since this is the age category where most people would want to raise families. It is also an active period for child rearing and parenting (ibid). In tandem with other studies such as the Ghana Living Standard Survey (GLSS) by GSS (2008), the household size of this fishing and farming communities are relatively larger than in non-farming and fishing communities. The relatively large households is reflective of the livelihood assets framework explored in the conceptual framework of the study which emphasizes the role of social capital is offering security to households. In such farming areas, availability of labour is very important for work on farms. Households with larger members use this family labour rather than hired labour for productive activities, thus reducing the added cost they would have to bear when they depend on hiring of labour. Thus in social and economic asset perspectives, larger households in such typical farming and fishing communities is held in high regard in offsetting the cost of hiring labour.

Table 4.3: Household size and age of respondents

<table>
<thead>
<tr>
<th>Household size of respondents</th>
<th>Age distribution</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Under 30 yrs</td>
<td>Between 30-60 yrs</td>
</tr>
<tr>
<td>1-3</td>
<td>0 (0.0%)</td>
<td>24 (16.7%)</td>
</tr>
<tr>
<td>4-6</td>
<td>0 (0.0%)</td>
<td>60 (41.7%)</td>
</tr>
<tr>
<td>7-9</td>
<td>12 (100.0%)</td>
<td>60 (41.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>12 (100.0%)</td>
<td>144 (100.0%)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2016
Results in Table 4.4 show that 75 percent of respondents have resided in the community for more than 10 years, 18.8 percent have stayed in the community between 1-5 years and 6.3 percent have stayed in the community for 6-10 years. This result is not surprising since the area, even though experiencing massive residential development has always been an indigenous community mostly engaged in agriculture and fishing. The fact that 18.8 percent have resided in the area between 1-5 years also indicate that there are new settlers and thus a sign of residential development in this particular location. Closer look at the relationship between duration of stay and age cohort shows that within the over 60 year age group all of them have stayed in the community for more than 10 years. For those who are within the 30-60 year age bracket, 16.7 percent have stayed in the community for 1-5 years, 8.3 percent have stayed in the community for 6-10 years and 75 percent have stayed in the community for more than 10 years.

Table 4.4: Duration of stay and age of respondents

<table>
<thead>
<tr>
<th>Duration of stay</th>
<th>Age of respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Under 30 yrs</td>
<td>Between 30-60 yrs</td>
</tr>
<tr>
<td>1-5 years</td>
<td>12 (100.0%)</td>
<td>24 (16.7%)</td>
</tr>
<tr>
<td>6-10 years</td>
<td>0 (0.0%)</td>
<td>12 (6.3%)</td>
</tr>
<tr>
<td>Above 10 years</td>
<td>0 (0.0%)</td>
<td>108 (75.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>12 (100.0%)</td>
<td>144 (100.0%)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2016
4.2 Assessment of previous and current livelihood activities of local people in Bortianor

The study revealed that prior to urban expansion in the study community and its precincts, inhabitants were engaged in livelihood activities that largely hinges on the environmental resources available in the area. Mostly, respondents were engaged in farming which constituted about 85.0% of responses from the sample. Comparatively just 37.5 percent of respondents still engage in farming as their major livelihood activity. Indeed the rapid decline of farming in peri-urban communities seems to be the norm in most parts of Africa as a study by Mandere et al (2010) conducted in peri-urban Nyahururu in Kenya, revealed that there is a decline in economic significance of agriculture due to rapid shrinking of agricultural land and the opting of households for diverse non-farm activities.

The findings further shows that 4.3 percent of respondents engaged in fishing previously as their major livelihood. This has however reduced to 3.5 percent currently. The prominence of farming and fishing in the community was highlighted by Danso (2013) who noted in a peri-urban land tenure assessment of Bortianor that the climate and vegetation of the area has made farming and fishing a major activity of people in the community. The findings resonates with views expressed by scholars such as Tacoli (2004) and Thuo (2010) who assert that significant alterations are been seen in the pattern of livelihood strategies among peri-urban inhabitant from a traditional occupation which was largely dependent on the environmental resources to a more diversified and precarious livelihood strategy.
Again, 7 percent of respondents indicated that they used to do business as their major livelihood activity. Currently, 51.0 percent of respondents engage in business as their major livelihood activity. The percentage of respondents engaged in other activities like metallurgy, building, public service among others as a major livelihood activity also increased from 3.7% to 8.0%. It is observed that farming and fishing as a major livelihood activity has reduced in the community whereas businesses and other works have increased. The above findings also brings to the fore the change from largely dependent agricultural livelihood strategy to a more non-agricultural strategy. Indeed one observes that these new activities are building related and therefore suggest that residents are taking advantage of the residential boom to eke out a living a point well elaborated by Mandere et al (2010) and Hudala et al. (2008).

Similarly, Oduro et al (2015) study on urban growth and livelihood transformation in peri-urban Accra largely corroborate the findings of this study on the declining agriculture in these peri-urban interfaces like Bortianor. According to Oduro et al (2015), there has been an evident based shift from agricultural livelihood activities to non-agricultural livelihood activities in the adjoining communities of Accra such as the reduction in the proportion of economically active population who had agriculture as as their occupation from 19.3% to 5% based on the 2010 census data for Ga South District whiles it can be argued that the reduction in farming and fishing could pose a livelihood challenge. It could also be explained from another perspective that it shows a shift from traditional livelihood activities to alternative livelihood activities influenced by urbanization and urban growth processes.
Figure 4.1: Past and current major livelihood activities of respondents

Source: Field survey, 2016

Plate 4.1: A section of Fishermen at Bortianor during field work

Source: Field Survey, 2016

(Plate 4.1 show a section of fishermen engaged in fishing activities at Bortianor during field visit on 07_03_2016)
Plate 4.2: Farming Activity in Bortianor

(Farming activities interspersed with infrastructure development in Bortianor observed during field work on 07_03_2016)

4.3 Linkages between individual level factors and prior farming experience

Further, to establish the rate of peri-urban land use change in the study community, a cross-tabulation between “whether respondents have engaged in agriculture before” and “whether the present land which was used for such farming purposes have been converted to residential building” was performed and this is shown in Table 4.5. The result shows that, out of the total 192 respondents, 93.3 percent who indicated that they have engaged in farming before also indicated that these lands have been converted to residential buildings, whereas only 6.7 percent indicated that these lands remain untouched. On the other hand, those who also did indicated that they had not engaged in
farming before still opined that these land have been converted into residential developments.

This finding corroborates a number of studies conducted on this subject matter, especially those within the Ghanaian context. Indeed the role of Accra as the commercial and administrative hub of the country is a key element in the rate of residential development in Accra. The growth of Accra, has proceeded without any plan to de-concentrate its functional activities, thus it has become imperative for emerging middle class people to take advantage of the major arterial roads straddling the peri-urban areas in order to access the various functions offered by Accra. The repercussion of this is the massive land-use change currently taking place in these areas (ISSER, 2008). In this regard I concur with Allen (1999) on the view that peri-urban development is an inevitable consequence of urbanization.

Table 4.5: Prior farming experience and perception of land-use change

<table>
<thead>
<tr>
<th>Have you farmed before</th>
<th>Have your farm been converted to residential building</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>168 (93.3%)</td>
<td>12 (6.7%)</td>
</tr>
<tr>
<td>No</td>
<td>0 (0.0%)</td>
<td>12 (100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>168 (87.5%)</td>
<td>24 (12.5%)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2016

In addition to establishing the extent of residential development in the study area, it was also deem expedient to establish that indeed farming have always been a major livelihood
activity in the area until quite recently where urban expansion has been exacerbated. In view of this, residents’ age was cross-tabulated with the question of whether residents have engaged in farming before, which is also shown in Table 4.6. The result shows that, out of the 180 respondents who did indicated that they have been involved in farming before, about 73.3 percent did indicate that they are currently over 60 years, 6.7 percent did indicate that they were between 30-60 years, whiles 20 percent did indicate that they were under 30 years. For those who responded that they have not engaged in farming before all of them are 69 years and above. An inference that can be made from the result is that, farming has been a major activity in the study area since a lot of the respondents who happen to have engaged in it are above 60 years. This finding suggest and further corroborate with the view that there is a rapid transition of peri-urban settlements from a predominantly agricultural land-use as indicated not only in the quantity of land available for farming but also the changing occupational dynamics. This also brings to the commodification of land the future implication of this on land supply.

Table 4.6: Prior farming experience and age of respondents

<table>
<thead>
<tr>
<th>Have you farm before</th>
<th>Age Distribution</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Under 30 yrs</td>
<td>Between 30-60 yrs</td>
</tr>
<tr>
<td>Yes</td>
<td>36 (20.0%)</td>
<td>12 (6.7%)</td>
</tr>
<tr>
<td>No</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>36 (18.8%)</td>
<td>12 (6.3%)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2016

Figure 4.4 further provides insight about the gradual loss of farmlands in Bortianor. Inquiring whether there has been loss of farmlands over the years, majority of the
respondents representing 87.5 percent indicated that they had lost their farmlands, and 12.5 percent indicated that they have not lost their farmlands. The loss of farmlands can be attributed to several factors which could be internal like the growth of the rural community, or by external factors like succession of community by the sprawling city. Whatever the underlying factor may be, it is established by this finding that many farmers in Bortianor have lost their farmlands over the years and this had contributed to the decline in farming activities.

Figure 4.2: Perception of loss of peri-urban lands

Source: Field survey, 2016

Abdulai (2016) in a study on land governance in peri-urban Africa, admitted to the increasing loss of farmlands in Ghana, and attributed land disputes and losses of lands to the activities of unqualified surveyors, non-availability of planning schemes and poor land registration. Danso (2013) alluded to the loss of farmlands in Bortianor, but found in
His study that whereas residents hold a high level of fear about farmlands, they feel more secured about their residential lands. These studies about Abdulai (2016) and Danso (2013) corroborates the findings of this study that farmlands are under serious threat and farmers continue to lose their lands on a routine basis. A respondent noted in an interview that:

“As for the land in this area, it is not safe unless the whole family is guarding it. Where we live now was protected by our fathers and they have handed it over to us so we also protect it. But for the places we farm, we have tried to secure it but encroachers, politicians, and big men come with their money and influence the chief or the head of family and the lands are secretly sold. You will just be there and bulldozers will come and start grading the land. Most of us have lost our farmlands in this area. We have talked severally and had many meetings with traditional leaders but every day, they continue to sell the farmlands” (Respondent at Bortianor: 21st March, 2016).

The study further investigated if urban sprawl was an underlying cause of loss of farmlands in the study community. According to the results presented in Figure 4.5, 98.5% of respondents indicated that urban sprawl was a cause of loss of farmlands. Also, 1.5% of respondents indicated that other factors other than urban sprawl accounted for the loss of farmlands in Bortianor. Although majority of the respondents identified urban sprawl as a major factor that is causing farmers to lose their lands, Abdulai (2016) noted that the loss of lands is due to multiple factors which might not necessarily be due to sprawling. Some of these factors include: greed and selfishness, land title fraud, land grabbing, land encroachments, and land/environmental degradation.
In an interview, a 57 year old farmer noted that:

“I have been in this community for a very long time. Farming is the main work I do to take care of my children. There was enough land here and we could even afford to move from one land after cultivation to the next available land. But in about 15 to 20 years now, a lot of people are moving to this areas to build very big mansions and business apartments. A lot of the people now live here and work in Accra. I believe it is all because of the pressure in Accra so people are finding these places easier to live since it is easy to find land here to develop into residences. It is affecting us the farmers here” (Farmer- Bortianor: 06_03_2017).

In a Focus Group Discussion, a participant also alluded to the fact that urban sprawl is really leading to the loss of farmlands in the peri-urban areas. He noted that:

“Where is the land? Go round here and if you find a vegetable or crop farm more than three plots, then you are fortunate. It is not only Bortianor. When you go to Aplaku, and Weija and other nearby areas, you will see that people are building houses every day. Where do these people come from? Accra. So far us more
people are coming to Accra, people will come and be building here and we will also be losing our farmlands”- (FGD Participant: Bortianor, 08_03_2017).

4.4 Summary of Chapter

This chapter sought to provide the demographic profile of respondents and analysis and discussion of previous and present livelihood activities of respondents as well as evidence of changing livelihoods associated with land use and land-cover changes in the settlement. This chapter concludes on a number of key points, that there has been a major shift of occupation from farming activities to business which are non-farm related, an issue related to urban sprawl. Again most respondents indicated that urban sprawl has led to loss of farm lands and most of the land-use changes are residential development.
CHAPTER FIVE

EFFECTS OF URBAN SPRAWL ON LAND ACCESS AND CROP PRODUCTION IN BORTIANOR

5.0 Introduction
The previous chapter analyzed the socio demographic characteristics of respondents, livelihood activities, and the interconnection between urban sprawl and livelihoods. This chapter proceeds to look at the linkages between urban sprawl and farming in Bortianor. Specifically, the chapter examines the effects of urban sprawl on farmers’ access to land for farming, and the effect on crop production. It also examines the alternative livelihoods that have been induced or hitherto adopted by farmers in the growing incidence of urban sprawl, and coping strategies of farmers in Bortianor. The section starts with an examination of available alternative livelihoods induced by urbanization. The final section deals with the coping strategies adopted by crop farmers to deal with the negative effects of urban sprawl on their activities.

5.1 Effects of urban Sprawl on farmers access to land in Bortianor
Land access is important for several reasons. Since most people depend on land for their daily sustenance, easy access to land is not only vital for investment, but also allows the land to be fully utilized. However as indicated in the literature, commodification of land and increase conflict associated with land purchase and utilization raises issues about whether people in recent times are able to access lands for their farming activities.
Figure 5.1 shows respondents' response to a question on whether respondents currently have access to land for farming purposes. The result shows that 69 percent of respondents have access to land while 31 percent currently do not have access to lands.

The finding resonates with a study conducted by Owusu and Adjei (2007) which also showed that a large proportion of residents have access to lands for farming. However, their result also did show that land access for housing compared to farming is not easily accessible particularly for migrants. The issue here is that using land for farming, a seasonal livelihood, is different from building a structure which is more permanent, thus the reason why accessibility for farming may be quite easy. However, the more important issue will be the means through which these lands are acquired which will provide insight about the tenure arrangements.

**Figure 5.1: Access to land for farming.**

Source: Field survey, 2016
The study explored the various means by which crop farmers in Bortianor had access to land for farming. The result shown in Figure 5.2 indicate that majority of farmers had access to land through renting. This accounted for 64.3 percent of the response. The finding thus is consistent with Satterthwaite (2015) who also discovered in their study that renting of land has become one of the most common means of accessing land for farming in peri-urban areas. Adomako (2013) also indicate that renting of peri-urban land has been high because rent value of land is relatively cheaper in the peri-urban area than within the city. Aside renting, the second major means by which farmers had access to land was through temporary borrowing. This accounted for 21.4% of the responses. Other farmers representing 14.3% obtained land through inheritance or family.

This finding also resonates with Gough & Yankson (2000) study which indicated that family lands were important sources of land for farming in the peri-urban communities with inhabitants just having to present a drink to the head of family or the chief to seek permission for use of the land. The results also showed that none of the farmers had land through gift or outright purchase. The results provide a clear indication that farmers only have access to land temporarily and thus the trust of holding land or the fear of losing land inadvertently affects their productivity indirectly.
5.2 Effect of urban sprawl on farm sizes in Bortianor

It was important to find out the extent to which the expansion of Accra has affected access to land for farming purposes. Table 5.1 shows that all respondents indicated that indeed recent spatial expansion has affected land access for farming as it has now becoming may difficult and expensive to obtain land for farming purposes. This finding brings to the fore the changing nature of land tenure practices and right, which is mainly associated with urbanization and urban sprawl. The competition for land for residential development has led to situation were land owning families are eager to sell land (through lease) to individuals for residential property development, thus disintegrating previous usufruct system where land is vested in community and where community

Source: Field survey, 2016
members also had the opportunity to use land for farming purposes (Gough and Yankson, 2000).

To examine the effect of peri-urban residential expansion on availability of farmlands, it was important to ascertain from respondents, changes in the size of farmland in recent times compared to recent past. Respondents were therefore asked the current acreage currently cultivated by farmers. The result in Table 5.1 indicate that about 93.7 percent of respondents are currently cultivating less than 1 acre whiles only 6.3 percent are currently cultivating more than an acre. This finding corroborates views expressed by Aberra and King (2005) on the issue that pressures on peri-urban land is gradually squeezing out land available for farming and hence a major threat to urban agriculture. Owusu and Adjei (2007) also point out that the increased land values and commercialization of lands for housing development will significantly limit land size available for farming. They further noted that in recent times there have been varied uses of land in peri-urban areas, including industrial relocation and other major projects which invariably attract much higher rents compared to farming.
Table 5.1: Access to peri-urban land and available land size for farming

<table>
<thead>
<tr>
<th>How has urbanization of Accra affected your access to land for farming</th>
<th>Percentage (%)</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>It has increased access</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>It has reduced access</td>
<td>100</td>
<td>192</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>192</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous acreage cultivated</th>
<th>Percentage (%)</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 3 acres</td>
<td>12.5</td>
<td>24</td>
</tr>
<tr>
<td>3-5 acres</td>
<td>50.1</td>
<td>96</td>
</tr>
<tr>
<td>Above 5 acres</td>
<td>37.4</td>
<td>72</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>192</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current acreage of land cultivated by farmers</th>
<th>Percentage (%)</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 acre</td>
<td>93.7</td>
<td>180</td>
</tr>
<tr>
<td>More than 1 acre</td>
<td>6.3</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>192</strong></td>
</tr>
</tbody>
</table>

Source: Field survey, 2016

5.3 Effect of urban sprawl on crop production

What has been the exact effect of urban sprawl on agricultural production. Result in Figure 5.3 provides some information about this issue. From the result presented in Figure 5.3, 97.7 percent of farmers indicated that urban sprawl has led to decreased crop production in the community. Furthermore, 0.2 percent of respondents indicated that sprawling has led to increased production, with 2.1 percent of respondents indicating no changes in production. Clearly, majority of respondents have witnessed a decline in production of crops in the community. It can be deduced that in the absence of adaptive strategies like the adoption of improved breeds of crops, sprawl will inadvertently lead to decline in food production.
The above result is consistent with the argument by Thuo (2010) who asserts that the gradual reduction of land sizes in most peri-urban areas has had a significant impact on agricultural productivity since land size has been reduced. This also has implications on food supply and the consequent increase in the price of foods. The effect of this on farmers who depend on agriculture will include reduced income and probable loss of livelihood. Additionally, Owusu and Adjei (2007) further points out that the reduced productivity will eventually lead to a situation where farmers in possession of farmland will lose interest in their current livelihood and sell the land for other uses or opt for a different livelihood activity.

Insight on the above issue is given by the Assemblyman who noted in an interview that:

“Even though urbanization and consequent sprawling of the city has opened up new opportunities in terms of the sprouting of companies, banks, construction services in the area, the overall effect on food production is dire. Farmers are not able to produce a lot of farm produce as they used to. Even though the assembly has tried through its meagre resources to support with fertilizer distribution to farmers, the effect on production is insignificant as just a few of the farmers benefited and the distribution of fertilizers was not sustained due to limited resources” (Assemblyman-Bortianor: 22/01/2017).
5.4 Changes in income as a function of urban sprawl

Further it was important to examine the direct socio-economic effect of urban sprawl on farmers. In view of this the study sought to examine the relationship between current source of income and change in income over the last five years. The result in Table 5.2, shows that out of the 48 respondents currently depending of farming as their main source of livelihood, 12 maintains that they have seen some decrease in their income over the last five years, whiles 36 are also of the view that it has remained the same. Regarding those who are not engaged in any farming, out of the 144 respondents, 132 maintains that their income has decreased over the last five years.

The chi-square test conducted showed a statistically significant relationship between source of income and changes in income over the past five years ($X^2=133.33$ df=2)
p<.000). In other words, changes in income over the years is associated with the choice of livelihood i.e. farm and no-farm activities. For farming, one’s income is likely to remain same, while for non-farm activities, income is likely to decrease. The result is therefore quite perplexing, especially when the literature is conclusive on the negative effect of urban sprawl on farming activities. The result therefore suggest that farming may not be the only livelihood at threat to peri-urban expansion and also calls for more studies on the impact of urban sprawl on other livelihood patters which use to exist in peri-urban areas.

Table 5.2: Change in income and current employment status

<table>
<thead>
<tr>
<th>What is the current source of your income</th>
<th>How has your income changed in the last five years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>It has increased</td>
<td>It has decreased</td>
</tr>
<tr>
<td>Farming</td>
<td>0 (0.0%)</td>
<td>12 (25.0%)</td>
</tr>
<tr>
<td>Non-farming</td>
<td>12 (8.3%)</td>
<td>132 (91.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>12 (6.3%)</td>
<td>144 (75.0%)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2016

5.5 Decision to opt for another livelihood as a function of current livelihood strategy

Lastly the study sought to assess how people in the community are able to manoeuvre their way in the midst of current land-use change associated with urban sprawl. Table 5.3 is a cross-tabulation between current source of income and whether respondents have any other alternative livelihoods aside their primary activity. The result shows that out of the 48 respondents who are currently engaging in farming as their predominant activity, 12 (25.0%) have alternative livelihoods aside their primary activity, whiles 36 (75.0%) indicated that they do not have any alternative livelihood. Regarding respondents who are
not into farming, 12 (8.3%) have alternative livelihoods whiles 132 (91.7%) do not have alternative livelihoods. A chi-square test of significance showed that the relationship was significant ($X^2=9.143$ df=1 $p<.002$), suggesting that irrespective of the livelihood activity, respondents are unlikely to have alternative livelihoods attach to their primary activities. This raises issues as to how respondents will handle the current on-going changes and implications on their well-being. The next section provides insight about the coping strategies of residents.

### Table 5.3: Alternative livelihood and current employment status

<table>
<thead>
<tr>
<th>What is the current source of your income</th>
<th>Do you have any other source of livelihood other than your current livelihood</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Farming</td>
<td>12 (25.0%)</td>
<td>36 (75.0%)</td>
</tr>
<tr>
<td>Non-Farming</td>
<td>12 (8.3%)</td>
<td>132 (91.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>24 (12.5%)</td>
<td>168 (87.5%)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2016

As identified in the conceptual frameworks for the study, when livelihoods are exposed to shocks and threats, people will inevitably resolve to seek coping and adaptive strategies to secure their households. The results is evident in Table 5.3 provides credence to this perception notion of adaptability by households to livelihood threats.

### 5.6 Livelihood changes as induced by urban sprawl

Even though urban sprawl threatens agricultural activities in peri-urban areas, it does present some basis to diversify livelihood activities or completely change to another livelihood activity. The study therefore also sought to find out from respondents if urban
sprawl has provided any opportunity for residents to improve their well-being. The result in Figure 5.4 indicates that majority of respondents, i.e. 94 percent out of a total sample of 192 indicated that urban sprawl is opening new opportunities for people in that community whiles just 6 percent indicated that it is not opening new opportunities for them. This finding is consistent with studies by Mandere et al. (2010) and Adu-Ampong et al. (2008) who have indicated that the increasing pressure on peri-urban land has propelled a lot of peri-urban farmers to engage in non-farm income generating activities either to survive or complement their existing job.

**Figure 5.4: New opportunities associated with urban sprawl**

Source: Field survey, 2016

In an interview, the district planning officer noted that:

“It is undeniable that urban sprawl poses challenges to peri-urban areas. Nonetheless, there are positive sides of sprawl. The redevelopment of the peri-urban is helping to bring in certain basic infrastructure like portable water, police station, health post, market among others which were hitherto missing or
limited in supply. There are more formal and informal economic activities springing here and many more people are getting employed by the day”- (District Planning Officer: 06_03_2017).

5.6.1 Alternative jobs created in the community

What specific alternative jobs are residents engaged in? Figure 5.5 shows a distribution of the various non-farm activities residents are currently doing following their shift from farming (as indicated in Figure 4.3). The analysis stratified the responses into seven groups including building and construction, public service, driving, fashion and designing, food vending, metallurgy, business and petty trading. From the results presented in Figure 5.5, it is observed that the major alternative job induced was in the area of Business and petty trading. The second most engaged job for local people is building and construction representing 20.0 percent of the responses. This can be explained by the growing infrastructrual development in these peri-urban spaces. Public service work is the least area of alternative jobs created for local people representing 4.5 percent of responses.

This finding bring to the fore a number of issues that resonates with other studies on the same issue. First the diverse range of livelihood activities revealed by this finding corroborate Tacoli (2004) view that residents in an attempt to cope with urban sprawl have adopted a range of income generating activities, some being seasonal with other being more permanent, mostly aimed at complementing their primary livelihood strategy. The result shows that building and construction work and petty retailing account for almost 70 percent of major activities people are currently shifting towards. It is understandable for people to opt for building and construction work since it is a big
opportunity for people to earn a livelihood especially when there is a boom in residential development. However this work requires some skill acquisition and experience for a period of time. The limitation of this study was that the researcher did not probe further to ascertain the specific skill since some building and construction work requires more skill compared to others. Petty trading is also a good work for people to engage in for two main reasons. First the expansion of the area and increase population is a market opportunity and second it is quite easy to enter into it since it does not require much capital. It is noteworthy that most of these new and emerging non-farm activities are opportunities created by urban sprawl.

**Figure 5.5: Recent non-farm activities engaged in by residents**

Source: Field survey, 2016
5.6.2 Adaptation strategies of crop farmers to urban Sprawl

The study further sought to find out the strategies that crop farmers have adopted to sustain their livelihoods in the face of the challenges posed by urban sprawl to their farming activities. Even though it can be argued that urban sprawl provides alternative job opportunities, it is often difficult to migrate from one livelihood activity to the other, more especially where the job requirements of the alternative job options are difficult to meet. Thus, farmers will prioritize the satisfaction of their immediate needs to immediately exploring other alternative jobs. Respondents were asked to indicate their adaptive strategies to urban sprawl. The results of their views are presented in figure 5.6

**Figure 5.6: Coping strategies adopted by residents in response to urban sprawl**

![Chart showing coping strategies adopted by residents](chart.png)

Source: Field survey, 2017

From the Figure 5.6, majority of the farmers noted that they diversify their farm and non-farm income as a means of sustaining their livelihood. This constitutes 53.3 percent of the response. Furthermore, 26.7 percent of respondents noted that they diversify crop
production as an adaptive strategy. Again, 13.3 percent of the farmers noted that they expand their farm size, whiles 6.7 percent migrate to look for employment as a measure of adaptation to urban sprawl.

Oduro et al (2015) noted though there exist rapid conversion of agricultural lands in peri-urban areas surrounding urban centres, farmers are able to manoeuvre their way to get some smaller tracts of farmlands to produce fresh far produce to satisfy market demand of the city (Oduro et al, 2015). Farmers are able to strategize in adapting to decreasing arable lands sizes by practicing agricultural intensification or diversification of their livelihoods. Even though farmers engage in these adaptive strategies to be able to continue production, Killebrew & Wolff (2010) noted that the continuous intensive use of land and application of agro-chemicals and lack of appropriate soil management and cropping methods leads to the depletion of soil fertility and the contamination of crops, soils, underground and surface water bodies.

5.7 Factors influence specific coping strategies

Even though residents are coping with urban sprawl through the diversification of livelihoods, it is important to examine which groups are diversifying into what. This is important as it provides insight about the capacities of the various groups in responding to urban change and also which groups are left out in terms of their inability to take advantage of emerging opportunities. Table 5.4 shows results from a cross tabulation between gender and coping strategy, educational level and coping strategy and duration of stay in community and coping strategy. The first result shows that for the 24 respondents who have diversified crop production, all were males. For the 24 respondents
who have diversified into non-farm income activities, 12 were both male and female. Similar result for diversification of non-farm income is also found for expansion of farm size. In the case of diversification of farm and non-farm income activities, all 96 respondents were males. The chi-square result for this relationship was statistically significant ($X^2=76.154$ df=4 $p<.000$), meaning one’s gender is an important factor likely to influence the choice of a particular coping strategy.

Table 5.4: Gender and coping strategies

<table>
<thead>
<tr>
<th>Coping strategies</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversify crop production</td>
<td>24 (100.0)</td>
<td>0 (0.0%)</td>
<td>24 (100.0)</td>
</tr>
<tr>
<td>Diversify non-farm income</td>
<td>12 (50.0%)</td>
<td>12 (50.0%)</td>
<td>24 (100.0)</td>
</tr>
<tr>
<td>Diversify farm and non-farm income</td>
<td>96 (100.0)</td>
<td>0 (0.0%)</td>
<td>96 (100.0)</td>
</tr>
<tr>
<td>Expand farm size</td>
<td>12 (50.0%)</td>
<td>12 (50.0%)</td>
<td>24 (100.0)</td>
</tr>
<tr>
<td>Migrate to look for work</td>
<td>12 (50.0%)</td>
<td>0 (0.0%)</td>
<td>24 (100.0)</td>
</tr>
<tr>
<td>Total</td>
<td>156 (86.7%)</td>
<td>24 (13.3%)</td>
<td>180 (100.0)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2017

Further, Table 5.5 shows the relationship between level of education and coping strategies adopted by both farmers and non-farmers. The result indicates that out of the 24 respondents who have diversified crop production, all of them have had middle school educational experience. Similar result is found for those who have diversified non-farm income activities, which shows that all 24 respondents have had middle school educational experience. For those who have diversified farm and non-farm income
generating activities, the result shows that out of the 96 respondents, 12 have had primary education, 36 have had middle school education and 23 have had secondary level education. The chi-square result shows a statistically significant relationship between one’s level of education and the form of coping strategy likely to be adopted ($X^2=80.00\ df=12\ p<.000$). For instance a cursory look at the result suggests that crop diversification; non-farm diversification and farm size expansion is peculiar with people who have had middle school level education.

**Table 5.5: Level of education and coping strategies**

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Diversify crop production</th>
<th>Diversify non-farm income</th>
<th>Diversify farm and non-farm income</th>
<th>Expand farm size</th>
<th>Migrate to look for work</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>12 (12.5)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>12 (6.7%)</td>
</tr>
<tr>
<td>Middle</td>
<td>24 (100.0%)</td>
<td>24 (100.0%)</td>
<td>36 (37.5%)</td>
<td>12 (50.0%)</td>
<td>12 (100.0%)</td>
<td>108 (60.0%)</td>
</tr>
<tr>
<td>Middle</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>24 (50.0%)</td>
<td>12 (50.0%)</td>
<td>0 (0.0%)</td>
<td>36 (20.0%)</td>
</tr>
<tr>
<td>None</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>24 (50.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>24 (13.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>24 (100.0)</td>
<td>24 (100.0)</td>
<td>96 (100.0)</td>
<td>24 (100.0)</td>
<td>24 (100.0)</td>
<td>180 (100.0)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2017

Further, Table 5.6 shows the relationship between duration of stay and coping strategies adopted by farmers. The result further sought to find out if certain strategies were peculiar to how long or short one has resided in the community. The result found that, out of the 24 respondents who have diversified crop production, all had resided in the community for more than 10 years. With respect to those who have diversified their non-
farm income activities, out of the 24, 12 have resided in the community for 1-5 years and more than 10 years respectively. With respect to those who have diversified into both farm and non-farm activities, out of the 96 respondents, 24 have resided in the community between 1-5 years and 72 have resided in the community for over 10 years. The inference that can be made from the result is that, one’s duration of stay is likely to influence specific coping strategies, as suggested by the chi-square result which showed a statistically significant relationship ($X^2=109.091$ df=8 $p<.000$).

### Table 5.6: Duration of stay and coping strategies

<table>
<thead>
<tr>
<th>Duration of stay</th>
<th>Diversify crop production</th>
<th>Diversify non-farm income</th>
<th>Diversify farm and non-farm income</th>
<th>Expand farm size</th>
<th>Migrate to look for work</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5 years</td>
<td>0 (0.0%)</td>
<td>12 (50.0%)</td>
<td>24 (50.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>36 (20.0%)</td>
</tr>
<tr>
<td>6-10 years</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>12 (50.0%)</td>
<td>0 (0.0%)</td>
<td>12 (6.7%)</td>
</tr>
<tr>
<td>Above 10 years</td>
<td>24 (100.0%)</td>
<td>12 (50.0%)</td>
<td>72 (75.0%)</td>
<td>12 (100.0%)</td>
<td>12 (100.0%)</td>
<td>132 (73.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>24 (100.0%)</td>
<td>24 (100.0%)</td>
<td>96 (100.0%)</td>
<td>24 (100.0%)</td>
<td>24 (100.0%)</td>
<td>180 (100.0%)</td>
</tr>
</tbody>
</table>

Source: Field survey, 2017

### 5.8 Chapter summary

A number of key issues were looked at in this chapter. First the study examined land access in peri-urban areas following urban sprawl and boom in residential development.

Secondly the study looked at effect of land-use changes on crop production and livelihoods. The result indicated that residents have access to lands for farming (69%), albeit this is not easy since now one has to rent at a cost. Again the spate of residential development, the study shows, has reduced significantly the acreage used by respondents...
for farming. Now more people are cultivating on just an acre or even less. The chi-square test shows a significant relationship between one’s current employment and the person’s likelihood of adopting another work and more important one’s current livelihood and perceived changes in income level which is an affirmation of the hypothesis.

Furthermore, this study sought to uncover the various livelihood strategies adopted by residents, both farmers and non-farmers to cope with urban sprawl. The result showed that indeed residents are responding to urban sprawl through the adoption of alternative livelihood strategies. The results indicate that petty retailing and building and construction work are the dominant alternative strategies most residents are engaged in.

Secondly it was revealed that most respondents have diversified both farm and non-farm income activities. Exploring the relationship between coping strategies and some individual level characteristics, it was indicated that one’s education, gender and coping strategies are likely to influence the adoption of specific coping strategies.
CHAPTER SIX

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

6.0 Introduction

This study examined the effects of urban sprawl on the livelihood of farmers in the peri-urban interface of Bortianor. The study particularly discussed the livelihood activities of crop farmers, their access to land and farm sizes, the effect of sprawl on their activities, and the adaptive strategies they engaged in to ameliorate the negative effects on their livelihoods. This chapter presents a summary of the key findings of the investigations conducted in the study, the conclusions drawn, and recommendations.

6.1 Summary of Key Findings

The study showed that the total number of male respondents in this study were 168 constituting 87.5 percent which was far more than that of the females who were just 24 constituting 12.5 percent. With regards to the age distribution the study indicated that 12 respondents constituting 6.3 percent were 30 years and below with the majority of respondents, 144 (75%) within the 30-60 age bracket. In regards to education, the study revealed that out of the 192 respondents 12.5 have had no education whiles 56.3 percent have had middle school education. Lastly the result showed that, average household size was 4-6, and this was in tandem with official records.

The study revealed that the major livelihood activities of the people of Bortianor have changed over the years with traditional livelihood activities like farming and fishing declining from 85 percent and 4.3 percent to 37.5 percent and 3.5 percent respectively. The study revealed also that urban sprawl has resulted in loss of farmlands which have
placed much strain of the livelihoods of the people. The study found however that urban sprawl is not entirely detrimental to livelihoods, with 49.3 percent of farmers noting that the phenomenon of urban sprawl have positive effects on their livelihoods.

Furthermore, the study found that access to land is quite difficult in the peri-urban interface and majority of farmers representing 64.3 percent acquire land for farming through renting. Even though family lands which accounted for 14.3 percent of land source for farming, the large household size of which 87.5 percent of respondents noted is between 4-9 persons, means that on average, individuals have access to just a small piece to work on. Subsequently, 93.7 percent of farmers now cultivate an area less than 1 acre. Furthermore, food production has also declined considerably. The study also found a statistically significant relationship between changing land-use pattern evidenced by current livelihood and changes in income earned, thus supporting the alternative hypothesis.

The study also found that the urban sprawl has become a push factor for residents to engage in non-farming activities. The predominant works include building and construction and petty retailing both constituting 20 and 49 percent of the 192 respondents. Again it was indicated that a range of coping strategies have been adopted and include diversifying non-farm income earning 53.3 percent, diversifying crop production 26.7 percent and expansion of farm size 13.3 percent. The study also found statistically significant relationship between coping strategies and individual level factors, thus confirming the alternative hypothesis also. In other words, individual level factors are likely to influence any coping strategy decision and these include one’s level of education, age and duration of stay in the community.
6.2 Conclusions

Based on the key findings presented, the following conclusions are drawn from the study. Based on the conceptual framework and literature guiding the study, this study in Bortianor has demonstrated that livelihoods are exposed to various shocks and threats at different spaces. The study noted that whereas some dwellers in peri-urban areas have benefited from urban sprawl by taking advantage of various livelihood opportunities created by the phenomenon, others are adversely impacted through the loss of their livelihoods. Thus, the process of urban sprawl creates winners and losers in the peri-urban interfaces. This provides an explication of the fact that livelihoods are situated within various vulnerabilities and resiliencies, thus, based on where one finds him or herself along this continuum, the effect of shocks to livelihoods can be appraised differently by different people within the same geographic space.

However, as seen in the sustainable livelihood framework, livelihood assets/capital, as in this case, arable land in Bortianor, is under threat/shock from urban sprawl occurring from urban Accra. Depending on what myriad of livelihood activities one is engaging, reaction to this shock/threat could be different. From the study, the variation in individual socio-economic background meant that the effects of urban sprawl is felt differently by vegetable and crop farmers in the peri-urban area of Bortianor, with some farmers not necessarily finding urban sprawl as a problem to their livelihood.

The study noted that there is need to incorporate peri-urban agriculture into the community development processes at an early stage. This is to wean or assuage the negative effects that urban sprawl poses to the sustainability of such peri-urban vegetable and crop farming activities.
The study also found that urban sprawl has affected access to land for farming in the peri-urban considerably. There is a growing realization that the design of the peri-urban interface must be different, thus the securing of sufficient land for agriculture must be guaranteed for an extended period of time. In fact, the study noted that the absence of political will and traditional administration to secure the lands is making the process of losing farmlands even more rapid. In conclusion, evidence from the study did not show any significant improvement in livelihoods of crop farmers in Bortianor despite a number of adaptation strategies and alternative job opportunities induced by the processes of urban sprawl in that area. The study findings points to the need for a re-orientation of urban policy making and planning in Accra to incorporate peri-urban areas and their livelihoods issues.

6.3 Recommendations

In view of the findings of this study, the following recommendations are made for policy consideration.

Firstly, the Greater Accra Metropolitan Assembly should make livelihood enhancement in the urban fringes a key element of its policies. The planning unit of the Assembly should also regulate the manner in which physical development is taking place in the peri-urban areas so as to safeguard farms and farmlands. The Government of Ghana through the various ministries in charge of land administration and the local assemblies should acquire agricultural lands; engage in zoning, land banking and others so that private developers do not encroach onto such areas.
Furthermore, development is an ongoing process and whether or not the lands are acquired by government, there will be a time to let go of such lands as the population of the city keeps increasing and there is increasing sprawling towards the peri-urban. In view of such possibilities, it is recommended that the Greater Accra Metropolitan Assembly adopt a strategy that is geared at supporting peri-urban crop farmers or the entire residents in such areas to be less dependent on land. This includes helping crop farmers to divert into environmentally friendly cropping and soil management methods that will engage in agriculture intensification that does not require large expanse of land. It is also recommended that youths in such peri-urban communities be trained in non-farming alternative livelihood activities. This can be in the form of technical and vocational training. There could also be the attraction of industries to these peri-urban spaces which could employ the labour as well as induce aligning businesses which local people can take advantage of.
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APPENDICES

Appendix I: Questionnaire

UNIVERSITY OF GHANA, LEGON
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF GEOGRAPHY AND RESOURCE DEVELOPMENT

QUESTIONNAIRE FOR A STUDY ON “ASSESSING THE EFFECTS OF URBAN SPRAWL ON THE LIVELIHOODS OF PERI-URBAN CROP FARMERS OF ACCRA: THE CASE OF BORTIANOR”

This research is carried out for an award of MPhil degree in Geography and Resource Development in the University of Ghana. Information required in the process of administering this survey is purely for academic research purpose as stated herein and confidentiality will be strictly observed.

Please tick or write where applicable. Thank you for your anticipated participation.

NAME OF COMMUNITY ____________________ Date ___________________

House No ________________________________ Questionnaire No ____________________

A. DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS

1. Age a. Under 30 years [ ] b. Between 30-60 years [ ] c. Over 60 years [ ]
2. Sex a. Male [ ] b. Female [ ]
3. Level of Education a. Primary school [ ] b. Middle school [ ]
   a. c. High/Secondary school [ ] d. Tertiary [ ] e. No school [ ]
6. Household size ........................................................................................................
7. How many of them are in income generating activities? ........................................
8. How many of them are in non-income generating activities? .................................
9. How long have you lived here? ..............................................................................

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B. Effects of urban sprawl on farmlands and on the livelihoods of farmers

9. How long have you been farming in Bortianor? ................................................

10. How many acres of land do you used to cultivate when you started farming here?

11. How many acres of land do you cultivate now? ................................................

12. Do you think urban sprawl has affected the size of the land you cultivate now?.....

13. If yes to question 12, has it led to an increase or a decrease in land available for farming? .............................................................

14. In general, what major change have you observed about farming in Bortianor?..................................................................................................................

15. What opportunities has urban sprawl generated for you?.................................

16. What alternative livelihood activities do you engage in now?..............................

17. When a farmer loses his/her farmlands, what does he/she resort to? .................

18. What is the current source of your income? a. Farming [ ] b. Non-farming [ ]

19. Why do you resort to this type of livelihood?
...................................................................................................................................

20. Do you have any other source of livelihood other than your current livelihood? Yes [ ] No [ ]

21. If yes, specify...........................................................................................................

22. Why do you resort to the type of livelihood in question 24? ..............................

....................................................................................................................................

23. What used to be your major source of income? a. Farming b. Non-farming

24. What is/was the occupation of your parents? a. Farming ( )

25. Trading/Business [ ] c. Artisan [ ] d. Public service [ ] e. Others [ ]

26. How has your income changed in the last five (5) years?

a. It has increased [ ] b. It has decreased [ ] c. It has remained the same [ ]

27. Do you think the expansion of Accra has caused this? Yes [ ] No [ ]

28. How would you assess the effect of Accra’s growth on your livelihood?
a. Strong negative effects [ ]  b. Strong positive effects [ ]  c. No effects [ ] 
29. How has the expansion of Accra affected your livelihood? .................................................

.............................................................................................................................................

30. Do you feel you will be better off, same or worse off in the future?
   a. Better off [ ]  b. Worse off [ ]  c. Same [ ]
31. How is the growth of Accra affecting the development of your community?
.............................................................................................................................................

Alternative Sources of Livelihood Opportunities
32. Is the growth of Accra opening up new job opportunities in your community?
   Yes [ ]  No [ ]
33. If yes, specify the kind of job opportunity urban sprawl has brought into your Community..........................................................
34. Which income generating activities are in high demand?
.............................................................................................................................................

35. Would you be willing to adopt this type of livelihood?   Yes [ ]  No [ ]
   If yes, why....................................................................................................................
36. If no, why....................................................................................................................
.............................................................................................................................................

37. What would you need in order to ensure a better livelihood?.................................
.............................................................................................................................................

38. What might be the potential barriers to achieving a sustainable livelihood?........
.............................................................................................................................................

D. Coping Strategies Adopted by Respondents
39. How do you strategize to cope with the sprawling? (Tick all that apply)
   a. Diversify crop production [ ]  b. Diversify non-farm income [ ]  
   c. Diversify farm and non-farm income [ ]  d. Intensify crop production [ ] 
   e. Expand farm size [ ]  f. Secure alternative livelihood other than agriculture [ ] 
   g. Migrate to look for employment [ ]  h. Others [ ]
40. What has been the outcome of the strategy ticked in question 39 above? ………..
……………………………………………………………………………………………………
41. Are you satisfied with the outcome of the strategy now than before urban sprawl?…..

Yes [ ] No [ ]

42. If yes, why?.............................................................................................................

43. If no, do you still prefer your previous strategy? Yes ( ) No ( )

44. How do you determine an improvement in your livelihood?.............................

45. How do you ensure the sustainability of your livelihood?................................

46. What are the major problems you face in an attempt to cope with the growth of Accra?..........................................................................................................................

47. What measures do you take to deal with these problem(s) above?.....................

………………………………………………………………………………………………

48. What are the effects do these supports have on your livelihood? ......................

F. For respondents who engage in crop Farming as Livelihood Option

49. How did you acquire your farmland?

a. Inheritance/family land [ ] b. Renting [ ] c. Gift [ ] d. Purchasing [ ]

e. Temporary Borrowing [ ] f. Share cropping [ ]

50. Do you face difficulty accessing land? Yes [ ] No [ ]

51. If yes, how………………………………………………………………............

52. Where do you normally farm? a. Backyard [ ]

b. Along river banks, drains and water catchment areas [ ]

c. Open spaces reserved for future use [ ] d. On building sites [ ]

e. Others (specify)……………………………………………………………………

53. What measures do you take to ensure increased productivity? (tick all that apply)

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a. Irrigation [ ]  b. Maintenance of soil fertility [ ]  c. Pest control management [ ]

d. Conserve soil from erosion ( )  e. Conservation of water ( )
f. Others (specify) .................................................................

54. How has agricultural practices changed? ..............................................................

55. About how many years ago did you start witnessing changes in agriculture?

..................................................................................................................
APPENDIX II

STRUCTURED INTERVIEW GUIDE FOR STAKEHOLDERS / COMMUNITY LEADERS / TRADITIONAL AUTHORITIES / GOVERNMENT OFFICIALS AND FARMERS.

DISTRICT ASSEMBLY PERSONNEL

1. Do you think the expansion of Accra is threatening people’s livelihood?

   Yes ( )                                    No ( )

2. If yes, how? ........................................................................................................................................

3. Do you think the expansion of Accra has opened livelihood opportunities in your community?

   Yes ( )                        No ( )

4. If yes, how? ........................................................................................................................................

5. Does the District Assembly have a role in improving the livelihood conditions of Crop farmers who lose their farmlands to urban use?         Yes ( )              No ( )

6. If yes, in what ways does the assembly support displaced indigenes? ............................

   ....................................................................................................................................................

7. What are some of the challenges you face in carrying out this duty?............................

   ....................................................................................................................................................

8. What major challenges do people normally face in this community?............................

   ....................................................................................................................................................

9. How do you address the challenges in the community?..........................................

   ....................................................................................................................................................

10. What used to be the main livelihood activity in this community?.............................

11. What is/are the dominant economic activity (ies) in this community?.....................

   ....................................................................................................................................................
12. In your opinion, what do you think is/are the best livelihood option(s).......

..............................................................................................................................

13. Why do you think the livelihood option mentioned in question 10 is the best?....

..............................................................................................................................

14. How sustainable is the type of livelihood option mentioned in question 10?....... 

..............................................................................................................................

15. What do you do to ensure the sustainability of livelihood activities in your community? ..............................................................................................................................

16. What are some of the development projects undertaken by the Assembly to improve the lives of community members?
..............................................................................................................................

17. How does the Assembly ensure appropriate use of land?............................... 

..............................................................................................................................

CHIEFS/SUB CHIEFS

1. How long have you lived in this community?......................................................... 

..............................................................................................................................

2. How long have you been a chief?............................................................................

..............................................................................................................................

3. What major role does the chief play in community development?........................ 

..............................................................................................................................

4. What are some of the major difficulties you face in carrying out this duty?..........

..............................................................................................................................

5. What major problems do you face in your community?........................................

..............................................................................................................................

6. How do you address these challenges?....................................................................

..............................................................................................................................
7. Do you think the expansion of Accra is threatening people’s livelihoods?
Yes ( ) No ( )

8. If yes, how?..............................................................................................................................

9. Do you think the expansion of Accra has opened livelihood opportunities in your community? Yes ( ) No ( )

10. If yes, how?..............................................................................................................................

11. What used to be the main livelihood activity (ies) in your community?.................................

12. Has there been a change in livelihood activity in your community in the past 10 years? Yes ( ) No ( )

13. If yes, what is the main livelihood activity in your community?.................................

14. If no, do you anticipate any change in the future? Yes ( ) No ( )

15. If yes, why?..............................................................................................................................

16. Do you think the change in the main economic activity of this community is as a result of the expansion of Accra? Yes ( ) No ( )

17. What is the main economic activity in your community?........................................

18. How sustainable is this type of livelihood as compared to the previous type of livelihood?..............................................................................................................................

19. What do you do to ensure the sustainability of livelihood activities in your community?..............................................................................................................................

20. Looking at the effects of Accra’s expansion, how do you help members in your community to cope with urbanisation? ..............................................................................................

21. How do you help in improving the livelihood conditions in your community?..............
Focus Group Discussion

The focus group discussion centred on the following themes:

1. Effects of Accra’s growth on peri-urban livelihoods.

2. Ways to effectively manage the problems associated with urban sprawl.

3. Identify ways to strengthen the various livelihood opportunities that urban sprawl presents.

4. Find ways to strengthen the various livelihood strategies adopted in the communities.

The discussions would be based on the following issues

- When did you start to witness urban intrusion, what was your reaction and what was your response to the effects at the initial stage?

- What is your opinion about the current growth of Accra? Has it improved or deteriorate people’s lives (discuss the positive and negative social, economic and environmental effects of urban sprawl)?

- Anticipation of future positive or negative changes on people’s livelihoods

- Factors contributing to urban expansion

- How to reduce extreme negative effects of urban sprawl?

- How to develop and sustain emerging job opportunities

- Coping mechanisms or livelihood strategies at the household level (are they the best option, are the sustainable)

- Practical ways to sustain agriculture in peri urban areas
APPENDIX III: PICTURES