


UNIVERSITY FOR DEVELOPMENT STUDIES

**LAND DEGRADATION AND FOOD SECURITY: EFFECTS ON WOMEN
FARMERS IN THE YENDI MUNICIPAL AREA**

BY

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Declaration

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this University or elsewhere:

Candidate's Signature:  Date: 29/07/12

Sophia Gumah Songnabong

Supervisor's Declaration

I hereby declare that the preparation and presentation of this dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University for Development Studies.

Principal Supervisor's Signature:  Date: 30/7/12

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Abstract

Land degradation continues to attract the attention of many stakeholders globally. This study seeks to assess women's access to land, the causes of land degradation and effects on women's food security in the Yendi municipal area. It further examines coping strategies adopted by the female farmers in the study area to ensure their household food security.

Survey instruments consisting of questionnaire and interviews were used to solicit the relevant information from two groups of respondents, namely 85 women farmers and 15 respondents from three institutions which included the Ministry of Food and Agriculture (MOFA), Evangelical Presbyterian Development Relief Agency (EPDRA) and Department of Community Development (DCD) who were randomly selected to participate in the survey. Findings suggest that women in the area generally do not own lands. They only access land for farming from individual land owners and their husbands who determine what type or size of land to give to them. These are mostly marginal lands which they have to continuously farm for longer periods further degrading the lands. This situation threatens their food security as a result of poor yields which is not sufficient to take them through the year.

Soil fertility enhancing practices such as fertilizer application or cover cropping need to be encouraged to enable the women maximize the use of the small size land to support their food needs. Also, institutions in agriculture which operate in the area should come to the aid of the women by helping them with agricultural inputs, as the survey indicates that NGOs which come to their help do only the ploughing for them.



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Dedication

To my dear mother Agnes Y. Bamie



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ACRONYMS

AAGD : Accelerated Agricultural Growth and Development Strategy

ADC : Agricultural Development Corporation

AGDP : Agricultural Gross Domestic Product

CESVA : Comprehensive Food Security and Vulnerability Analysis

CIDA : Canadian International Development Agency

CIFS : Community- Driven Initiative for Food Security

CPP : Convention People's Party

EPA : Environmental Protection Agency

EPC : Environmental Protection Council

ERP : Economic Reform Programme

FAO : Food and Agriculture Organisation

FASDEP : Food and Agricultural Sector Development Policy

GDP : Gross Domestic Product

GDHS : Ghana Demographic and Health Survey

GLASOD: Global Land Assessment of Degradation

GPRS : Ghana Poverty Reduction Strategy

HFS : Household Food Security

IFAD : International Fund for Agricultural Development

IMF : International Monetary Fund

MOFA : Ministry of Food Agriculture



MTADP : Medium Term Agricultural Development
Programme NGO : Non-Governmental Organisation
NLC : National Liberation Council
NPP : New Patriotic Party
NRC : Redemption Council
PNDC : Provisional National Defense Council
PP : Progress Party
PSI : President's Special Initiative
SSA : Sub-Saharan Africa
UNDP : United Nations Development
Programme UNEP : United Nations Environmental
Programme WFP : World Food Programme



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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Land and land resources in Africa depict a situation of rapidly increasing population putting pressure on the land resource base without significant external inputs to ensure sustainable yields. “This much is clear in rural subsistence agriculture, on the dependence on wood-based fuels even in the towns and cities, the extraction of timber without substantial controls to reduce waste and mining, which tends to expose the land to erosion. The issue of rural agriculture relying on expansions in land area to achieve higher production directly exposes the soil to erosion” (Kendie, 2002).

Natural resources such as land have value in terms of the economic, social and spiritual. Land is very essential for the existence of life on earth. Human beings claim dominion over the land and unfortunately this leads to issues of land degradation. Land degradation affects a third of the world’s land and diminishes its ability to produce food for the growing population. It is mostly caused by deforestation, poor land and water management, use of fertilizers and pesticides, poor waste disposal, overgrazing, urbanization and clearance of land for growing food.

Generally, there are few studies on the extent of land degradation on both global levels as well as for the African continent. The most important studies include that of the Global Land Assessment of Degradation (GLASOD), study by Olderman *et. al.*, (1990) and the comparative study of dry lands by Dragne and Chou (1992, as cited in Kendie, 2002).



The GLASOD study defined land degradation as a process that lowers either the current or future capacity of the soil to produce goods or services or both. For regions covered by the study, Africa was the most degraded. Here, 65% of cropland area compared with 51% in Latin America and 38% of Asia is degraded. Pasturelands are also more severely degraded in Africa affecting 31% of all land under pasture compared with 20% in Asia and 14% in Latin America. It is estimated that about 19% of forestland in Africa is degraded, second to Asia (27%) but higher than Latin America (14%) (Kendie, 2002).

Estimates of the cost of degradation are equally few. A 1986 study put global soil erosion costs in the region of \$26 billion per year; \$12 billion of this occurs in developing countries (Kendie, 2002). For Africa, crop productivity losses due to erosion range from 2% to 40% of crop yields with a mean of 8.2% for the continent and 6.2% for Sub-Saharan Africa (SSA) (Kendie 2002). In Ghana, the then Environmental Protection Council (EPC) estimated that the net loss of natural resources arising from activities in agriculture, mining, and industry amounted to about 4% of the Gross Domestic Product (GDP) or 45,700 Ghana cedis (converted from old Ghana cedis) in 1988 (Kendie, 2002). A 1994 comparative study of some African countries found the monetary cost of land degradation to range from 3% of agricultural gross domestic product (AGDP) in Malawi to 5% in Ethiopia and Ghana and 9% in Zimbabwe (Kendie, 2002).

The most authoritative estimates of the extent of land degradation are contained in a report on South Asia prepared by the Food and Agriculture Organisation (FAO), United Nations Development Programme (UNDP), and United Nations Environmental Programme (UNEP) on land degradation in South Asia: its severity, causes and effects upon the people (FOA, 1994). The findings were that the countries studied (India, Pakistan, Bangladesh, Iran, Afghanistan, Nepal,



and Sri-Lanka, Bhutan) are losing at least US\$10 billion annually as a result of losses resulting from land degradation

Land degradation has been a major global issue and still remains high on the international agenda in the 21st Century. The importance of land degradation among global issues is enhanced because of its impact on world food security and quality of the environment. High population density is not necessarily related to land degradation; it is what a population does to the land that determines the extent of degradation. People can be a major asset in reversing the trend of degradation. However, they need to be healthy economically to be motivated to care for the land, as subsistence agriculture, poverty and illiteracy can be important causes of land and environmental degradation.

Land degradation has been a serious threat to economic development of most African countries. Rwanda is seen as a classic example of a country experiencing extreme population pressure; historically it has had the highest national population density in Africa and the population is confined to a very limited land base. Although small, Rwanda is environmentally diverse and provides examples of responses to population pressure from humid highland to semi-arid regions. As such, the problems of Rwanda of increasing population, declining agricultural activity and land degradation are precursors to similar scenarios occurring elsewhere on the continent, for example in the Kenyan highlands and in Madagascar.

In Ghana, many factors are driving long-term soil and vegetation degradation including population pressure, increased urbanization, and climatic changes. These long term 'driving factors are reflected in agricultural, mining and other production practices that have led to soil



erosion, soil nutrient depletion, overgrazing, pollution, river and groundwater depletion, and desertification arising from deforestation.

The causes of land degradation are mainly natural factors and human activities. Natural factors include the physical and other characteristics of the soil, which affect the erodibility of the soil and its capacity to retain and drain water and to hold nutrients, topography, and climatic conditions. Climatic conditions are important for soil erosion as prolonged periods of heavy rain separated by prolonged dry periods contribute to the reduction of vegetative cover, thereby increasing the risk of soil erosion. Such climatic patterns are more prevalent in the Guinea and Sudan Savannah zones, with the soil/vegetation types particularly susceptible to degradation. The major droughts of 1968-73, 1982-85, and 1990-92 in Ghana caused serious hydrological imbalances that negatively affected land resources, particularly soil quality and fresh water supplies (EPA 2002). Climate change may also contribute to accelerated coastal erosion, to which Ghana is particularly vulnerable (ISSER/DFID/WB, 2005, as cited in Sarpong, 2007).

The human-associated factors driving long-term soil and vegetation degradation in Ghana are reflected in chronic poverty among farm households, unsustainable farming practices, removal of vegetation cover (including deforestation and overgrazing), mining activities, urbanization and industrial activities caused by increased population growth pressures. The agricultural farming systems used in Ghana can be categorized as rotational bush fallow, permanent tree crop, compound farming, mixed farming, and special horticultural farming systems. These farming systems have peculiar characteristics that have different effects on the soil. The clearing and burning normally destroys the vegetative cover and makes the soil susceptible to erosion and leaching to soil infertility (Sarpong, 2007).



Ghana for some time now has been greatly affected in her development discourse with regard to land degradation. For this reason, the land planning approach was instituted, beginning as far back as the 1950s. Significant efforts were made to combat desertification with land planning programmes in the northern savannas; this was because serious land degradation had occurred in some parts of the North, resulting in loss of land cover, soil fertility and productivity. To reduce the effects of land degradation, a policy to resettle populations in less degraded lands in order to undertake measures to restore the environment and resource conditions of the degraded areas were formulated. The Damongo Resettlement Programme was an example of this effort whereby people were moved from Tongo area in the Upper East Region to resettle them in Damongo. A process which became known as land planning, and given a legislative backing in the Soil Conservation and Land Planning Ordinance in 1953 (EPA, 2002).

Since independence in 1957, successive governments in Ghana have not relented in their efforts in formulating and implementing policies that aim at providing adequate education, access to productive resources and technology in the agricultural sector which depends on land. In this regard, the Convention People's Party (CPP) administration gave immediate attention to agriculture on assumption of office. The goal was to make maximum use of the rich land resources of the country without degrading it which will make people less dependent on imported foods and also to produce locally as much raw material as possible for industrial production (Buah, 1995).

The CPP administration first directed serious attention to rehabilitating the cocoa which was being ruined by the swollen shoot disease, through the policy of cutting down affected trees, and the introduction of positive incentives by paying to farmers ten shillings for every tree cut down. The agrarian programme also laid emphasis on the diversification of agriculture. This was to

promote diversified crops for both local consumption and export. Livestock farming, particularly poultry, cattle and sheep farming was encouraged (Buah, 1995).

Also, under the CPP administration, large-scale State Farms were established and an Agricultural Development Corporation (ADC) was set up to promote agricultural modernization and development through the State Farms, (Jansson, 2004, as cited in Khor and Hormeku 2006). The government equally encouraged farmers to supplement government programmes of development in the production of industrial raw materials.

Notable among these efforts were the sugar cane farms which fed sugar factories at Komenda and Asutuare, mechanized farming and the use of inorganic fertilizers. The government further set up experimental farm stations and the teaching of agricultural science in second cycle institutions and universities (Buah, 1995). The implications of all these efforts were to ensure that land which is a limited resource is used carefully to derive maximum benefits without degrading it through the use of modern farming methods.

The National Liberation Council (NLC), which came into power in 1966, revamped the economy and returned to a market-oriented system, and the State Farms were replaced by private capitalist development of agriculture. However, When the Progress Party took over in 1969 from the NLC, import and price controls were restored and an expansion of the money supply was used to finance the government's budget deficits. Inflation worsened, with rates of 117 % by 1977 and 123 % in 1983 (Khor and Hormeku, 2006).

To increase agricultural production to self sufficient levels and the production of industrial raw materials, the National Redemption Council (NRC) government in 1972 also introduced the 'Operation Feed Yourself' programme in order to reduce the country's dependence on foreign



food imports. This was followed by ‘Operation Feed Your Industries’ which required that all industries rather than import raw materials should grow their own. To realize this dream, the government launched the Tono and the Dawhenya Irrigation projects to boost agricultural production. It continued the ‘rice revolution’ initiated by the Progress Party (PP) government in the Northern and Upper Regions. This helped Ghana to become self sufficient in rice between 1974 and 1975, (Jansson, 2004; Oduro and Kwadzo, 2003, as cited in Khor and Hormeku, 2006).

A new era of liberalisation began in 1981, under a new administration, the Provisional National Defence Council (PNDC). The government announced a set of reforms negotiated with the World Bank and the International Monetary Fund (IMF). The Economic Reform Programme (ERP) was launched in 1983 and was followed by several Structural Adjustment Programmes, starting in 1986. The new framework put emphasis on the free market system, with prices given a central role in the allocation of resources, and the government’s control and participation in the economy was curbed, including agriculture (Jansson, 2004; Oduro and Kwadzo, 2003, as cited in Khor and Hormeku, 2006).

In cooperation with the World Bank, the Ministry of Agriculture prepared a Medium Term Agricultural Development Programme (MTADP) that outlined specific policies for the agricultural sector. The MTADP, which acknowledged the private sector as the engine of growth, served as a strategy for food and agriculture development in the years 1991-2000. The agricultural sector was targeted to grow at 4% annually. The increased private participation and the freeing of trade were expected to reduce marketing costs, raise producer prices and stimulate investment, and the privatisation of input supply was assumed to improve the reliability of supply and reduce costs through competition (Jansson, 2004; Oduro and Kwadzo, 2003, as cited in Khor and Hormeku, 2006).



The New Patriotic Party (NPP) government which assumed office in 2001, continued with the private-sector export-led growth strategy, in which the promotion of non-traditional exports was the cornerstone. In 2001, the Ministry of Trade launched the President's Special Initiative (PSI) on Accelerated Export Development, which intended to stimulate private enterprise, improve productivity and create jobs in agricultural production and processing. The PSI also aimed to strengthen the agro-based and export-oriented industries and support the extension of the supply base of horticultural products such as pineapples, beans, vegetables and groundnuts, (Jansson, 2004; Oduro and Kwadzo, 2003, as cited in Khor and Hormeku, 2006).

The Accelerated Agricultural Growth and Development Strategy (AAGDS) was developed in 2001 to provide a framework for the Government's policies and development programmes in the agricultural sector. It emphasized the critical role of the agricultural sector to bring about economic growth and with this poverty reduction. The sector's average annual growth rate is targeted to increase from 4% to 6% over a medium term 2001-2010 (Jansson, 2004; Oduro and Kwadzo, 2003, as cited in Khor and Hormeku, 2006).

The Food and Agricultural Sector Development Policy (FASDEP) was developed in 2002 by the Ministry of Food and Agriculture (MOFA) to transform Ghana into a leading agro-industrial country in Africa by the year 2010. FASDEP aimed at ensuring efficiency in the use of resources in the agricultural sector in particular and in the general economy as a whole, with the private sector as the main driving force. This is in line with the Ghana Poverty Reduction Strategy (GPRS), which the government started to implement in 2002 with support from World Bank and the IMF. The Ghana Poverty Reduction Strategy (GPRS) was a comprehensive development policy framework for growth and poverty reduction which was implemented over a three-year period (2003-2005). It aimed at stabilising the economy and also creating a foundation for



sustainable, accelerating and job-creating agro-based industrial growth (Jansson, 2004; Oduro and Kwadzo, 2003, as cited in Khor and Hormeku, 2006).

Even though non-traditional exports have been promoted, the composition of Ghana's export commodities remains very much unchanged. Cocoa, timber, gold and a few other minerals remain the major export commodities, and they suffer from volatility in prices. Non-traditional exports appear to be gaining ground, but they comprise mainly primary products, with only a few semi-processed and processed commodities. The agricultural sector is still heavily dependent on irregular rain patterns and the agricultural growth targets have not been reached. The period 1984-2002 has witnessed positive real GDP growth rates, but with relatively poor performance in 1990 and 1999-2000 (Jansson, 2004; Oduro and Kwadzo, 2003, as cited by Khor and Hormeku, 2006).

Ghana also put in place a land policy in 1999 to help reduce the rate of land degradation. The principles guiding the development of this policy include:

- The principle of land as a common national or communal property resource held in trust for the people and which must be used in the long term interest of the people of Ghana.
- Equitable and reasonable access to land within the context of national land use planning.
- The principle of fair access to land and security of tenure.
- The principle of optimum usage for all types of land uses, including human settlements, industry and commerce, agriculture, forestry and mining, the protection of water bodies and the environment in the long term interest, etc (National Land Policy, 1999).

The 1999 Land Policy of Ghana also aims at the judicious use of the nation's land and all its natural resources by all sections of the Ghanaian society in support of various socio-economic



activities undertaken in accordance with sustainable resource management principles and in maintaining viable ecosystems. In specific terms, the objectives of this policy include the following:

- Ensure that Ghana's international boundaries are maintained at all times and cross border activities are managed jointly.
- Ensure that shared water bodies are utilized to the mutual benefit of all stakeholder countries.
- Ensure that every socio-economic activity is consistent with sound land use through sustainable land use planning in the long term national interest.
- Ensure continuous education of the general public on land matters, etc, (National Land Policy, 1999).

Apart from the efforts made by state, the Non-governmental organizations (NGOs) operating in the northern region including the Yendi municipal area also made contribution in ensuring that the land is not degraded. An example of such an NGO is CARE (Ghana). CARE (Ghana) implemented a bush fire management and livelihoods project in northern Ghana which has highlighted the need for a holistic approach to land use management and also addresses the fragile nature of the landscape. It also introduced livelihood strategies of different land users and local environmental governance and to educate farmers in general as to how to protect the land to increase productivity as majority of them do farming. It is expected to contribute positively to their livelihoods since farming is predominantly their major occupation.

CARE (Ghana) also participated in a CIDA funded Community Initiated Food Security Project (CIFS) that facilitated community based planning into district development plans, capacity



building for development of community food security plans and access to financial and technical support for implementation. This project complements the efforts of CIDA's environmental programming in northern Ghana and strategically position CARE (Ghana) as a high value implementation partner for CIDA's Environmental programming in Ghana. The Yendi municipal area is a beneficiary of this project.

Women's role in agriculture over the last 25 years has become a familiar and well developed subject. Groups of women met at both local and regional conferences to examine the roles of women on farms and in agricultural development and to bring attention to their importance, with the second International Conference on Women in Agriculture held in Washington, DC (<http://www.nal.usda.gov/afsic/wia/women.htm>).

Early studies legitimized the idea of women as productive partners in agriculture, by discovering and documenting the various roles played by women as farmers, farm wives, and agricultural professionals and also recounting the stories of successful women in these roles. Research between the 1980s and 1990s has expanded the discovering process to more areas of the world, applying increasingly sophisticated methodologies of the sciences to the study of women's roles and contributions to agriculture (<http://www.nal.usda.gov/afsic/wia/women.htm>).

Women are responsible for between 60 and 80 per cent of food production in developing countries. Gender inequality and socio-cultural norms determine women's role in producing and securing food for the family as well as what resources they have at their disposal to produce food, what food they can produce and who consumes the food that they produce. Women are disproportionately burdened with having to secure food, as well as most other aspects of



household tasks including securing water, fuel and firewood, processing crops and preparing food (FAO. www.fao.org).

Despite their central role in providing food for households and the heavy workload incurred, women have relatively little control over the resources needed to conduct these tasks. This was observed in a study on food security, gender inequality and food production in two districts in Kenya and Tanzania. FAO (www.fao.org/FOCUS/E/Women/Sustin-e.htm).

While the role of men in food securing activities tends to be minimal in comparison to women, their role in decision-making about what food should be produced, what food should be consumed, and what food should be sold was substantial. Women clearly do the majority of the work related to food security, yet their capacity to make independent decisions about such issues is limited. Most women indicated that they had little authority to make decisions about food production, consumption or sale, independently of their husbands (Hyder, 2005).

The household's overall access to food is very dependent on the work of rural women. Women farmers produce the bulk of the food supply. Women are also responsible for ensuring that their families' basic needs are met. Women's access to financial services, agricultural extension, education, health care and human rights are therefore key to assuring food security for all (Weisfeld-Adams, 2008).

1.2 Statement of the Problem

The World Bank (1986) cited in FASDEP defined food security as "access by all people at all times to enough food for an active and healthy life." The Ministry of Food and Agriculture (MOFA), defines it as "Good quality nutritious food, hygienically packed and attractively



presented, available in sufficient quantities all year round and located at the appropriate places at affordable prices” (FASDEP, 2002). Food availability in sub-Saharan Africa and Southeast Asia is a huge problem now. The countries in these regions generally have the fastest growing populations, the largest number of poor people, the worst land degradation, the most rapid urbanization and the biggest debts and therefore, they cannot afford to import food (Mershon Center for International Security Studies, 2006).

The problem of land degradation in many African countries is that a good size of the population depends on the land for both food and fiber needs, and export items for state revenue. This dependence is however not accompanied by policies to reduce and possibly to stop land degradation. Human activities such as slash-and-burn, over grazing, deforestation, fuel wood collection and logging and wrong application of chemicals on farm lands, all degrade the land. Degraded land leads to decline in soil fertility and this further affects food security in many African countries. This is so because of the ever-present urge by national governments to export more in search for foreign exchange to redeem national debts. Governments are therefore unable to control the activities of large companies in agriculture, mining and logging (Kendie, 2002).

Women farmers literally are worst hit as more land is taken for cash crop production so that they continue to cultivate marginal lands. Food security then remains a major problem affecting rural communities who find their lands being degraded daily and who do not have the means to invest in the land conservation. Women are hardest hit in this vicious cycle.



1.3 Research questions

Guiding questions for this study are

- How do women access land in the Yendi Municipal Assembly?
- What are the manifestations of land degradation in the area?
- What are the threats of land degradation to food security of women farmers in the study area?
- What are the institutional responses to minimizing the effects of land degradation on the women farmers?

1.4 Objectives of the Study

The main objective of the study is to examine the effects of land degradation on food security in relation to women farmers in the Yendi Municipal Area.

In the light of the above, the specific objectives of the study are as follows:

- To assess how women access land in the study area for crop production.
- To identify and describe the manifestations of land degradation in the Yendi municipal area of farmlands cultivated by women.
- To identify threats of land degradation to food security of women farmers and their households.
- To examine institutional responses to minimizing the effects of land degradation on women's food security in the Yendi municipal area.



1.5 Significance / Justification of the Study

This study will be of importance to women farmers in general and particularly those in the Yendi Municipal Area. It will create awareness in women to do away with negative farming practices which degrade the land. This will boost their farm yields to ensure food security and better their livelihoods. It will also help women farmers to adapt modern methods of farming, which will go a long way to minimizing the issue of land degradation and its attendant consequences.

To NGOs like CARE (Ghana), the study will offer them a deeper insight to the land degradation and food security plight and problems of women farmers. Hopefully, some of these NGOs and philanthropists could come to their aid with more educative programs and financial support in order to sustain their livelihoods. Furthermore, it might make governments more concerned about the seriousness of the problem of land degradation which will enable them take concrete measures to address the issue through various policies and programmes.

1.6 Scope of the Study

Spatially, the study focuses on the Yendi Municipal Area in the Northern Region of Ghana. The municipality lies within the savannah plains. Within the context of this study, the focus is on the involvement of women in farming activities as a source of livelihood.

In terms of content the study dwells on the following: Land degradation and its effects on food security, the role of stakeholders in the development of policies to minimize the effects of land degradation particularly on food security.



1.7 Limitations of the study

In carrying out the study a number of challenges were encountered, which are worth noting. The study was hampered by time mainly due to competing interest and request by equally important duties.

An additional limitation in executing the study was difficulty in reaching respondents. Dates set by the respondents were sometimes not met, because the period of data collection coincided with the period of harvest. There were equally times when they were engaged in social activities like naming and marriage ceremonies or funerals. The study was further constrained by limited financial resources. This was why the study had to be narrowed down to only five communities in the study area.

However, in the light of the above constraints, an attempt has been made to minimize the effects of these limitations on the study. The best out of the situation has been presented under the circumstances. Therefore, the results of the study presented are within a framework of managing these gaps.

1.8 Organization of the Study

The research has been organized into five chapters as follows, Chapter one deals with the introduction to the study, covering the background to the study, statement of the problem, research questions, objectives, significance/justifications cope, organization of the study, limitations and explanation of words.

Chapter two focuses on review of relevant literature on land degradation and food security. It discussed definitions of land, land degradation, causes of land degradation, food security, food



insecurity, land degradation and food security nexus and manifestations of land degradation, food insecurity. Chapter three discusses the study area, research design, the target population, sampling and sampling procedure, and data collection instruments and data analysis while chapter four focuses summary of findings, on the presentation and analysis of data. Finally, chapter five details out major conclusions and

1.9 Definitions/Explanation of Words

Land: A delineable area of the earth's surface, encompassing all attributes of the biosphere immediately above or below the surface. This includes the near surface climate, the soil and associated groundwater, the plant and animal populations and the physical result of human activity (Kendie, 200).

Land degradation: A temporary or permanent decline in the productive capacity of the land.

Food Security: The World Food Summit in 1996 defines it as “food security exists when all people, at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and preferences for an active and healthy life” (FASDEP 2002).

Capabilities: The natural ability, skill or power that makes a machine, person or organization able to do something difficult.

Livelihoods: these refer to “the capabilities, assets and activities required for a means of living linked to survival and future well-being” (www.livelihood.org/Info/info_guidanceSheet.html).



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, an attempt is made to highlight the concepts of land, land degradation in terms of its general effects, and food security. The aim is to show the importance and positive impacts of land in relation to food security and livelihoods of women in the Yendi Municipal Assembly. Lessons are drawn from these concepts for the analysis of land degradation in the study district. As a concept, there are numerous terms and definitions that are a source of confusion, misunderstanding and misinterpretation.

2.2 Definition of Land

Land is defined as a delineable area of the earth's surface, encompassing all attributes of the biosphere immediately above or below the surface (Kendie, 2002). This include the near surface climate, the soil and associated groundwater, the plant and animal populations and the physical result of human activity (Kendie, 2002).

Land in customary law is also understood to have a wider range of applications. It includes the surface soil, things on the soil which are enjoyed with it as being part of the land by nature. Examples include water and marine resources, farmlands, forest or wildlife, and mineral deposits. It also includes any estate, interest, or right in, to, or over the land or over any of the other things which land denotes (Ollennu, 1985). Land degradation has therefore been variously defined.



2.3 Definition of Land Degradation

Land degradation can be considered in terms of the loss of actual or potential productivity or utility as a result of natural or anthropic factors. It is the decline in land quality or reduction in its productivity. In the context of productivity, land degradation results from a mismatch between land quality and land use. It is therefore a temporary or permanent decline in the productive capacity of the land (Eswaran and Reich, 2001).

Wikipedia, the free encyclopedia, conceives land degradation as a concept in which the value of biophysical environment is affected by one or more combination of human-induced processes acting upon the land. Though natural hazards are excluded as a cause, human activities can however indirectly affect phenomena such as floods and bushfires.

Glossary statistics also see land degradation as the reduction or loss of the biological or economic productivity and complexity of rain fed cropland, irrigated cropland or range, pastures, forest or woodlands resulting from natural processes, land use other human activities and habitation patterns such as land contamination, soil erosion and the destruction of the vegetative cover (Glossary Statistics, 1997).

The Business Dictionary (2010) on the other hand, defines it as deterioration in the quality of land, its topsoil, and vegetation and/or water resources, caused usually by excessive or inappropriate exploration. The implication of these definitions is that, land degradation is a situation in which the land is made less useful, mostly through human activities and can no longer support life as it uses to be, therefore, the need to add to its quality to make it productive.



2.4 Causes of Land Degradation

It is estimated that up to 40% of the world's agricultural land is seriously degraded (http://en.wikipedia.org/wiki/Land_degradation). Land degradation is a global problem, largely related to agricultural use. The major causes include the following:

- Overgrazing by livestock can lead to land degradation
- Land clearance, such as clear cutting and deforestation
- Agricultural depletion of soil nutrients through poor farming practices
- Accelerated soil erosion by wind and water
- Destruction of soil structure including loss of organic matter as a result of overcutting and overgrazing.

Overcutting of vegetation occurs when people cut forests, woodlands and shrub lands to obtain fuel wood and other products at a pace exceeding the rate of natural regrowth. Overgrazing is the grazing of natural pastures at stocking intensities above the livestock carrying capacity, the resulting decrease in the vegetation cover is a leading cause of wind and water erosion (http://en.wikipedia.org/wiki/Land_degradation).

The role of population factors in land degradation processes obviously occurs in the context of the underlying causes. In West Africa, it is indeed one of the two major basic causes of degradation along with land shortage, and land shortage itself ultimately is a consequence of continued population growth in the face of the finiteness of land resources.

The major processes of land degradation in Ghana are physical (in the form of soil erosion, compaction, crusting, and iron-pan formation), chemical (depletion of nutrients, salinity, and acidification), and biological (loss of organic matter). Water erosion has destroyed tracts of land



throughout Ghana. Many regions of Ghana contain land affected by severe sheet and gully erosion, with very severe erosion being particularly prevalent in the Upper West Region, Northern Region and Ashanti Region (Sarpong, 2007).

In effect, the ability of agricultural production to guarantee food and income security in Northern Ghana in the past few years, has therefore declined and become less sustainable. The decline is attributed to the depletion of land and water of many farm households in northern Ghana. The connection between land degradation and agricultural productivity is well understood. The main outcome of land degradation therefore is a substantial reduction in the productivity of land and subsequently causes poverty and reduced standard of living among households (Amikuzuno and Akologo, 2008).

The major stresses on vulnerable land include:

- Accelerated soil erosion by wind and water
- Soil acidification or alkalinisation
- Salination
- Destruction of soil structure including loss of organic matter.

These effects become even more critical in agro-based regions such as northern Ghana where over 70% of the population is directly engaged in agriculture. It is also observed that 99% of the households experience some form of land degradation (Amikuzuno and Akologo, 2008).

2.5 Definition of Food Security

A simple definition of “food security” is that all people have access to enough food for a productive and healthy life. Elements of food security include food availability, accessibility and



utilization. For the International Fund for Agricultural Development (IFAD), Household food security (HFS) is defined as the capacity of a household to procure a stable and sustainable basket of adequate food. This implies measures to stabilize household food supply through seasons and transitory shortages, support for activities that sustain food supply in the long term, and constant attention to the adequacy of the food, to comply with nutrient and safety requirements and to meet cultural preferences. The term nutrition security describes a condition that combines access to a stable supply of adequate food (HFS), good care and healthy environment (IFAD, 1992).

Food security has also been used over time to mean different things. The most commonly accepted definition of food security was promulgated by the Life Sciences Research Organization in 1991 as; “sustained access at all times, in socially acceptable ways, to food adequate in quantity and quality to maintain a healthy life”. Operationalising this definition at individual and household level, it incorporates several concepts, thus

- Access (economic and social)
- Sustainability of food supply, both quantitative and qualitative
- Availability of food supply to include nutritional adequacy and safety (<http://www.foodsec.org/pubs.htm>).

The World Food Summit in 1996 also adopted the following definition of food security: “Food Security exists when all people at all times have physical or economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO, 1996). FAO’s State of Food Insecurity report (2002) refers to four elements of food security: food availability, food accessibility, food utilization and food system stability.



Availability focuses on food production whereas accessibility focuses on the ability of people to obtain food, either through production, purchase or transfers. Food utilization focuses on the nutritional value of food, the interaction with physiological condition and food safety. Food system stability focuses on stability of supply and access, as well as the ability to respond to food emergencies. As captured in the 2008 State of Food Insecurity report, there are nearly one billion people who are undernourished (FAO, 2009).

Food accessibility for many people in the developing countries remains closely tied to local food production (FAO, 2008). The World Development Report stresses the importance of agriculture-led growth to increase incomes and reduce poverty and food insecurity in the least developed and developing countries. Countries with large insecure populations are often also those whose agricultural systems are highly vulnerable to climate shocks now, particularly in sub-Saharan Africa and South and Southeast Asia (Gregory et al. 2005, cited in FAO, 2009). Given the close link between local production and food insecurity, investments in the agricultural sector that increase food availability and strengthen the resilience of the food production system will have immediate positive impacts on all elements of food security in food insecure regions.

The World Food Programme (Ghana) in a vulnerability analysis survey 2004, also defined food security as a condition in which a population has physical, social and economic access to sufficient, safe and nutritious foods over a given period to meet their dietary needs and preferences for an active life. A food secure population can meet its consumption needs during the given consumption period by using strategies that do not compromise future food security. In the achievement of food security, land is the most critical productive resource, but the unequal ownership of land by the rural poor, particularly women, is a serious obstacle to food security.



Women's land rights are limited by the customary patriarchal inheritance system and the legal structure has not yet addressed in practical terms unequal ownership of assets between men and women. Although the Land Act (1998 and amended in 2004) addresses most of these inequalities, the rural population is largely unaware of the law or lack the means to ask for its enforcement. Women contribute 60% of the labour force for cash crop production and 80% for food production, yet the majority (87%) till and toil on land they do not own. Women are therefore unable to make decisions over what to grow, how much to grow, where to grow it and how to spend the income from the proceeds of the sale of agricultural output, (Sarpong, 2007).

2.6 Definition of Food Insecurity

The Vulnerability Analysis Survey (2004) indicated that food insecurity is the inverse of food security. That is a condition in which a population does not have access to sufficient, safe and nutritious food over a given period to meet dietary needs and preferences for an active life. The possible causes include insufficient food availability, insufficient food access and inadequate food utilization. More importantly, for this definition, food insecurity occurs when a population has continuously inadequate consumption. Chronic food insecurity arises from conditions of poor food production, limited incomes and poor health. Current or transitory food insecurity occurs when a population suffers a temporary decline in consumption as a result from instability in food production (Vulnerability Analysis Survey, 2004).

In Ghana, poverty and food insecurity are more prevalent in the North than in the South and yet efforts to improve agricultural productivity focus on export oriented agricultural production e.g. cassava for starch for export and oil palm for export - both crops found in the relatively food



secured southern Ghana. Meanwhile, in the Northern Region, small farmers have virtually no access to extension services or to credit facilities, tractor services, fertilizers, or other agrochemicals. As many food security experts verify, enabling smallholders “to realize their potential, get out of their cycle of deprivation, vulnerability, powerlessness and attain higher productivity requires specific pro-poor agriculture and extension policies” (Atengdem, 2004).

Food insecurity and non-sustainable land use are therefore major challenges to the livelihoods of the population of the Yendi Municipal area, one of the areas where poverty is endemic with an average of 70% -90% of the people poor and land degradation a reality. About 90% of the population is engaged in subsistence farming and depends largely on natural resources. Recent declines in agricultural productivity and increases in food insecurity have been attributed to misuse of natural resources particularly land, through deforestation, bush burning, poor farming practices, pollution and overgrazing.

2.7 Land Degradation and Food Security Nexus

The overall proportion of the population suffering from undernourishment in sub-Saharan Africa remains persistently high at 30% and is over 50% in some countries. Undernourishment also affects more than one-fifth of the population of South Asia (21%), and many Caribbean countries (23%) (FAO, 2008, cited in FAO, 2009)

Population pressure also operates through other mechanisms. Improper agricultural practices, for instance, occur only under constraints such as the saturation of good lands under population pressure which leads settlers to cultivate too shallow or too steep soils, plough fallow land before it has recovered its fertility, or attempt to obtain multiple crops.



Severe land degradation affects a significant portion of the earth's arable lands, decreasing the wealth and economic development of nations. Land degradation cancels out gains advanced by improved crop yields and reduces population growth. As the land resource base becomes less productive, food security is compromised and competition for dwindling resources increases, the seeds of famine and potential conflicts are sown. Unless land rehabilitation measures are effective a downward eco-social spiral is created when marginal lands are nutrient depleted by unsustainable land management practices resulting in loss of soil resilience leading to soil degradation and permanent damage (FAO, 2008 cited in FAO, 2009).

It is often assumed that land degradation only affects soil fertility. However, the effects of land degradation often more significantly affect receiving water courses (rivers, wetlands and lakes) since soil, along with nutrients and contaminants associated with soil, are delivered in large quantities to environments that respond detrimentally to their input. Land degradation therefore has potentially disastrous effects on lakes and reservoirs that are designed to alleviate flooding provide irrigation and generate hydroelectricity (FAO, 2008 cited in FAO, 2009).

Food availability, stability, access, and utilization are essential for the wellbeing and productivity of all people. The current state of global food security raises serious concerns as the number of hungry has surpassed 1 billion people and emerging trends are further threatening global food supply. The forces challenging food security include population growth and demographic changes, high and volatile food prices, land and water constraints, and climate change (FAO, 2008 cited in FAO, 2009).

In Sub-Saharan Africa, these global stress factors put pressure on the already fragile food security and agro ecosystems. Region-specific stress factors, which worsen the situation for the



food insecure and vulnerable groups, include weather-related shocks, poor infrastructure, undeveloped markets, as well as weak governance and institutions. A comprehensive policy and investment agenda for achieving sustainable food security is needed to:

- Improve smallholder productivity and market access
- Keep trade open
- Promote productive social safety nets
- Integrate climate change into strategies at all levels and
- Harmonize food security and sustainability under stress. (FAO, 2008 cited in FAO, 2009).

Global progress in ensuring food security and reducing poverty has been substantial, but not satisfactory. Significant advancements have been made in reducing hunger through intensifying staple food production, expanding the role of markets, diversifying out of major cereals, reforming economy-wide policies, and improving food quality and human nutrition in the past five decades. The population living in poverty, on \$1.25 a day, decreased from 29% to 18% between 1990 and 2005 (FAO, State of Food Insecurity in the World, 2006). Yet, according to the 2009 Global Hunger Index, a combined measure of the proportion of undernourishment, child malnutrition, and child mortality, global hunger has improved only slightly since 1990, with 29 countries exhibiting “alarming” or “extremely alarming” levels of hunger. The number of hungry people has been on the rise since the mid-1990s, climbing up to more than 1 billion in 2009, largely due to the food and financial crises (FAO, 2009). Even before the crises hit, the poorest of the poor were left behind.



Food insecurity continues to worsen, as the number of chronically hungry people worldwide is growing by an average of four million per year at current rates (FAO, 2006). Climate change, restructuring of food and agricultural markets and production (for example, to accommodate bio-fuels) and rising food prices are likely to increase food scarcity as well as inaccessibility. Smallholder agriculture continues to suffer from disinvestment; aid to rural development has decreased by 50% over the past 20 years (FAO, 2006). Smallholder agriculture is being further squeezed by the expansion of market economies and global agricultural trade, (FAO, 2006).

It is worthwhile recalling the scale of the problem in the light of levels of under-nourishment in developing regions: 10% in Latin America, 16% in Asia, and 33% in Africa, (Stillwagon, 2006). People who cannot meet their daily nutritional needs turn to be exposed to diseases, as they sometimes engaged in unhealthy activities such as sex trade for survival. In Southern and East Africa, the sub-regions with the highest HIV prevalence rates, 40% of the population is under-nourished. In the context of HIV and AIDS, under-nourishment and/or malnutrition within households is extremely dangerous. Lack of adequate nutrition worsens the immunity of the body which in turn leads to greater vulnerability to AIDS (Stillwagon, 2006)

While the probability of HIV transmission is relatively low in healthy adults this 'has little applicability among poor people in sub-Saharan Africa, Asia, Latin America and the transition countries because their immune systems are already compromised as a result of malnutrition, parasites or other infections (Stillwagon, 2006).

Since the responsibility for feeding families falls primarily on women, they have to be at the centre of food security and nutrition efforts. This means removing the constraints that women face in ensuring that there is adequate food at the household level. Hunger and inequality create



social risk factors, particularly for poor women. Many women are driven to selling sex by hunger, poverty and the need to support their families. In such a situation, they seldom have the power to refuse sex or to insist on safe sex (Stillwagon, 2006).

Women's lack of autonomy and viable economic opportunities means that they continue to be dependent on men for their survival. For instance, in 2007, researchers conducted a study of over 2000 women and men in Botswana and Swaziland to investigate the relationship between food insufficiency and sexual relationships. The study found that among women, food insufficiency was associated with approximately 70% higher probability of inconsistent condom use with a non-primary partner compared with 14% among men (Stillwagon, 2006)

Women who reported lacking sufficient food to eat had 80% increased probability of selling sex for money or resources, a 70% increased probability of engaging in unprotected sex and reporting lack of sexual control, and a 50% increased probability of intergenerational sex. The extent of the problem is exacerbated given the prevalence of food insecurity among the randomly sampled group: an average of 32% of women (compared to 22% of men) reported not having enough food to eat at some stage over the previous 12 months (Weiser *et. al*, 2007).

Land is therefore very important for improving women's livelihood as well as their social status. Although women constitute the majority of the agricultural workforce (70% -80% in some regions) their access to and control over land is globally estimated at 5%, although there are variations in regions. The high levels of exploitation, abuse and violence experienced by women, as well as inequalities in levels of education and access to public services are directly linked to their inferior economic status vis-à-vis men. For the majority of the poor, who are in the rural areas, land is the most important economic resource and women's unequal access to and control



over land has significant bearing on their economic status and enjoyment of their basic rights (FAO, <http://www.fao.org>).

Most rural families in sub-Saharan Africa and in Asia live under customary regimes where access to land is determined by customary practices, with land use and the proceeds from land owned by male kin. Women's relationship with land is therefore through husbands, fathers, brothers or sons. Although land markets are growing inheritance (or in some systems gifts/loans) is the main means by which rural households might acquire land. Women's inheritance rights are generally unequal to those of men, and in some cases non-existent.

Women mainly gain access to land through marriage, although they might have been apportioned land as daughters or sisters. Even in matrilineal societies, access to land is largely controlled by a women's male kin (uncles, fathers, brothers, etc). Women's access to and control over land is therefore dependent on negotiating these usually unequal power relationships, rather than as a general entitlement as would be the case for men. Women's previous entitlements to land under customary regimes (usually user rights) have continuously been weakened as a result of changes to land holding systems over periods of colonialism, post-independence land redistribution and, most recently, land privatization processes. The problem has arisen from the fact that these exercises have been 'gender blind' and therefore have not taken account of women's interests in land or of their existing claims.

Customary regimes become most insecure when changes to land administration are introduced and more powerful individuals, usually men fare better when the content of custom is subject to new negotiation in new institutional arenas. The new environment provides the impetus for a shake-up of entitlements to and control of resources, and in some cases the sides in the ensuing



contest are defined by gender. It is in this context that women are less able to lay claim to land. Although women's secondary claims to ownership (user rights) can be formally recognized in the land registration process, they have tended to lose out to men in the negotiation of titles because they are unable to participate equally with men in the actual process of institutional reform. The wider, traditional social context with its inequalities is often overlooked by those pushing land reforms (Yngstrom, 2005).

Recent land reform policies encouraged and supported by the World Bank have stressed land registration and titling for increased security of tenure for the poor, (Cowley, 2001). The argument for land privatization and titling has been that a regime of secure property rights, and the creation of land markets where land can be bought and sold or used as collateral, will boost economic growth. However, studies do not find any evidence that land privatization processes either increase investment in the land or offer increased access to credits and loans. What has broadly emerged, though, is evidence that land titling and registration processes have been detrimental to women's interests, particularly given that titles are registered in the name of the "head of the household" (Cowley, 2001).

While women may have weaker rights under customary tenure, land privatization and markets will not necessarily solve the problem as poor women's ability to acquire adequate land through the market is often remote. Joint titling may work in some instances for women, but women have to be in a position to defend their claims through the law or through land administration structures where individuals might be biased against women or which tend to be inaccessible to many rural women (Cowley, 2001).



Hunger has increased worldwide, from affecting 800 million people ten years ago to 850 million today, (FAO, 2005). It is in the regions where most needs to be done and where hunger is most prevalent that the least progress has been achieved towards the UN Millennium Development Goal of halving hunger by 2015. Today, hunger is not only more severe, but is also gendered: worldwide, women make up 60 per cent of the chronically hungry. HIV prevalence is highest in the most food insecure countries, with HIV and AIDS being both a cause and a result of hunger (FAO, 2005).

Actionaid briefing paper in June 2008 indicates that hundreds of millions of women struggle daily to achieve fulfillment of the most basic human needs <http://www.Thp.org> The Hunger Project. That is the need to feed themselves, the need to secure a reliable resource base, and the need to stay healthy. As the HIV and AIDS pandemic has spread across the globe, it has become clear that the social groups most at risk and suffering a disproportionately bigger impact are the poorest and most marginalized. Women and girls are consistently at a greater disadvantage compare to men: they are more vulnerable to HIV infection and bear the greatest burden when HIV and AIDS affect families through illness or death.

Across the world, new HIV infections are higher amongst women and girls than amongst men and boys. In sub-Saharan Africa, women now account for 61 per cent of people living with HIV, up from 57% in 2003 (UNAIDS, AIDS Epidemic Update, December 2007) and young women aged 15 to 24 are more than three times as likely to be infected than young men (UNAIDS/UNFPA/UNIFEM, Women and HIV/AIDS Confronting the crisis, 2004). Globally up to 90% of care due to illness is provided in homes by women and girls (Global Coalition on Women and AIDS, Media Backgrounder: Care, Women and AIDS, 2004).



Rural populations are the worst affected by hunger, and their livelihoods have come under increasing stress. Rural women's ability to feed their families is severely limited by the lack of viable employment opportunities and the lack of access to markets combined with women's inferior access to productive resources, assets, credit and land. Women's access to and control over land is crucial for improving their status and reducing gender inequalities, which in turn are critical factors in reducing the prevalence of poverty, malnutrition and AIDS,(IFPRI 2006).

Women's farming activities, which prioritize providing food for the family, have been largely overlooked in agricultural policy. And women's rights to land and livelihoods have barely been included in HIV strategies and programmes. Although many governments have legislated for women's equitable access to land, too often this has not been accompanied by the necessary implementation or assistance to support women's farming and food production. Governments have either neglected or refused to ensure that women are able to get the necessary access to and control over land and natural resources to support food production and other livelihood needs (ActionAid, 2008).

Local and regional information on land degradation reviewed by Lal, 1998, (cited in Eswaran *et. al.*, 2001), observed that in Canada for example, on-farm effects of land degradation were estimated to range from US\$700 to US\$915 million in 1984, and also indicates that the economic impact of land degradation is extremely severe in densely populated South Asia and sub-Saharan Africa. On plot and field scales, erosion can cause yield reduction of 30 to 90% in some root-restrictive shallow lands in West Africa (Mbagwu *et. al.*, 1984; Lal *et. al.*, 1987, cited in Eswaran *et. al.*, 2001).



Nutrient depletion as a form of land degradation has a severe economic impact on the global scale, especially in sub-Saharan Africa. (Stoorvogel *et. al.*, 1993; as cited in Eswaran *et. al.*, 2001, estimated nutrient balances for 38 countries in sub-Saharan Africa. Annual depletion rates of soil fertility were estimated at 22kg N, 3kg P, and 15kg K (Mbagwu *et. al.*, 1984; Lal *et. al.*, 1987, cited in Eswaran *et. al.*, 2001). The implications of these effects of land degradation indicated above, call for serious measures to be taken, either than that food insecurity among women will continue to rise as land degradation intensifies food insecurity among women.

2.8 Manifestations of Land Degradation and Food Insecurity

The productivity of some lands in Africa has declined by 50% as a result of soil erosion and desertification (Dregne 1995, cited in Eswaran et al, 2001). Yield reduction in Africa due to past soil erosion may range from 2 to 40%, with a mean loss of 8.2% for the continent (Lal, 1995, as cited in Eswaran *et. al.*, 2001). If accelerated erosion continues unabated, yield reduction by 2020 may be 16.5%. Annual reduction in total production for 1989 due to accelerated erosion was 8.2 million tons for cereals, 9.2 million tons for roots and tubers, and 0.6 million tons for pulses (Eswaran *et. al.*, 2001).

In Ghana, there has been no significant growth in the yields of most crops in the last 10 years, and the yields of certain crops such as sorghum, millet, cassava, yam, cocoyam, and beans have shown modest declines, in the range of 1% - 2% between 1995 and 2004. The declines observed for some crops may be related to expansion into less fertile land. Therefore, continuous increases in soil loss without further improvement in land management, it is reasonable to expect that the negative effect of soil loss on crop yields will become stronger in the future (Sarpong, 2007).



This assertion is supported by the prediction of (Young, 1999 as cited in Sarpong, 2007) that the loss of agricultural production will continuously rise at a rate of one percent every 5-10 years. The overall proportion of the population suffering from undernourishment in sub-Saharan Africa remains persistently high at 30% and is over 50% in some countries. Undernourishment also affects more than one-fifth of the population of South Asia 21%, and many Caribbean countries 23% (FAO, 2008 cited in FAO, 2009).

Food insecurity in Ghana is basically on households' food consumption; found 5% of the population or 1.2 million people to have very limited access to sufficient and nutritious food for an active and healthy life and are defined as food insecure. This national average hides striking regional differences. Food insecurity is concentrated in the poorest regions of the country which are also the areas most prone to adverse weather conditions, such as floods and droughts, and that have been disproportionately affected by last two year's soaring food prices.

Households' food consumption is not the sole indicator to be used for the identification of the worst affected and vulnerable in need of assistance. A comprehensive food security and vulnerability analysis involve an extensive and careful triangulation of the above findings with an array of additional proxy indicators of food insecurity, including the wealth of households, peoples' capacities to cope, health, nutritional and educational status, livelihood strategies, etc. The northern region alone had 152,000 people representing 10% to be food insecure and 275 people also representing 17%, vulnerable to food insecurity. Those who suffer most are normally the marginalized groups thus women and children.

The above observation turn from the fact that in Ghana, there has been no significant growth in the yields of most crops over the last 10 years, and the yields of certain crops (e.g., sorghum,



millet, cassava, yam, cocoyam, and beans) have shown modest declines, in the range of 1% - 2% between 1995 and 2004. In fact, the declines observed for some crops may be related to expansion into less fertile land. However, with continuous increases in soil loss and without further improving land management, it is reasonable to expect that the negative effect of soil loss on the yield will become stronger in the future. This assumption is supported by the prediction of (Young, 1999, as cited in Sapong, 2007) that the loss of agricultural production will continuously rise at a rate of 1% every 5-10 years (Sapong, 2007).

In conclusion, this second chapter reviewed relevant literature to the topic under discussion by looking at the concepts of land, land degradation, causes of land degradation and its effects on food security. It is very important for concrete measures to be taken by the government, NGO's and individuals so as to ensure proper land management and also to minimize the effects of land degradation. This is one of the ways by which food security of individual households will be promoted and also lead to reduction in the level of vulnerability to food insecurity for women and children. The next chapter takes a look at the methodology employed by the researcher for the data collection and analysis of the data.



CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discusses the methodological approach to the survey employed by the researcher for the collection and analysis of data. Panneerselvan, 2004 (cited in Yelfaanibe 2009), defines research methodology as a system of models, procedures and techniques used to find the results of a research problem. The methodology for this research outlines the following subtitles; the research design, study area, the target population, sampling and sampling procedure, data collection instruments and data analysis.

3.2 Research Design

The choice of appropriate design to a research is founded in the researcher's ability to identify and separate the research issues and apply appropriate methods, tools and techniques to enable him/her arrive at a valid conclusion. In the light of several methodologies, the research was designed based on survey tools and techniques in order to collect appropriate data from selected communities in the study area for analysis across various issues on the topic.

According to Opoku (2000), a survey normally enables the researcher to infer the corresponding characteristics in a population. In this regards individual women farmers from different communities were sampled and interviewed. The intended purpose was to ascertain information from individual women in the context of a locality and changing cultural practices with regard to women land ownership for farming. The survey provided a basis for identifying points of departure between individual family actions and that of the general community worldview as



well as providing some opportunities for exploring the reasons why some individual families may depart from the general community norm(s), so far as women land ownership is concern.

3.3 Study Area

The research was carried out in the Yendi Municipal Assembly. It is one of the 20 districts of the Northern Region of Ghana. The Northern Region occupies an area of about 70,384 square kilometers (km²) that is 29% of the land area of Ghana as the largest region (en.wikipedia.org/wiki/Northern_Region). The Yendi Municipal Assembly has its capital in Yendi the northeastern quadrant of Ghana in the Dagbon territory (Districts of Ghana as at statoids.com and [Ghana Disricts.com](http://Ghana_Disricts.com)).

It covers an area of 5,350km² with a projected population for 2010 as 185,145 (YMA-Profile), the Municipality however has a population of 155,000 and is varied in terms of ethnicity with the Dagomba constituting the majority. The other ethnic groups include Konkomba, Akan, Ewe, Basare Moshie, Chokosi and Hausa. The population is largely rural, about 62% live in the rural areas while 37.4% are in towns. The population growth rate is approximately 2.9% per annum. Out of the population, 75,950 are males and 79,050 constitute the female population. The main religious groupings are Muslims, Christians and Traditionalist. Migration pattern is more pronounced among the youth, especially female girls who basically travel down south to engage in “Kayaye”. Yendi is the traditional capital of the Dagbon kingdom with the Ya Na as the Overlord. The people of Dagbon are called Dagombas. (<http://ghanadistricts.com/districts>).

The Yendi Municipal Area straddles the Greenwich meridian, which passes through a number of settlements in the municipality. It shares boundaries with seven other districts; to the east with



Saboba, Chereponi and Zabzugu/Tatale, to the South with Nanumba North and South, East Gonja, Savelugu/Nanton to the North, (<http://www.ghanadistricts.com/districts>)

FIG. 3.1: MAP OF NORTHERN REGION SHOWING YENDI



Source: www.ghanadistricts.com/districts

The climate in the Yendi municipal Area is relatively dry with a single rainy season that begins in May and ends in October (<http://www.cwsagh.org/cwsa.subcat-select.cfm>). This tropical



climate sustains the guinea savanna vegetation made of grassland and clusters of shrubs (<http://www.ghanaexpeditions.com>). The dry season is from November to late March under the influence of cold and hazy harmattan winds particularly during the nights and early morning and high temperatures by midday.

The economy of the people is largely subsistence with agriculture being their main occupation. Over 80% of the people depend on agriculture for their livelihood. Out of the total land area of 535,000 hectares, arable land constitutes 481,000 hectares out of which only 15% is under cultivation. Other economic activities include weaving, agro-processing (shea butter extraction), meat processing, fish mongering, wholesale and retail of general goods, transport and many others. These activities are on a medium and small scale. The economic potential of the Municipality in agriculture is enormous. The land is suitable for the cultivation of cereals, tubers and rearing of animals. Animals reared include cattle, sheep, goats, pigs and poultry birds for domestic and commercial purposes. Many people are engaged in small scale manufacturing business. They include smock weavers, blacksmiths, bakers, mechanics, shea butter extraction and groundnut oil extraction.

3.4 The Target Population

The target population for the study is women farmers in the Yendi Municipal Area. The quest to seek for suitable solution to the problem of land degradation in relation to food security, prompted the researcher to find out ways and means by which the situation can be managed to minimize the effects of land degradation on the food security of women farmers and their families in the area. The researcher believes that the entire environment of the women farmers in the area play very significant roles. In other words, the target population in this



research was women farmers and some organizations which deal with agricultural issues in the Yendi Municipal Area, since the topic directly concerns them in the light of their food security and livelihoods.

3.5 Sampling and Sampling Procedure

Non-probability sampling techniques were used for the study; the purposive non-probability sampling was used to identify the primary participants in the study. For purposive sampling, women farmers were selected. There are several communities within the study area, but for the purpose of this study, time and financial constraints did not permit the researcher to cover all the communities. Five communities were therefore selected on the basis that they are more food insecure. These are Salankpang, Kpanjihi, Bini, Pansiya and Zuro with the following female populations respectively, 416,172, 145, 114 and 56. Proportional representation was then used in the allocation of the number of questionnaire to the various communities, thus 39, 16, 14, 11 and 5. In all, 85 women farmers were contacted. Also 15 respondents from Ministry of Food and Agriculture (MOFA), Evangelical Presbyterian Development Relief Agency (EPDRA) and Department of Community Development (DCD) in the area who are into agricultural activities were selected. The simple random method was used to select respondents from the villages.



3.6 Data Collection Instruments

3.6.1 Questionnaire

This was administered to the women farmers in the data collection, to assess the relationship between land degradation and food security, manifestations of land degradation and food insecurity and the most affected group. The close and open-ended types of questionnaire were used. It was however used as an interview guide because most of the women farmers the research dealt with could neither read nor write to the researcher's expectation.

As a method, questionnaire is often less expensive as compared to interviews, it requires less skill in administration, respondents do have greater confidence in their secrecy and anonymity and so are more likely to give more accurate information and it can also be given to a larger number of respondents simultaneously. The challenge with this method however, is that it does not create room for probing, prompting and clarification of answers provided by the respondents.

3.6.2 Interviews

Interviews were also conducted in some institutions, namely Ministry of Food and Agriculture (MoFA), Evangelical Presbyterian Development Relief Agency (EPDRA) and Department of Community Development (DCD) in the study area to get their responses to issues of land degradation, especially what support they offer to women farmers in the area to enhance their level of food security. This instrument of data collection enables respondents to freely express themselves. It promotes frank discussions on controversial issues and equally helps the researcher to obtain very sensitive and personal data. It is however time consuming



when dealing with many respondents as compared to questionnaire. Comparatively, it is also less effective in getting concrete information, as many people prefer to write more than talk for the sake of secrecy and it also needs a lot of skills to be able to obtain and interpret information.

3.7 Data Analysis

The data collected during the survey were analyzed and interpreted using qualitative and quantitative methods. The results of qualitative data are presented in a descriptive manner identifying patterns and association in the data collected. The quantitative data were presented in tables and figures with the aid of SPSS and Microsoft Excel.

In conclusion, this chapter dealt with the research design, description of the study area, the target population, the sample and sampling procedure, data collection instrument and data analysis. The next chapter presents the results and discussions of data gathered from the field.



CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings from the analyses of data gathered from the field. First, the background characteristics of the respondents are presented. The second section deals with access to land by the respondents, the third section is on the manifestations of land degradation in the study area, threats of land degradation to food security of the respondents and the institutional responses to minimizing the effects of land degradation on the food security of the respondents.

4.2 Background Characteristics

4.2.1 Age distribution of respondents

The respondents were made up of different age groups. The results presented in Table 4.1 indicate that about 99% of the women farmers interviewed are between the ages of 20 and 59 years old. This age group formed the economically active group of people. This finding is understandable in that farming is labour demanding and only those who are economically active could meet such labour demands.



Table 4.1: Age Distribution of respondents

Age group	Frequency	Percentage
20-29	28	32.9
30-39	22	25.9
40-49	20	23.5
50-59	14	16.5
60+	1	1.2
Total	85	100.0

Source: Field Survey, 2010

4.2.2 Educational level of respondents

The survey results revealed a high level of illiteracy among the women farmers interviewed in the study area. A greater percentage 81% of the respondents had no formal education as shown in Table 4.2. Those who attended school 13% basically stopped at the primary level. The finding of high level of illiteracy among women in the study area confirms that of the Ghana Statistical Service (GSS, 2000) that high levels of illiteracy exist in Northern Ghana and among women in particular. According to GSS (2000), about 41% of Ghanaians aged 6 and older have never been to school with only about 2% having had some form of tertiary education. The three Northern Regions are said to have the highest illiteracy rates in the whole country, with Northern Region being about 76% (GSS, 2005). The implications of all these to the issues under consideration are that illiterates turn to marry at a much earlier age than literates, which further implies that they are more likely to have large family sizes and the possibility not being food secured throughout the year.

Also mean that they are potentially "cut-off" from any formal sector employment since they do not have the requisite education. Fanning and other informal activities therefore become their lot.



Table 4.2: Educational level

Responses	Frequency	Percentage
Primary School	11	12.9
Junior High	3	3.5
Secondary School	2	2.4
None of the above	69	81.2
Total	85	100.0

Source: Field Survey, 2010

4.2.3 Marital status of respondents

It was equally important to find out the marital status of respondents in order to assess the extent of responsibilities to their families. From Table 4.3, about 88% of the respondents were married with only about 12% of them either being single, widowed or divorced. These findings confirm the trend of near universal marriage in Ghana which shows that majority of women older than 15 years are married. According to the 2000 population and housing census report, marriage is defined as formal unions that are legally, traditionally or religiously sanctioned as well as informal cohabiting unions. The report indicated that more than half of the population 51% is in such unions, while an additional 11% have been married before but now divorced or widowed (GSS, 2002).

According to the GDHS (2008), 45% of women aged 15-49 are formally married, 13% are living together and 9% are divorced, separated or widowed. In effect, it can be concluded that putting the above statistics together, about 67% of women in Ghana are married. The GDHS further showed that marriage occurs relatively early in Ghana, and one in four women aged 20-24 are currently married (GDHS, 2008). This implies that those who marry at an early age are more likely to have more children which will lead to increase in responsibility with regards to their



food security. It was therefore observed that those who are married had ready access to land, as their husbands will usually reserve some portions of their farm lands for them to also cultivate their own crops, and where this is not possible, the men assist in getting them farm lands, the women explained. The women also indicated that traditionally, they do not own lands as family property, but once they ask for it for such a purpose, they (women) easily have access to it.

Table 4.3: Marital Status

Responses	Frequency	Percentage
Married	75	88.2
Single	1	1.2
Widowed	8	9.4
Divorced	1	1.2
Total	85	100.0

Source: Field Survey, 2010

4.2.4 Ethnic groupings of respondents

The ethnicity of respondents was also studied. The essence was to identify the various ways by which women of different ethnicity in the study area access land for cultivation. Among the five communities of the research, about 53% of the respondents were Dagombas, 14% of them, were Nanumbas, 21% of them were Komkombas and the remaining 12% were Basaares. It however, turned out that they had similar ways of accessing land; these include the use of family land and also from individual land owners.



Table 4.4: Distribution of ethnic groupings of respondents

Responses	Frequency	Percentage
Dagomba	45	52.9
Nanumba	12	14.1
Komkomba	18	21.2
Basaare	10	11.8
Total	85	100.0

Source: Field Survey, 2010

4.2.5 Family size of Respondents

Table 4.5 shows that respondents have relatively large family sizes. About 37% of the respondents have households' sizes between 7 and 9 members closely followed by between 4 and 6 with (35%) respondents. The implication of this is that those who have large family sizes are more likely to be more food insecure and this can further result in land degradation in their attempt to cater for their food needs. Some respondents, however, argued that with large family sizes, they get family labour free of charge and can therefore farm on large scale to be able to feed their families but the problem has to do with the land size. The 2000 population and housing census and the GDHS, 2008 showed an average household size in Ghana at 3.7 persons with rural areas being higher at 4.0 persons and the urban areas have 3.4 persons per household.

Table 4.5: Distribution of family size of respondents

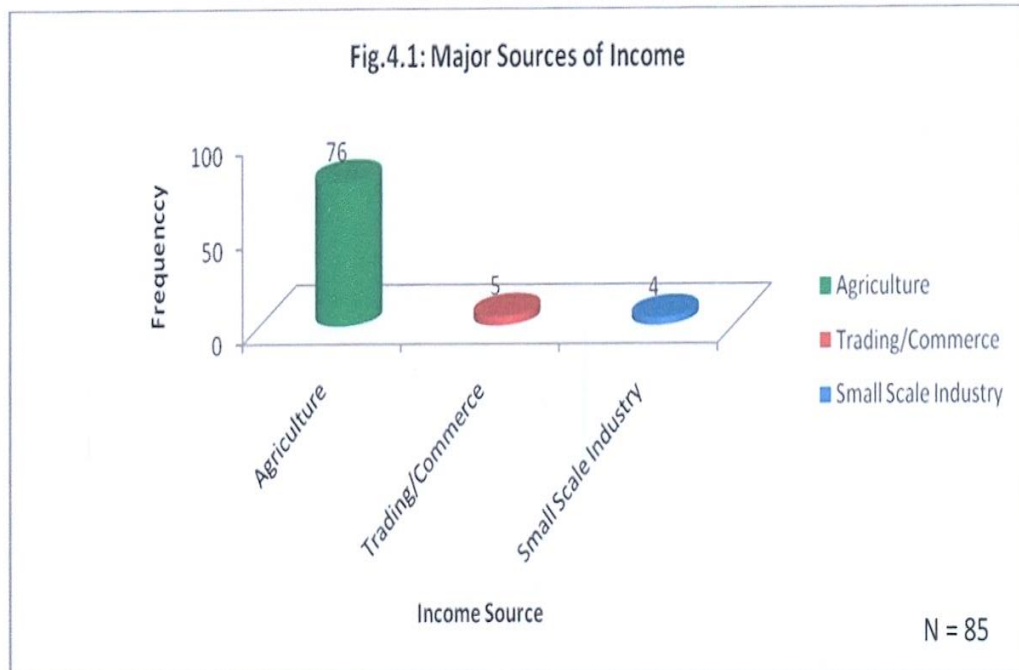
Responses	Frequency	Percentage
0-3	14	16.5
4-6	30	35.3
7-9	31	36.5
10+	10	11.8
Total	85	100.0

Source: Field Survey, 2010



4.2.6 Major sources of income to respondents

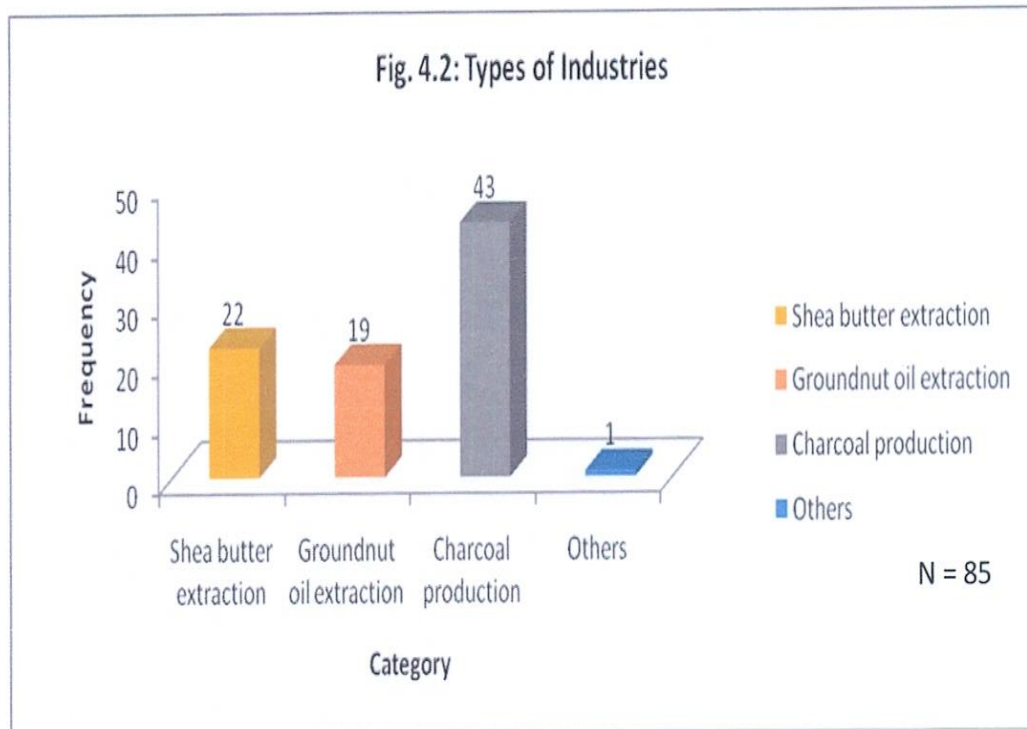
An equally important variable assessed by the study was the major source of income of respondents. The results presented in Fig. 4.1 below show that many of them were engaged in agriculture. This is seen in the fact that majority of the respondents (89%) said their main source of income is agriculture. The implication of this to land degradation is that unless these women use modern methods of farming, their activities are more likely to degrade the land, since a piece of land may be under continues cultivation for a long period. This further implies that if the land is degraded, it will affect crop yields, meaning, they would not get enough food to take them through the year and therefore, would be food insecure.



Source: Field Survey, 2010

4.2.7 Types of Industry

Fig.4.2 shows that apart from agriculture respondents also engage in small scale industrial activities. The findings show that as many as 43 (50.6%) are into charcoal production, 22 (25.8%) into Shea butter extraction and 19 (22.4%) in groundnut oil extraction. From the presentation majority of them are also engage in charcoal production which calls for concern, because it can result in land degradation due to indiscriminate felling of trees for charcoal production.



In a question to assess whether these women have ready access to land for cultivation, all the respondents agreed that access to land for cultivation is not a problem. Their husbands or family members normally give them portions of their farms, but when that is not possible, they ask other



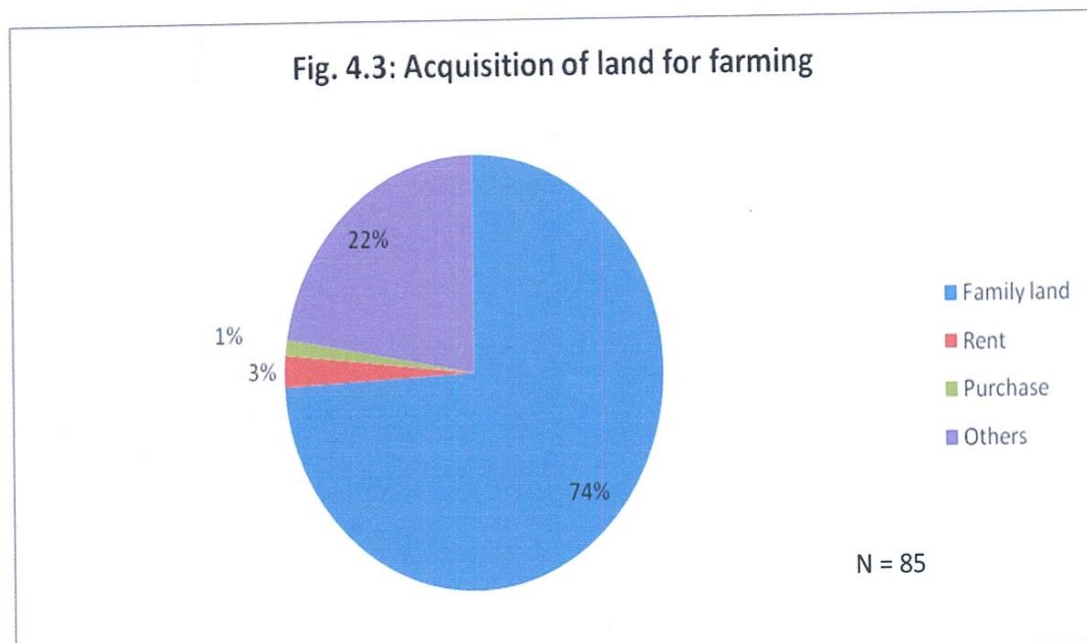
land owners for land. The married ones indicated that their husbands sometimes even ask for the land for them.

The study also examined not only current access to land but also the situation ten and five years ago. This trend analysis allowed for an assessment of the changing patterns of land availability to women. While only 58 (78%) of the respondents had less than 3 acres of farmland ten years ago, this increased to 69 (87%) of respondents five years ago indicating that women's access to land has been reducing. Currently, about 72 (85%) of the respondents have less than 3 acres of land, which is not much different from the situation five years ago.

4.3.1 Sources of Land

The survey found that women access land from their relations. It was also indicated that their access to land largely depended on the network of family relationships of those seeking to use the resource. Majority of these women use family land for their farming activities as seen in Fig.4.3. Out of the 85 respondents, 63 constituting about 74% use family land. It also showed that 19 (22%) of the respondents use lands belonging to others outside their family free of charge and on some other conditions which include sharing the farm produce after harvest with the land owner or on some other agreed terms such as using it for a specific period. This means that whenever land is required for use by a relative a prior notice is given to the owner who can then determine the level of access and right of use with regards to the length of time. This finding supports the finding of Yngstrom (2005) that women mainly gain access to land through marriage and other relations such as uncles, fathers and brothers although they might have been apportioned land as daughters or sisters.





Source: Field Survey, 2010

The study revealed that the women do not go beyond 3km for their farming activities as majority of them (54%) cover this as the longest distance. When asked why they do not go far for farm lands, which are more likely to be more fertile as a result of less use, they explained that walking long distances will take away the energy they need to work on the farms given that they did not have means of transport such as bicycles and motorbikes which are the preserves of men. The above implications for land degradation and food are that the continual cultivation of a piece of land by these women will result in the reduction of soil fertility, which will affect crop yields and consequently affect their level of food security.

Table 4.6: Distance to farms

Responses	Frequency	Percentage
Less than 1km	5	5.9
1-3km	54	63.5
4-6km	14	16.5
7-9km	7	8.2
More than 9km	5	5.9
Total	85	100.0

Source: Field Survey, 2010

4.3.3 Period of access to land use

About 37% of the respondents said, one can have access to the land as long as she wishes but the desire for new farm lands as a result of loss of soil fertility make people to constantly look for new lands. That notwithstanding, others indicated that there are times when land owners take back their lands for use or give them a period and they have to look for new farm lands.

Table 4.7: Period of access to land use

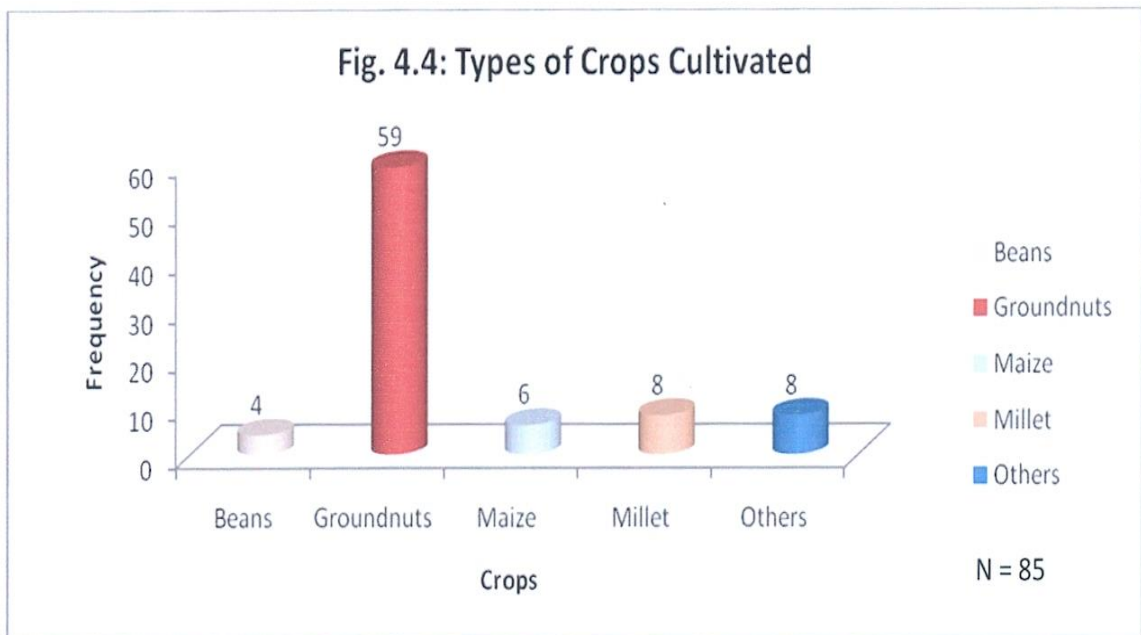
Responses	Frequency	Percentage
1-2 years	20	24.0
3-4 years	32	37.0
5-6 years	3	4.0
Unlimited number of years	30	35.0
Total	85	100.0

Source: Field Survey, 2010



4.3.4 Crops cultivated

The survey results revealed that majority of the women (69%) were engaged in groundnut cultivation, which they depend on to satisfy the food and cash needs of their families. The women indicated that after harvest, their husbands give them foodstuff while they provide the ingredients. However, when they run out of foodstuff, they sell their groundnuts and other crops to support them till the next harvest. They concluded therefore that they are normally food insecure especially between April and July because they normally finish with whatever food they have in stock before the next harvest. This is in line with the findings by Actionaid (2008) that women's farming activities contribute to the provision of food for their families.



Source: Field Survey, 2010



4.3.5 Land clearing

When respondents were asked about how they prepared the field, a greater proportion of them (87%) said they used tractor services while (13%) said they use human labour, Further questioning revealed that in the last two farming seasons, the women were supported with tractor services by institutions which included the CARE International's Community-driven Initiatives for Food Security (CIFS) and the Evangelical Presbyterian Development Relief Agency (EPDRA). The women mentioned that CIFS ploughed an acre for each one of them to cultivate soya beans as a pilot project, but many of them usually grow groundnuts and so they had to cultivate additional acres on their own for the groundnuts using human labour.

4.3.6 Agricultural inputs

Respondents were also asked to indicate the types of agricultural inputs they use on their farms, a good number of them 64 (75.3%) said they used tractor, 13 (15.3%) said human labour while 5 (5.9%) indicated bullocks and 3 constituting (3.5%) said they used donkeys. (Table 4.8). The study results revealed that apart from tractor services they get from NGOs such as CARE International, their farming activities are mostly supported by human labour using simple farm tools such as hoes and cutlasses. The women then claimed that because they do not get adequate support from their families and the NGOs in terms of financial and farm inputs, they are not able to get high yields to support their families food needs. They could, however, not give the quantity and cost of inputs because they rely on communal labour to do their farming, where individuals normally come along with their own tools. They further indicated that they could not also quantify the inputs as it was dependent on the number of people who turn out at different times, though individually, one could spend about fifty Ghana cedis on inputs.



These experiences of the women are supported by FAO's (2011) report on 'the State of Food and Agriculture', which states that agriculture production could be increased if women in rural areas had adequate access to land, technology, financial services, education and markets. The number of hungry people could have been reduced by 100-150 million. It further observed that yields on plots managed by women are lower not because women are worse farmers but they simply do not have adequate access to inputs. If they did, their yields would go up, they could produce more and agricultural production could increase, the report further purported that women farmers typically achieve lower yields, not because they are less skilled, but because they operate smaller farms and use fewer inputs like fertilizers, improved seeds and tools. It therefore suggested that if women have adequate access to agricultural resources it could increase production on women's farms in developing countries by 20% to 30% and this could raise total agricultural production in developing countries by 2.5% to 4% (FAO, 2011).

Table 4.8: Types of Agricultural Inputs

Response	Frequency	Percentage
Human labour	13	15.3
Tractor	64	75.3
Bullocks	5	5.9
Donkeys	3	3.5
Total	85	100.0

Source: Field Survey, 2010

4.3.7 Methods of improving soil fertility

The results in Table 4.9 implied that about 21% of the women use chemical fertilizer to improve upon soil fertility. The majority 34% use organic fertilizer while about 19% do mixed cropping. Out of the 85 respondents, 13 (15%) also do crop rotation and 9 (11%) said they practice shifting

cultivation when they realize the land has lost its fertility. This method is applied when they no longer get good yields, which goes to confirm the findings of (Hurni,1994, as cited in Getachew Adugna, 2005), that soil erosion, wind erosion and physical and chemical deterioration are processes responsible for land degradation and further indicated that soil erosion by water and wind account for about 84% of all the damage. Hurni (1994) also indicated that 28% of all types of soil degradation at the global level is caused by cultivation, 35% by overgrazing and 29% are related to deforestation. Thus, land degradation is caused in more than 92% of all cases by a variety of agricultural uses. This means that in an attempt to improve upon the soil's fertility, these women farmers turn to degrade more farm lands as a result of continue cultivation.

Table 4.9: Methods of Improving Soil Fertility

Response	Frequency	Percentage
Chemical fertilizer	18	21
Organic fertilizer	29	34
Mixed cropping	16	19
Crop rotation	13	15
Shifting cultivation	9	11
Total	85	100.0

Source: Field Survey, 2010

4.3.8 Methods of pest control

A total of 41 (48%) respondents indicated the use of pesticides and pest resistant crop varieties, while 28 (33%) do shifting cultivation. They also mentioned in their responses that as a result of financial difficulties, they use biological pest control method by relying on a particular type of weed which grows on the farm to control the pest. They contended that the weed drives away pest so they deliberately leave it on the farm as pest control measure. A number of them also use ashes and animal droppings in order to control pest on their farms. This method prevents land degradation as the animal droppings serve as manure which increases soil fertility leading to



increase in crop yields and also prevents the pests from destroying the crops, which will also ensure food security of the women.

Table 4.10: Methods of Pest Control

Responses	Frequency	Percentage
Pesticides	41	48
Weed (biological control)	28	33
Shifting cultivation	9	11
Ashes	7	8
Animal droppings	85	100.0
Total		

Source: Field Survey, 2010

4.3.9 Farm Yields

Respondents were asked to identify the various crops whose yields were declining over the years. About 71% of the respondents identified groundnuts as the crop with most decline in yields over the years. The women were also asked to indicate which crops had yields increasing over the past ten years. Because groundnut is the major crop that the women cultivate, its fortunes varied markedly for the women. In some cases yields have declined; in others yields have increased (see Tables 4.11 and 4.12). This finding of the survey agrees with the findings of Sarpong (2007) that crop yields in Ghana have not seen significant growth, while others like millet, cassava, yam and beans have shown modest declines in the range of 1-2 percent between 1995 and 2004. This is also supported by Young (1999) which state that loss of agricultural production will continue to rise at a rate of 1-5% every 5-10 years. This is also consistent with the findings of Mbagwu *et. al.*, (1984), and Lal (1987) that on plot and field scales, erosion can cause yield reductions of 30-90% in some root-restrictive shallow lands of West Africa. Lal (1995) also agrees there have been yield reduction in Africa due to past soil erosion in a range of



2-40%, with a mean loss of 8.2% for the continent. He further stipulated that if accelerated erosion continues unabated, yield reductions by 2020 may be 16.5%.

Table 4.11: Declining Crop Yields over the past ten years

Responses	Frequency	Percentage
Groundnut	60	70.6
Beans	10	11.8
Maize	7	8.2
Millet	5	5.9
Soya beans	3	3.5
Total	85	100.0

Source: Field Survey, 2010

Table 4.12: Crops with Increasing Yields over the past ten years

Responses	Frequency	Percentage
Soya beans	40	47.1
Groundnuts	21	24.7
Beans	13	15.3
Millet	6	7.0
Maize	5	5.9
Total	85	100.0

Source: Field Survey, 2010

4.4 Manifestations and effects of land degradation on crop yields

When respondents were asked about the signs of land degradation on their farms, many indicated loss of soil fertility. This was reported by 69 (81%) of the respondents. Loss of vegetation was another sign of land degradation that the women mentioned.

The respondents also related the diverse effects of land degradation on crop yields. About 64% mentioned loss of soil fertility as having a major effect on their crop yields. Vegetation loss and erosion were other manifestations of land degradation that affected their crop yields as shown in



Table 4.13. This is in consonance with literature where Amikuzuno and Akologo, (2008) indicated that there has been a decline in agricultural production in northern Ghana in the past few years as a result of land and water depletion which has affected their food and income security.

Table 4.13: Effects of Land Degradation on Crop Yields

Responses	Frequency	Percentage
Loss of soil fertility	54	63.5
Vegetation loss	19	22.4
Erosion	8	9.4
Bush burning	4	4.7
Total	85	100.0

Source: Field Survey, 2010

4.4.1 Food Security

Respondents were asked of threats of land degradation to their food security comparing the situation now and ten years ago. All the respondents said ten years ago, there were no threats to food security because the households had enough food throughout the year. The reasons given were that, ten years ago, they had more than enough foodstuffs to meet the food needs of their families because the soils were still fertile. Out of the 85 respondents 77 (90%) also said their food security was not threatened five years ago, but 8 (9%) said they could not meet their food needs all year round. The latter reported that family members had increased.

Currently, 78 (92%) respondents do not have enough food to feed the household in the rainy season and only 7 (8%) indicated they have enough food because, apart from farming, they engage in other income generating activities such as charcoal production to support themselves. It was generally agreed by the majority of respondents (95%) that they usually do not have problems in the dry season because they harvest their farm produce and since the farming season



is also over they find time for other economic activities like charcoal production, shea butter extraction and petty trading. Only 4 (5%) still said they do not have enough food to eat especially between April and July because they run out of foodstuff.

Table 4.14 shows the trends of the state of food security for the respondents during the rainy season for the past ten years, between the past five to ten years and presently. The Table shows that for the past five years beyond, they were more food secured than presently. For example 76% of the respondents said they were food secured during the past ten years while 68% also felt they were food secured during the past five years. Presently, it is only 21% who claimed to be food secured. This is supported by ActionAid briefing paper (2008) that hundreds of millions of women in the world, struggle daily to achieve fully their most basic human need of feeding themselves.

Table 4.14. Trends of food security during the rainy season

Responses	10 Years Ago		5 Years Ago		Now	
	frequency	Percentage	frequency	Percentage	Frequency	Percentage
Seldom	65	76.5	58	68.2	18	21.2
Sometimes	16	18.8	21	24.7	9	10.6
Always	4	4.7	6	7.1	58	68.2
Total	85	100.0	85	100	85	100.0

Source: Field Survey, 2010

Table 4.15 shows the trend of the state of food security for the respondents during the dry season for the past ten years, five years and presently. From the data presented on table 4.14b, as many as 85%, 80% and 73% respectively are food secured during the season which they attribute to the period of harvest. The study therefore suggests that comparatively, a lesser number of the respondents are food insecure in the dry season, especially few months after harvest. This is



seen on the Table below with the responses given by the respondents, 4% ten years ago, 6% five years ago and currently 5%.

Table 4.15: Trends of food security during the Dry Season

Responses	10 Years Ago		5 Years Ago		Now	
	Frequency	Percentage	Frequency	percentage	Frequency	Percent
Never					62	72.9
Seldom	72	84.7	68	80.0	14	16.5
Sometimes	10	11.8	12	14.1	5	5.9
Always	3	3.5	5	5.9	4	4.7
Total	85	100.0	85	100.0	85	100.0

Source: Field Survey, 2010

4.4.2 Household Nutrition

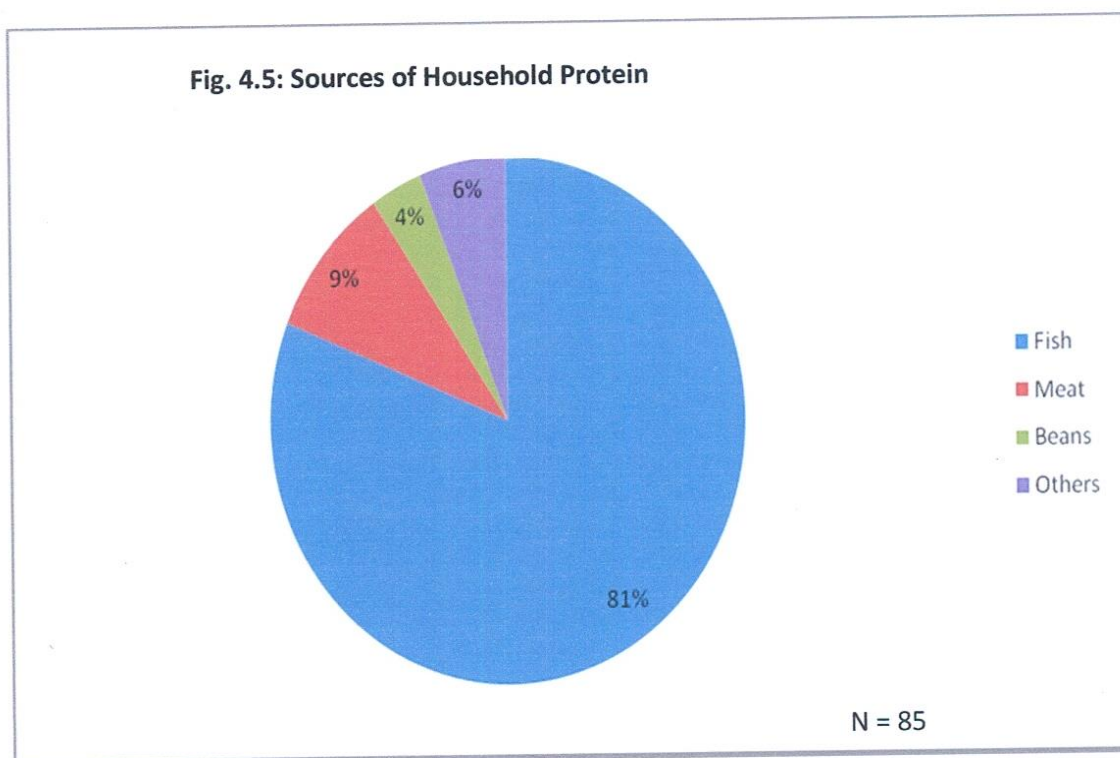
The survey further sought to assess the food security level of respondents by posing a question on how many meals they had eaten per day in the last seven days as at the time of data collection. Respondents indicated that they had at least two meals per day, 32 (38%) said two meals per day and 53 (62%) said three meals per day. The responses showed that none of the respondents and their households had gone hungry within the period. These responses were probably due to the fact that they had just harvested and so they had sufficient food to eat at the time.

Additionally, the survey assessed the level of protein intake for the last seven days prior to the collection of data for the survey. The data, as presented in Fig. 4.5, shows that 69 (81%) used fish (“keta school boys”) in their meals, 8 (9%) used meat from domestic animals, 3 (4%) took beans and 5(6%) used other sources of protein like dawadawa. This implied that all households had taken one type of protein or the other, which contradicts FAO (2008) findings that the



overall proportion of the population suffering from undernourishment remains persistently high at 30% and over 50% in some countries. It further stated that undernourishment affects more than one fifth of the population in south Asia (21%) and many Caribbean countries (23%).

This result also supports that of Biederlack and Rivers (2009) that food insecurity is basically on household consumption where only 5% of the population have very limited access to sufficient and nutritious food and an active healthy life.



Source: Field Survey, 2010

In assessing the most common food eaten by households in the last seven days during the period, it turned out that the majority 71 (83.5%) ate maize based foods. Those who said yam were 10 (11.8%) and 4 (4.7%) said rice. This is presented in Table 15. Further questioning revealed that



the most common food eaten by the various households was largely dependent on the type of foodstuff cultivated by the various families.

Table 4.16: Common Food Eaten By Households in the Last Seven Days

Responses	Frequency	Percentage
Maize	71	83.5
Rice	4	4.7
Yam	10	11.8
Total	85	100.0

Source: Field Survey, 2010

In furtherance to the above was the question to find out the kind of fruits the households of respondents had eaten. It was observed during the period of the survey that fruits like mango, pawpaw, pineapple, banana and water melon were not consumed by the households. The respondents were however quick to add that it was either because these fruits were not in season, or because they were expensive for them to buy. In place of these fruits, all the (85 or 100%) ate local fruits like ebony which they did not have to buy.

The respondents were also asked if they borrowed food items at times in the dry season and how often they do. Table 4.16 indicates the responses. About 85% said they had never borrowed food items because in the dry season they usually have food and also engage in other economic activities to supplement whatever they have. Out of the 85 respondents, 5 (5.9%) said they borrowed food items once a week and 8 (9.4%) said they borrowed on very rare occasions.



Table 4.17: How often Respondents Borrowed Food Items for the Family during Dry Season

Responses	Frequency	Percentage
Never	72	84.7
Once a week	5	5.9
Others	8	9.4
Total	85	100.0

Source: Field Survey, 2010

Data gathered on how often they borrowed food items for the family during the rainy season revealed the following responses: 64 (75.3%) said they never borrowed food items in the rainy season, 7 (8.2%) indicated once a week and 14 (16.5%) indicated others implying they sometimes borrowed food. They only borrowed when it was essentially necessary to do so. Table 4.18 indicates the results.

Table 4.18: How often Respondents Borrowed Food Items for the Family during Rainy Season

Responses	Frequency	Percentage
Never borrowed	64	75.3
Once a week	7	8.2
Others	14	16.5
Total	85	100.0

Source: Field Survey, 2010

The survey also sought to know whether respondents had serious problems with feeding their households such that they sometimes went hungry for their children to eat. Generally, they did not encounter such situations as 64% never went hungry. The responses for the dry and rainy seasons are presented in Tables 4.19 and 4.20.



Table 4.19: Number of times respondents went hungry during the rainy season

Responses	Frequency	Percentage
Never	51	60.0
Once a week	22	25.9
Others	12	14.1
Total	85	100.0

Source: Field Survey, 2010

Table 4.20: Number of times respondents went hungry during the dry season

Responses	Frequency	Percentage
Never	57	67.0
Once a week	19	22.4
Others	9	10.6
Total	85	100.0

Source: Field Survey, 2010

4.5 Institutional responses to land degradation in the study area

An interview was also conducted with three different institutions to identify their activities in the study area in terms of responses to issues of land degradation. They include the Ministry of Food and Agriculture (MOFA), Evangelical Presbyterian Development Relief Agency (EPDRA) and Department of Community Development (DCD). In all, fifteen (15) respondents were reached, five (5) from each institution.

Responses from MOFA indicated that officials generally organise meetings with farmers where they educate and train them to do away with negative practices like indiscriminate felling of trees, bush burning and overgrazing among others and to use improved technologies which will increase their output.



The officer in charge of “Women in Agricultural Development” and Women Extension Volunteers support women farmers in the Yendi Municipal Assembly by way of training, material and finance. The ministry also trains the women on the use of new technologies, educates them on environmental conservation and involves them in demonstration practices. The women are equally encouraged to form groups for capacity building and tree cropping; an example is cashew cultivation, processing and utilization of soya beans and moringa production and utilization.

EPDRA equally educates farmers on improved technology in agriculture by offering field facilitation on extension services; the officers involve give technical extension services to farmers and also link them to financial institutions and marketing companies for support. On issues of land degradation, training is given to farmers on sustainable fanning practices like composting and cover cropping. Specifically on support given to women fanners, EPDRA engages them in capacity building on sustainable farming practices to increase yields. The women are also given micro-credit support of an amount ranging from GH¢ 100 – GH¢ 150 depending on the type of activities they engage in for petty trading. The criteria use in giving them the said amount is that, the beneficiaries must belong to a group and capable of repaying the amounts given them, meaning one must be engaged in an income generating activity before being qualified for such a micro-credit. The group members serve as a support system, and so the women do not need collateral to collect the above amount which they repay within a period of six months without interest in order to qualify for the collection. Group members therefore have to come together to pay for defaulting members before the group members can collect take such loans again. The organization also engages the women in capacity building in group formation and development, soya beans and moringa utilization training.



The Department of Community Development also sensitizes women farmers on good farming practices and engages them in soya bean production, animal rearing and tree planting to reduce the rate of land degradation in the area. It further links women farmers to tractor owners to plough soya beans and maize for them on credit. The Department additionally source funds from NGOs in support of women farmers and links them to other credit institutions for support.

In conclusion, this chapter presented several issues ranging from an introduction, the background characteristics of the respondents, the respondents' access to land, the manifestations and effects of land degradation on crop yields and the implications on food security giving the trends of food security during the rainy and dry seasons for the past ten years, five years and presently. It also looked at institutional responses to land degradation in the study area where organizations such as CARE International, the Ministry of Food and Agriculture (MoFA), Evangelical Presbyterian Development Relief Agency (EPDRA), and Department of Community Development (DCD) see it as a social responsibility on their part to contribute to the development of the areas where they operate by helping to improve upon the living standard of the people through a number of social interventions some of which have already been mentioned above.

The next chapter which is the concluding part of this dissertation entails summary of the findings, conclusions drawn from the study and recommendations of the study.



CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS OF

THE STUDY 5.1 Introduction

In this concluding chapter of the dissertation, an attempt is generally made to review what the study has sought to investigate with summary of findings, conclusions and recommendations. The study started with a descriptive account of land degradation as a global issue. It also highlighted on some causes of land degradation and the efforts made by successive governments of Ghana since independence to increase agricultural production. The study then narrowed down to the Yendi municipal area which is populated by predominately farming communities with more than 70% of the inhabitants including women engaged in agriculture based activities for their livelihoods.

The study was justified by the fact that though women's contribution to food production in the area is essential in ensuring food security of their households, they hardly produce sufficient to supplement what is provided by their husbands. It is hence thought that the encouragement of women in the area to go into commercial farming will economically empower them to effectively contribute towards food security of their households.



5.2 Summary of findings

An analysis of data gathered from the field revealed the following:

1. The study reveals that though women in the area do not own land by inheritance as a cultural practice, they readily have access to land for farming purposes. It however revealed that these women do not go far in search of arable lands, and so they continue to farm on a piece of land for very long periods coupled with traditional farming practices which leads to land degradation and consequently results in poor yields.
2. It was also found that loss of soil fertility is a major manifestation of land degradation in the study area which threatens food security particularly of women farmers and their households as a result of poor yields and small land size of farms. This makes it difficult for them to produce enough food to take them throughout the year, especially in the rainy season.
3. Another finding was that the households usually consume more carbohydrates than protein, as their source of protein is mainly one, which is fish ('keta school boys'). Consumption of fruits was virtually negligible, with this, they indicated they did not have money to buy fruits which was more or less luxury to them, and so they normally depend on local fruits ebony which is usually not even served as part of meals.
4. Additionally, it was found out that there are some institutional responses geared towards minimizing effects of land degradation on women's food security and their households in the study area. The women identified CIFS, a food security project managed by CARE (Ghana) EPDRA, and MoFA. They indicated various kinds of support from these institutions which include tractor services, education on good farming practices and



loans. They were however quick to add that the support they get from these institutions is woefully inadequate.

5. Further findings revealed that projects like CIFS also support women to cultivate soya beans and rearing of animals (sheep and goats). Donkey carts are given to women groups to assist them with their loads from farm, and the women encouraged to do agro forestry in order to conserve the vegetative cover.
6. These women are also discouraged by the institutions to desist from the use of economic trees like shea trees and dawadawa for fuel wood and charcoal production.

5.3 CONCLUSIONS

1. It can be concluded from the survey that, women in the study area engage in agriculture as a major source of income and mostly in charcoal production and other trades like shea butter extraction as secondary sources of income.
2. Women farmers and their households in the study cannot boast of food security, since they are not able to meet the food needs of their families all year round, especially between April and July when their resources are put on their farms.
3. One can also conclude that despite the high level of illiteracy among the women, they see the need to be economically empowered to enable them assist their husbands in ensuring food security of their households.
4. Support given to women farmers by the various institutions in terms of finance, tractor service and seeds is not enough to enable them produce sufficient food to ensure that they and their households are food secured.



Women farmers are being sensitized to take proper care and advantage of community initiative programmes on food security in their respective communities to enable them derive maximum benefits from these programmes.

5.4 RECOMMENDATIONS

In view of the foregoing findings as far as land degradation and food security of women farmers and their households in the Yendi Municipal Assembly are concerned, the following measures are deemed appropriate as a way forward.

1. Stakeholders in agriculture especially NGOs should particularly encourage women farmers to increase their outputs by providing them with enough resources in the form of financial support or inputs.
2. The municipal assembly and financial institutions should willingly support these women with credit facilities to engage in other income generating activities in the off farming season so as to reduce if not stop the rate at which trees are felled for charcoal production which destroys the vegetative cover of the land and makes it unproductive.
3. NGOs in the area could also seriously encourage the women to go into shea butter and dawadawa processing which is likely to have less financial burden as compared to other activities. This is because, these economic trees grow wild, which they could collect the seeds when in season without necessarily buying from others to start a business.
4. The Ministry of Agriculture and other stakeholders in agriculture such as the NGOs should intensify their education on land degradation and its related effects on food security, especially that of women farmers and their households by encouraging and supporting them to use modern farming methods which will increase their outputs.



In conclusion, this study is not exhausted. Other researchers are therefore urged to continue with the study in order to help find solutions to the problem of land degradation in relation to food security of women farmers in the Yendi municipal area.



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**UNIVERSITY FOR DEVELOPMENT STUDIES CENTRE FOR CONTINUING
EDUCATION AND INTERDISCIPLINARY RESEARCH FACULTY OF PLANNING
AND LAND MANAGEMENT
MA IN ENVIRONMENTAL SECURITY AND LIVELIHOOD CHANGE**

QUESTIONNAIRE ON THE TOPIC

**LAND DEGRADATION AND FOOD SECURITY: EFFECTS ON WOMEN FARMERS
IN THE YENDI MUNICIPAL AREA FOR INDIVIDUAL WOMEN FARMERS**

SECTION A

Background Information

1. Name of community.....
2. Name of respondent.....
3. Age
 - a. 20 – 29 []
 - b. 30 – 39 []
 - c. 40 – 49 []
 - d. 50 - 59[]
 - e. 60+ []



4. Educational level

- a. Primary []
- b. Junior high []
- c. Secondary []
- d. Tertiary []

5. Marital status

- a. Married []
- b. Single []
- c. Widowed []
- d. Separated []
- e. Divorced []
- f. Cohabitation []

6. What is your ethnicity?

- a. Dagomba []
- b. Komkomba []
- c. Baasare []
- d. Nanumba []
- e. Others []

7. What is your family size?

- a. 0- 3 []
- b. 4 -6[]
- c. 7 -9[]
- d. 10 and above []



SECTION B

SOURCES OF LIVELIHOOD

8. Major source of income

- a. Agriculture []
- b. Trading/ Commerce []
- c. Small scale industry []
- d. Others []

9. If Agriculture, what type of activities are you engaged in?

- a. Farming []
- b. Rearing []
- c. Both farming and rearing []
- d. Others (specify) []

10. If industry, what type of activities are you engaged in?

- a. Shea butter extraction []
- b. Groundnut oil extraction []
- c. Charcoal production []
- d. Others (specify) []

11. What is your secondary source (s) of income?

- a. Shea butter extraction []
- b. Groundnut oil extraction []
- c. Charcoal production []



d. Others (specify [])

SECTION C

Women access to land

12. Do you have access to land for cultivation?

a. Yes []

b. No []

13. If yes what portion of land size do you have access to?

Land Size	Ten (10) Years ago	Five (5) Years ago	Current/Now
Less than 3 acres			
3 - 5 acres			
5.1 -7 acres			
More than 7 acres			

14. How do you acquire it?

a. Inheritance []

b. Family land []

c. Rent []

d. Purchase []

e. Others (specify) []

15. What distance do you cover to get to your farm?

a. Less than 1 km []

b. 1 - 3 km []



- c. 4 - 6 km []
- d. 7 – 10 km []
- e. More than 10 km []

16. How long do you access the land for use?

- a. 1-2 years []
- b. 3-4 years []
- c. 5-6 years []
- d. Unlimited years []

17. What type of crop do you cultivate on your land?

- a. Beans []
- b. Groundnuts []
- c. Maize []
- d. Millet []
- e. Others(specify) []

18. Which of the following agricultural inputs do you use in ploughing?

- a. Human Labour []
- b. Tractors []
- c. Bullocks []
- d. Others (Specify)

19. How do you improve upon the soil's fertility for farming?

- a. Use of chemical fertilizer []
- b. Organic fertilizer []
- c. Mixed cropping []
- d. Crop rotation []
- e. Others (Specify)

20. How do you control pest on your farm?



- a. Use of pesticides []
- b. Planting of pest resistant crops []
- c. Shifting cultivation []
- d. Others (specify)

21. Which of these inputs do you use on your farm?

Type of Input	Quantity	Cost of Input	Remarks
Land			
Labour			
Hoe			
Cutlass			
Fertilizer			
Tractor			
Others			



22. Which of these crops do have the yields declining over the years?

Types of crop	Output of yields ten (10) years ago	Output of yields five (5) years ago	Current output of yields
Maize			
Millet			
Groundnuts			

Beans			
Others			

23. Which of these crops do have the yields increasing over the years?

Types of crop	Output of yields ten (10) years ago	Output of yields five (5) years ago	Current output of yields
Maize			
Millet			
Groundnuts			
Beans			
Others			



SECTION D

Manifestations of land degradation

24. What are the signs of land degradation on your farm?

- a. Loss of soil fertility

- b. Loss of vegetation
- c. Gulleys
- d. Bush burning

25. What are of the effects of the following indicators of land degradation on crop yields over the years?

Indicators	Ten years ago	Five years ago	Now
Loss of soil fertility			
Vegetation loss			
Erosion			
Bush burning			



Threats of land degradation to food security of women farmers and their households

26. Did the household have enough food to eat throughout the year ten years ago?
- a. Rainy Season b. Dry Season
 - Yes[] Yes[]
 - No[] No[]
27. Did the household have enough food to eat throughout the year five years ago?
- a. Rainy Season b. Dry Season

Yes []

Yes []

No []

No []

28. Does the household have enough food to eat currently?

a. Rainy Season

b. Dry Season

Yes []

Yes []

No []

No []

29. How often ten years ago did you have problems satisfying the food needs of the household?

a. Rainy Season

b. Dry Season

Never []

Never []

Seldom []

Seldom []

Sometimes []

Sometimes []

Always []

Always []

30. How often five years ago did you have problems satisfying the food needs of the household?

a. Rainy Season

b. Dry Season

Never []

Never []

Seldom []

Seldom []

Sometimes []

Sometimes []

Always []

Always []

31. How often do you currently have problems in satisfying the food needs of the household?

a. Rainy Season

b. Dry Season Never

Never []

Seldom []

Seldom []

Sometimes []

Sometimes []

Always []

Always []



32. How many meals have you eaten per day in the last 7 days?
- a. One Meal []
 - b. Two Meals []
 - c. Three Meals []
33. Which of the following food item did the household eat in the last 7 days?
- a. Fish []
 - b. Meat (domestic) []
 - c. Meat (bush) []
 - d. Beans []
 - e. Others (Specify).....
34. What is the most common food eaten by the household in the last 7 days?
- a. Millet []
 - b. Maize []
 - c. Rice []
 - d. Yam []
 - e. Others (Specify).....
35. Which of the following fruits did the household eat in the last 7 days?
- a. Mango []
 - b. Pawpaw []
 - c. Pineapple []
 - d. Banana []
 - e. Water melon []
 - f. Others (Specify).....
36. How often do you borrow food items for the family during the dry season?
- a. Never []
 - b. Daily []



- c. Once a week []
- d. Others (Specify)
.....

37. How often do you borrow food items for the family during the rainy season?

- a. Never []
- b. Daily []
- c. Once a week []
- d. Others (Specify).....

38. Do you sometimes go hungry so that your children can eat?

- a. Yes []
- b. No []

39. If yes how often do you go hungry during the dry season?

- a. Never []
- b. Daily []
- c. Once a week []
- d. Others (Specify).....

40. If yes how often do you go hungry during the rainy season?

- a. Never []
- b. Daily []
- c. Once a week []
- d. Others
(Specify).....

41. Are you able to satisfy your food needs?

Dry Season a. Yes b. No

Rainy Season a. Yes b. No



42. If yes what are the reasons?

.....

.....

.....

43. If No, what accounts for this?

.....

.....

.....

Institutional Responses to minimizing effects of land degradation on women's food security and their households in the Yendi municipal area

44. Are there any institutions in your community that offer support to women farmers?

- a. Yes []
- b. No []

45. If yes, please complete the table below

Number	Institution	Location/Operation area	Nature of support	Number of years in community
1				
2				



3				
4				

46. How does the support help in preventing land degradation or minimize its effects?

.....

.....

.....

.....

47. If the support has not helped, why is it so?

.....

.....

.....



48. What kind of help do you expect institutions to offer women farmers in your community?

.....

.....

.....

