UNIVERSITY FOR DEVELOPMENT STUDIES

DEPARTMENT OF AFRICAN AND GENERAL STUDIES

THE ROLE OF FARMER-BASED ORGANISATIONS IN FOOD PRODUCTION IN NORTHERN REGION OF GHANA

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[THESIS SUBMITTED TO THE DEPARTMENT OF AFRICAN AND GENERAL STUDIES, FACULTY OF INTEGRATED DEVELOPMENT STUDIES, UNIVERSITY FOR DEVELOPMENT STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF PHILOSOPHY IN DEVELOPMENT STUDIES]

2018

DECLARATION

Student

I, hereby declare that this thesis is the result of my own original work and I have completely referenced any source used in the thesis. I am completely sure that no part of it has been presented for another degree in this university or elsewhere.

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ABSTRACT

Farmer-based organisation hold promise for moving Ghana's agricultural sector forward in the area of improving agricultural output and employment but the sector is not vibrant as expected (Asibey-Bonsu, 2012:26-27). There is a wide use of the FBO concept but there is very little information on their economic significance to the overall economy. Government and development partners have given much support to FBOs development but their contributions to food production still below expectation. This research analysed the role of farmer-based organisations in food production in the Northern Region of Ghana by focusing on FBOs contribution to food production, the effects of FBOs on the natural environment and the challenges they faced. The study employed explanatory sequential mixed methods, which informed the data collection process in the form of questionnaires and interviews from a random sample of 210 FBOs and analysed with the use of descriptive statistics. The findings showed that farmer-based organisations contributed to increase in food production. However, there is negative effects of FBOs activities on natural environment and no preventive measures are in place to protect the environment. In order to improve FBOs performance there is the need for Government to create enabling environment that facilitates smooth operation of FBOs as business entities. Finally, Ministry of Food Agriculture should help educate FBOs on the use and disposal of chemical substances to reduce their hazards on individuals and the natural environment.

ACKNOWLEDGEMENTS

All praises be to Almighty Allah for guiding me throughout my life and enabling me to begin and ended the programme successfully.

I appreciate all the guidance, patience, attention, mentoring, and love given to me by my supervisor Prof. Seidu Al-hassan. I say may Almighty Allah richly bless you abundantly.

To my lecturers I owe you all a big thank and I wish you success in your entire endeavour. I appreciate all the moral support given to me before, during, and after the programme by Prof. David Millar, Dr. Edward Salifu Mahama, Dr. Felix T.Y. Longi, Dr. Paul Kwame Nkegbe, Dr. Mohammed Abdulai, Dr. Frank Teng-Zeng, and Mr. Thomas Azure.

The contributions of all the respondents to my questionnaire administered and the interviewee, I say thank you.

I appreciate all the guidance, patience, attention, mentoring, love, and resources given to me by Mr Mumuni Issifu Dimbie and Mr. Salifu Majeed. I say more grease to your elbow.

To Auntie Doris Luri, Auntie Comfort Dima, Mrs Awudu Fauzia Sikparu, Miss Karimu Sharifa (Meri), Mrs Sulemana Nimatu and to entire family, may Almighty Allah bless you abundantly.

Lastly, to my classmates of Mphil. in development Studies, may God shower his blessing upon all of you. Thanks to everybody who contributed to my success in this programme.

DEDICATION

I dedicate this thesis to my mother, Miss Seidu Saratu, the corner stone of everything in my life, late Abdul-Karim Ali and late Alhassan Mohammed Baba (BA).

To my lovely wives Awudu Fauzia Sikparu, Sulemana Nimatu and my entire family for their moral support during my studies.

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ACRONYMS AND ABBREVIATIONS

AEAs-Agricultural Extension Agents

AGRA-Alliance for Green Revolution in Africa

AgSSIP -Agricultural Services Sub Sector Investment Project

AIDS-Acquired Immune Deficiency Syndrome

CCEIR-Centre for Continuous Education and Inter-Disciplinary Research

CIPE- Centre for International Private Enterprise

DAES- Directorate of Agricultural Extension Services

DOC-Department of Co-operatives

FAO-Food and Agricultural Organisation

FBOs- Farmer Based Organisations

FOs-Farmer Organisations

GDP-Gross Domestic Product

GNAFF- Ghana National Association of Farmers and Fishermen

GSS-Ghana Statistical Service

HIV-Human Immune Virus

ICA-International Co-operative Alliance

IFAP- International Federation of Agricultural Production

JHS-Junior High School

MCA- Millennium Challenge Account

MCC-Millennium Challenge Corporation

MiDA-Millenium Development Authority

MoFA-Ministry of Food and Agriculture

NGOs-Non-Governmental Organisations

NILRIFACU -Northern Region Intensive Lowland Rice Farmers' Cooperative Union

NPC-National Development Planning Commission

OCDC- Overseas Cooperative Development Council

RCC-Regional Coordinating Council

RCEs-Rural Community Enterprises

REGSEC-Regional Security Council

RPOs-Rural Producer Organisations

SAVACEM-Savanna Cement

SPSS- Statistical Package for Social Scientists

UK-United Kingdom

US-United State

CHAPTER ONE

INTRODUCTION

1.1 Background

Ghana's economy is basically agrarian. Modernization of agriculture entails significant improvements in productivity by enhancing measures along the value chain. This include the adoption of high yielding crop varieties; mechanization services; improved extension services; upgrading skills of operators; and access to inputs, markets and finance (NDPC, 2012:51). The Ministry of Food and Agriculture in an attempt to modernize agriculture decided to promote Farmer-Based Organisations (FBOs) as part of its policies and programmes. However, most farmers are not in farmer-based organisations and as a result are not able to benefit from policies and programmes, which aimed at increasing productivity and improving their socio-economic wellbeing. Farmer-Based Organisations have the opportunity of empowering farmers to access certain benefits in the economy such as strong negotiation or bargaining power in terms of accessing finance, selling of farm produce, access to inputs, and technical services. This has the capacity of improving their lots and food security.

Wilhemina, Ivy, Tawiah, and Joseph, (2010:98) stated that the development of farmer based organisations is a major concern to governments and development practitioners in developing countries. In Ghana, the Agricultural Services Sub-Sector Investment Project (AgSSIP) 2000-2007 funded by the World Bank had a Farmer-Based Organisation (FBO) development component. The project made effort to strengthen capacity of agencies promoting FBO activities and programmes. Also under the Millennium Challenge Account (MCA) project, the Private Enterprise Foundation with support from the Centre for International

Private Enterprise (CIPE) based in Washington D.C., USA undertook an Advocacy Training Programme for Farmer-Based Organisations in some selected districts in Ghana (Asibey-Bonsu, 2012:16-17). These interventions aimed at improving the performance of farmer-based organisation in Ghana.

A farmer-based organisation is a number of people in agribusiness who agreed to form a group with the aim of collective benefits. The group members cultivate the same or different crops, and the FBO may process and/or market their produce together.

Farmer-based organisation definitions emphasis on the importance of membership with the function of providing accessible services to its members as an incentive for becoming a member (Rondot and Collion, 2001). The farmer-based organisation, just like any other group/association expects its members to attend meetings regularly, pay membership dues, and obey rules and regulations governing their organisation.

Farmer-based Organisations (FBOs) are essential institutions for the empowerment, poverty alleviation, and advancement of farmers and the rural poor. Governments and development agencies create more appropriate and sustainable agriculture and rural development policies and programmes. This provides benefits for small and poor farmers by supporting, and involving farmer-based organisations in the planning, design and implementation of agricultural and rural policies and programmes, and supporting them in implementing farmers' own agendas (Naranjo et al., 2007:1).

Success of farmer-based organisations (FBOs) depends on the purpose and reason for setting up the organisations. They could be categorized based on their

objectives, this include:(1) production FBO: This is further categorized into production for consumption, also known as “production-oriented FBOs,” or production for markets, also called “market-oriented FBOs”; (2) processing FBOs; (3) marketing FBOs; and (4) multipurpose FBOs (Ragasa, Badibanga, and Ulimwengu (2012) as cited in Ragasa and Golan, 2012: 6). In view of the categories, this research work is limited to production FBOs. Some production FBOs engage in processing and marketing of their produce but are not strictly processing and marketing FBOs. Farmer-based organisations that produce for market are able to adopt business practices that improve their income generation capacities.

Many farmers cannot access affordable production inputs such as finance, technology, land and water and are unable to access markets. A strong and vibrant farmer organisation can provide opportunities to farmers to play a vital role in the market economy and benefit from it. However, identifying and promoting authentic farmer organisations that empower smallholder farmers is a big challenge for government and development partners. The formation of most farmer groups did not consider social- cultural and economic structures of the farming communities. Most of such groups are not viable and incapable of serving as channels through which farmers can take part in the decision making process (Akinnagbe and Ajayi, 2010: 356).

The FBOs face challenges such low commitments on the part of the group members to abide by collectively agreed rules and to monitor and enforce compliance with the rules (Stockbridge, Dorward, Kydd, Morison and Poole, 2003:17). This indicates that most farmer-based organisations do not have good functional administrative system to ensure attainment of collective goals.

Viable farmers groups continue to be difficult to maintain due to poor local management experience and limited resources. There is limited participation of FBOs in policy framework that influence their interaction with private lobbying groups, international NGO and even national governments (FAO, 2010:8). This implies that FBOs perform little role in development of policy framework and implementation of FBO programmes.

Farmer-based organisation with meagre resources and limited organisational and technical capacities, need external support to start-up and/ or expand their operations. However, striking the right balance between reliance on external and internal resources, between accountability and proactive leadership, between adaptive and effective governance and between over- and under ambition is a challenge for all FBOs (Thompson, Teshome, Hughest, Chirwa, and Omiti, 2009:1). Organisations with limited resources mostly lack the focus as to what strategies they are to adopt in the control and management of the organisation, as a result most members' lost confidence in the organisation and often break away to join other organisations or to be on their own.

Farmers-based organisation need the potentials to develop economically. This means farmers must be able to access sufficient land and affordable credit and develop knowledge and techniques for the production of food. In addition, farmer-based organisations' members need to access market information and networks for the sale of their goods and buying of inputs, implements, and equipment at lower cost to expand their economic ventures (Pinto, 2009:6). Membership to most farmer-based organisations is a serious challenge in developing countries especially Ghana. Majority of farmers based organisations are small in nature and

their leaders cannot manage large businesses due to low managerial skills/capabilities, low technological advancement, and diversion of resources for social issues such as funerals, marriage and high dependency. These business operators and entrepreneurs as members of farmer-based organisations deliver less in achieving their objectives.

Naranjo et al, 2007; Rondot and Collion, 2001, shared a similar view regarding the benefits that accrue to farmers from government and non-governmental organisations for being members of a farmer-based organisation. Naranjo et al, 2007 emphasized the need for smallholder farmers to be part of farmer-based organisation in order to benefit from both internal and external interventions. However, farmer-based organisations have received varied forms of support that aim at improving production but they still cannot meet the expectations of their members.

1.2 Problem Statement

Ministry of Food and Agriculture field staff are under pressure to form and strengthen farmer-based organisations with the intention of meeting intervention targets for cropping season. These farmer-based organisations' members lack a unifying purpose, and often leave the organisation (Miranda, 2011:1). Farmer-based organisations are oriented towards receiving promised inputs like credit, high-yielding seeds, and fertilizer. Farmers perceive these promised inputs as expectation created by numerous intervention delivering assistance. Once the intervener leaves, Farmer-based organisations are not able to access these promised inputs, hence the FBOs are not able to withstand test of time.

Members of farmer-based organisations do not have the capacity to communicate well with one another effectively due to poor governance. Some individuals take advantage of the communication gap to manipulate their organisation activities to their personal benefit. Such groups need some form of external assistance to break out of the perverse logic of their situation (Ostrom 1990: 21 as cited in Stockbridge et al., 2003:18). There is a notable fragmentation of efforts and poor coordination among FBOs (Scherr, Wallace and Buck, 2011:16). Securing a platform for the negotiation on issues such as extension, market access and input provisions has been difficult for farmer-based organisations to achieve in a policy environment (FAO, 2010:2).

Farmer-based organisations face difficulties in mobilising financial resources, accessing technical and extension services, technology, and markets. Storms and flash flooding have caused severe short and long term damage to agriculture, infrastructure and rural communities as a result of the challenges farming is considered as uncompetitive, unprofitable and unsustainable (FAO, 2011:14-15).

The present economic crisis presents new challenges to the farmer community as well as farmer-based organisations. Up scaling production in a world affected by climate change accelerates the negative impact of plough agriculture or use of agrochemicals (Pinto, 2009:3). This in a long term worsen food situation and livelihood in developing countries like that of Africa particularly Ghana. Thompson et al., (2009:1) observed that many farmer-based organisations in Africa remain caught in poverty traps. The FBO members are unable to influence policies that affect their livelihoods or benefit from emerging market opportunities. The limited role-played by governments in funding and

management of FBOs has made the organisations ineffective in managing the affair of small-scale farmers in Northern Ghana.

Similarly, the agricultural sector received little attention over the last 15 years. This situation has led to a dramatic negative trend in Africa, a continent that is today a net importer of foodstuffs. Subsistence is the tendency in production and the emphasis is still on meeting food security needs (Pinto, 2009:2). This idea of Pinto is consistent with the views of (Thompson et al., 2009:1) where external policies influenced governments in Africa to contribute little to the development of farmer-based organisations, especially production of food crops like rice and maize. However, at the onset of the new millennium, Ghana has witness formation of farmer-based organisations with the intention of serving their members (Francesconi and Wouterse, 2011:3). Governments of developing countries have revisited farmer-based organisation development, which plays a vital role in the value chain concept of agriculture but the farmer-based organisations perform poorly because of lack of trust and unity, poor commitment, mismanagement of resources, poor management, and conflict of interest.

Farmer-based organisations (FBOs) provide opportunities to small-scale producers to play an effective role in Africa's emerging market economy as well as benefiting from it. Moreover, strong and vibrant farmer-based organisations that genuinely represent their constituencies (members) play a vital role in informing and influencing agricultural policy and practice. However, identifying and promoting authentic farmer-based organisations that could empower their

members in terms of mobilisation of resource for production is a major challenge for governments and development partners. (Thompson et al., 2009:2).

The major contributor to the FBO development drive in recent decade is the Ghana's Millennium Challenge Account (MCA) Compact. In 2007, the Millennium Challenge Corporation (MCC) approved a five-year US$547 million anti-poverty compact with the Government of Ghana and a significant proportion of this amount was used for FBOs development and their business partners including entities that add value to agricultural crops such as extension service providers, processors, and marketers (Asibey-Bonsu, 2012:14).

Farmer-based organisation hold promise for moving Ghana's agricultural sector forward in the area of improving agricultural output and employment but the sector is not vibrant as expected (Asibey-Bonsu, 2012:26-27). Strengthening and empowering farmer-based organisations in Africa will involve a significant amount of trial and error, as there is no full-proof recipe for success. This will require a certain amount of 'learning by doing', taking risks, making mistakes and learning from both success and failure. Capacity strengthening and organisational development of farmer-based organisations is slow and regulated by complex and contradictory social behaviour, cultural norms and the broader policy environment (Thompson et al., 2009:2).

These challenging conditions limit farmer-based organisations access to support in Africa where most of the members are not business oriented in performing their mandates. This affects the growth and development of the organisations, hence, greater uncertainty in production system. There is a wide use of the FBO concept but there is very little information on their economic significance to the overall

economy. Government and development partners have given much support to FBOs development but their contributions to food production still below expectation; in this regard, confidence on FBOs in food production is uncertain in the Northern Region of Ghana. The main research question is what is the role of farmer-based organisations in food production in Northern Region? The specific research questions are:

What are the socio-demographic characteristics of farmer-based organisations?,

What are the contributions of farmer-based organisations to food production in Northern Region of Ghana?,

What are the effects of farmer-based organisations on the natural environment?, and

What are the challenges faced by farmer-based organisations?

1.3 Research Objectives

The main research objective is to analyse the role of farmer-based organisations in food production in Northern Region.

1.3.1 The specific objectives

a. To examine the socio-demographic characteristics of farmer-based organisations,
b. To examine the contributions of farmer-based organisations to food production in Northern Region,
c. To examine the effects of farmer-based organisations on the environment, and
d. To examine the challenges faced by farmer-based organisations.

1.4 Relevance/Justification of the Study

This research work seeks to increase the frontier of knowledge of farmer-based organisations. In this regards researchers and analyst in agriculture stands to benefit from the work, especially leadership of farmer-based organisation, agricultural extension officers and farmers. It will also help policy makers in agricultural sector to formulate standard policies in relation to FBOs development.

The study will provide understanding on how farmer-based organisations improve food production in Ghana and how to overcome challenges faced by farmer-based organisations in performing their mandatory functions.

The research study seeks to add to literature on farmer-based organisations and as bases for further research in the study area.

1.5 Limitation and Delimitation of the Study

There was a challenge on the review of literature on the topic especially books and other relevant publications on journals. This situation worsened with unstable internet connectivity for browsing and downloading. However, there are certain websites, journals, books, and magazines that are available in the graduate school library that are of great importance and support for this research work.

The literature reveals that, most farmer-based organisations are located in rural areas and accessibility is a major challenge for this research study. Northern Region is the largest region in Ghana and there is a need for more resources to conduct the research work especially on transportation and accommodation. Despite the challenges encountered, resources were mobilised to ensure that the research study reflects what truly prevail on the ground.

The respondents always complain about the challenges face as a farmer-based organisation. They also complained about how there were deceived by AEAs and some NGOs that they will support them financially. Some of the respondents perceive the researcher as a solution to their problem. However, the researcher explained to them that the data is for academic purpose. Another challenge the researcher faced is low level of education of some respondents. The researcher was face to explain to the respondents about the meaning of some questions in the questionnaire and that consumed so much time. However, data collection was very successful because the respondents provided the right data.

1.6 Organisation of the Study

The study is organised into five chapters. Chapter one (1) is the general introduction to the study that is background of the study, problem statement, research questions, study objectives, relevance of the study, limitation and delimitation of the study, and structure of the study. Chapter two (2) consists of the review of related literature on farmer-based organisations and food, theoretical and conceptual framework of the study with the aim of operationalizing concepts and identification of the gaps from previous studies on related literature. Chapter three (3) deals with research methodology, which consists of the study design, scope of the study, sampling size, sampling procedures and techniques, method of data collection and tools of data analysis and presentation. Chapter four (4) is the study findings, discussion, drawing of conclusions and generalisations, and chapter five (5) entails the summary of study findings conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 Definition of Farmer-Based Organisations

Farmer-based organisations are increasingly becoming important vehicles for producer development. A farmer-based organisation is usually a group of like-minded farmers who agree to work together to achieve a common goal. Effective farmer-based organisations have competitive advantages over individual farmers in terms of purchasing power, advocacy, lobby and economies of scale. Farmer-based organisations have the opportunity to reach relatively more farmers with technical and advisory services at no extra cost (Etwire et al, 2013:41).

Farmer-based organisations are voluntary associations of farmers within particular localities formed to undertake common activities of interest to members. These organisations often coalesce around particular production systems or members' priority value chains. Their intended outcomes include increasing household assets and availing agricultural services to members (Maina, 2012:29).

Farmer-based organisations are defined as groups of rural producers coming together to establish organisations, based on the principle of free membership, to pursue specific common interests of their members – developing technical and

economic activities that benefit their members and maintaining relations with partners operating in their economic and institutional environment (Hussein, 1999:4).

Donovan, Stoian, and Poole, (2008:12) defined rural community enterprises (RCEs) as "businesses based on the production of agricultural or forest products and services, which are owned by small- and medium scale producers and pursue multiple objectives, with profit maximization as only one among many goals". By the definitions, Asibey-Bonsu (2012:17) stated that an organisation qualifies to be a farmer-based organisation if it has a combination of the following factors:

- Proof of formal registration with a public institution (DOC, MoFA, Registrar General's Department, District Assembly, and so on),
- Existence of a collective bank account,
- Existence of written rules (constitutions or by-laws),
- Evidence of regular internal gatherings (open to all members),
- Evidence of regular financial contributions (made by the members), and
- Evidence of active leadership.

2.2 Types and Structure of Farmer Based Organisations

There are different types of farmer-based organisations such as farmers' unions, farmers' cooperatives, farmer groups and commodity associations. Farmer-based organisation plays a vital role in the development of rural areas in developing countries as well as in fighting poverty (Pinto, 2009:6 ; Wennink and Heemskerk, 2006:28). The benefits of farmer groups include making agricultural extension services more client driven and efficient; strengthening farmer bargaining power with traders, reduce transaction cost for input supply and output buyers; economies of scale (e.g. bulking up in output marketing or storage), facilitating

saving and access to credit (Conroy, 2003 as cited in AKinnagbe and Ajayi, 2010: 356). The level of growth of farmer-based organisations determines the type of activities they undertake. The key role played by Farmer-based organisations in rural development and fighting poverty here means the organisations are able to improve peoples' livelihoods and food security.

The term farmer-based organisation (FBO) is interchangeably use with terms such as farmer group, farmers' association, farmers' union (Asibey-Bonsu, 2012:14). Farmer-based organisations operate at many different levels, as clubs (within a small number of individual producers, often living near to each other), local associations (of clubs), and higher level (for example regional or national) associations. Opportunities and constraints faced at different level vary. In general, larger associations' offer potential economies of scale, but these benefits have associated cost in organizing larger number of people (Stockbridge et al., 2003:2).

Farmer-based organisation (FBOs) takes many different forms, varying in both size (of membership) and the services they provide. According to the definition used by the International Federation of Agricultural Production (IFAP 1992:4 as cited in Stockbridge et al., 2003:1), farmer-based organisation includes any of the following:

- Farmer groups and pre-cooperatives
- Farmer association, federations and unions
- Agricultural cooperatives owned and controlled by their members.
- Chamber of agriculture having a general assembly elected by members.

In rural societies, traditional organisations have an inward oriented or 'bonding' function to build social capital and facilitate collective action to respond to the uncertainties of agricultural production, and to regulate relationships within the group. In contrast, formal farmers' organisations perform a kind of 'bridging' function to organize relationships between the group and the outside world. In the context of Ghana and specifically Northern Region, FBOs share elements of both traditional and formal organisations. They are rooted in local contexts and customs, but organised around economic principles. They are local and serve only at village and inter-village levels, or operate at regional and national levels (as unions and federations) and some are even global in scope (Thompson et al., 2009:2). However, agricultural cooperatives in China are allow to admit non-farmers as members to render vital services to FBOs (Bijman and Hu, 2011:108-109)

Farmers mainly organise themselves around agricultural production-related activities, thus allowing them to have access to credit facilities. Farmer-based organisation at sector and district levels emerged as single cooperatives and multi-purpose associations because of farmer-led initiatives, which focus on both crop production and marketing (Fane et al., 2006: 66).

Farmer-based organisations have adjusted their roles over time with some narrowing their focus to specialise in different sub-sectors and others have broaden their scope to become 'multipurpose' organisations (Thompson et al., 2009:2). Similarly, at the onset of the new millennium, Ghana is witnessing a new wave of rural cooperative organisations, commonly referred to as farmer-based

organisations, formed with the intention of serving their members (Francesconi and Wouterse, 2011:3).

The liberal approach to the development of cooperatives paved way for the formation of other types of rural and farmers' self-help organisations such as farmer-based organisations (FBOs). In particular, between 2000 and 2007, the World Bank alone invested more than US$9 million for the development of FBOs as part of Agricultural Services Sub-sector Investment Programme (AgSSIP 2007 as cited in Asibey-Bonsu, 2012:14).

The Ghana National Association of Farmers and Fishermen (GNAFF) was established in 1992 on the mandate of the 1992 constitution of the Republic of Ghana as a Non-Governmental Organization to play a proactive role in agricultural and rural development of Ghana. The Association is in four levels (i.e. community, district, regional and national). In 2002, the Association embarked on a restructuring and reorganization programme, which had membership up to 3,000,000 individual members and membership was mainly opened to smallholder farmers and fishermen (Asibey- Bonsu, 2012:18).

FBOs in Ghana range from informal village-level groups to organized groups. The informal village-level groups form the greater proportion of FBOs in Ghana (Asibey-Bonsu, 2012:15). An Apex body (named Northern Region Intensive Lowland Rice Farmers' Cooperative Union -NILRIFACU) representing all FBOs at the regional level was formed to act as a mouth-piece and effectively negotiate with stakeholders including input suppliers, tractor owners, banks, rice processors and traders on behalf of the farmers (Wilhemina et al., 2010:93).

Ghana National Association of Farmers and Fishermen main activities include the mobilization of agricultural producers and the presentation of a unified front and a stronger voice. The Association contribution to policies is by nominating members to serve on boards, commissions, and committees of ministries, departments, and agencies of government. The association also facilitate access to technologies, credit, markets etc. in order to increase productivity and incomes of members, and the contact with partners from the government, private sector, NGOs (local and foreign) that want to invest in the agriculture sector (Asibey-Bonsu, 2012:18). The association serve as the mouthpiece of farmers in Ghana and channels its views through ministries, departments, and agencies of Government for policy formulation.

2.3 Historical Development of FBOs

Historical evidence suggests that farmer groups might be as old as sedentary agriculture (Salifu, Francesconi and Kolavalli, 2010:3). Since the beginning of sedentary agriculture in the Rift Valley, farmers supported each other to cope with unpredictable climatic events (Ehret 1979 as cited in Salifu et al., 2010:3). It was before the 13th Century, in France and Switzerland, that the milk producers of Gruyère and Emmenthal formed farmer cooperatives with specific economic objectives: to pool the milk from several herds and thereby accumulate sufficient liquid milk to make cheese. Farmer-based organisation members share benefits accrued to them in proportion of their contributions to the organisations (Poole and Frece, 2010:34).

The 'Rochdale Equitable Pioneers' was the first true cooperative formed in 1844 in the Northern UK town of Rochdale. A group of poor cotton weavers pooled resources together and set up a shop to sell staple foods. The cooperative

membership was open to all customers who became shareholders with democratic decision-making rights. The principles set out by the Rochdale Society in 1844 have influenced the way in which cooperatives have been managed throughout the world ever since. Frederick Raiffeisen establishes the first agricultural cooperatives in conformity with the 'Rochdale Principles' in Germany in 1849. He emphasised the role of the savings and loan function of the cooperative to achieve financial independence from moneylenders and added a principle of collective financial responsibility. The United Kingdom in 1852 promulgated the first laws on cooperatives, followed by Prussia in 1867 in order to formalise existing practice that followed the Rochdale and Raiffeisen 'Principles'. The International Co-operative Alliance (ICA) adopted Rochdale Principles in 1937 and updated in 1995. This broadly underlie most forms of association of smallholder farmers (Poole and Frece, 2010:34-35).

Most modern cooperatives trace their heritage to the Industrial Revolution. In the United Kingdom (UK) the first attempts to set up cooperatives date from the late eighteenth century. They were workers' consumer cooperatives and some went so far as to have an organisational structure: members' meetings, an elected management committee, and distribution of profit among the members. Their success was short-lived because of persistent challenges such as lack of capital, lack of management expertise, and opposed by other economic and class interests groups (Poole and Frece, 2010:34).

The resurgence of interest in farmer organisation, coming at a time when there are renewed goals for agriculture and the rural sector, is surprising, given the history of failure in many developing regions over the last two or three decades and the persistence of poverty even in the more successful developing countries. A

historical analysis of the policy climate raises the question whether the resurgence of interest in farmer organisation is a full revolution of the development policy wheel. Answering this requires coverage of the agricultural policies pertaining to market development over a given period of years (Poole and Frece, 2010:13).

2.4 Socio-Demographic Characteristics of Farmer-Based Organisations

2.4.1 Gender

The mainstreaming of gender issues has become a prominent theme within agriculture development. However, the promotion of farmers groups as a vehicle for development has not coincided with the integration of gender approaches to organizational objectives. Similarly, deliberate efforts to mainstream gender in farmer-based organisations through the formulation of pro gender policies were uncommon (FAO, 2010:4).

Many FBOs and agri–coops are gender biased in the sense that they tend to be only men or women. It follows that kinship, broadly defined as nonprofessional ties (such as an ethnic, religious, gender, tribal, and/or family-based relationship) appears to be a major reason for participation in FBOs and agricultural cooperatives. Membership appeared greatly homogeneous also in terms of income and assets (land, livestock, and so on) owned. Small and homogeneous FBOs and agricultural cooperatives are as common in Ghana as in many other Sub-Saharan countries (Salifu et al., 2010:17).

Most FBOs claim to use democratic principles to select their leaders but the actual leadership structure is very similar to that of traditional leadership seen throughout Ghana. Women have little interest in contesting for leadership position

in FBOs, even though they have opportunity of occupying leadership position. (Salifu, Funk, Keefe and Kolavalli, 2012:9).

The treasurer position is usually for females in FBOs unless the group is male only. The primary reason cited for this is that in Ghanaian culture women are perceive to be trustworthy, transparent, and better at keeping money than their male counterparts. In most groups, the treasurer was responsible for managing the group bank account and collecting dues (Salifu et al., 2012:10). Inadequate representation of female members at senior level within farmer-based organisations has made it difficult to ensure that real progress in addressing gender equality (FAO, 2010:4).

2.4.2 Occupational Experience and Education

Farmer associations are mostly production oriented and the attention of their members is on how to increase farm output. The amount of resources available to FBO in terms of land, farm inputs, and labour determine Farm size. Farmer-based organisations acquire land for collective production through purchase, rental, or gift. In most cases, members decide annually whether to farm collectively and how much to produce. Most FBOs used external inputs such as fertilizer and pesticides to maize, soya beans, pepper and rice. Agricultural extension agents often treat group farms as demonstration plots and encourage FBO members to use appropriate farm inputs on individual farms to improve their productivity (Salifu et al., 2012:6).

Kinship ties, small networks, and homogenous membership are key elements of producer organisations, which tend to be dependent on external assistance with little revenue generation from internal membership. As a means of securing

patronage, farmer-based organisations are valued as a source of capital, in a resource poor environment where falling farming returns are pushing a withdrawal of labour from agriculture production (FAO, 2010:5).

Farmer-based organisation members with specific experiences and professionals such as teachers, assemblypersons, marketers, religious leaders, traditional leaders (chiefs) and well-educated people have greater chance of being leaders. Individuals who played key roles in the formation of FBO have the greatest chance of being part of the leadership (Salifu et al., 2012:9-10).

Farmer-based organisation in Tanzania with no market improvement had low level of education (i.e. primary education only), while groups with improvement in their marketing performance had at least secondary education. Groups with higher education levels are probably able to absorb more content and put it into practice (Barham and Chitemi, 2009:57). However, as educational status increased, orientation towards self-help group activity decreased (Joy, Prema, and Krishnan, 2008:361).This means that the individuals begin to engage themselves in certain economic activities that make them have less time for group activities especially when the group activities are geared towards generating income.

Hussein, (1999:11-12) was with the view that farmer organisations that are mostly successful in expressing and satisfying their needs in the areas of technology generation and dissemination had one or many of the following characteristics:

- Possessing several organisational levels (at least three) farmer base groups (villages or districts) to federation level; this can include one or several intermediate levels of representation (in the case of the two federations in

Guinea and the Fédération des Unions des Groupements Naam in Burkina Faso)

- Based on free membership around common interests
- Access to diverse sources of funding, it is recognised that in order to gain the power to demand specific services suited to their members needs', farmers' organisations need to have access to resources that enable them to commission and finance agricultural research and extension. Farmer organisations either need to build up their own income (through membership fees, economic activities which are sustainable and yield clear material benefits to members, and relationships with government or international donors) or gain access to research funds, via such mechanisms as competitive research grants or jointly managed research and extension funds.
- Based around successful and remunerative economic activities (sesame production in The Gambia; fruit and vegetable production, storage and marketing in Cameroon)
- Benefiting from the animation, capacity-building (training, business management etc) and input/marketing support of external organisations
- Based on traditional modes of organisation, respecting agreed social rules on interaction and authority or based on legally recognised rules and responsibilities for associations.

According to US Overseas Cooperative Development Council (2007:32) that the success of cooperatives depends on: (i) the availability of laws and policies, (ii) an economy that supports competitive businesses, (iii) membership that is open to users and members be paid for equity, (iv) high equity and services being member-centred. (v) Professional management and elected board of directors, (vi)

members access to market, (vii) employees accountability (viii) training for management and (ix) management ready to use modern technology.

2.4.3 The Establishment and the Need for FBOs

Farmer and Enterprise Training in Commercial Agriculture under the MCA sought to accelerate the development of commercial skills and capacity among Farmer-Based Organisations (FBOs) and their business partners, including entities adding value to agricultural crops such as processors and marketers. It also involved capacity building among extension service providers (Asibey-Bonsu, 2012:14).

Farmers' organisations have played a central role in driving agricultural transformation processes in Sub-Saharan Africa, despite their mixed record of success. As governments, donors and non-governmental organisations rush to promote the scaling up and diversification of farmer organisations' activities and membership (Thompson et al., 2009:1).

The achievement of economic recovery and food security pertains to the development in the agricultural sector. Given serious weakness in government institutions, countries are seeking alternative service providers and a mix of approaches to deliver the needed capacity and support to FBOs. There has been much excitement that producer organisations could play a leading role in the provision of agricultural and rural services and solve problems faced in rural areas (Ragasa and Golan, 2012:3). A wider public interest in FBOs also relates to the role they can play in promoting economic coordination for pro-poor growth (Chirwa et al., 2005:2). Through FBOs, farmers thus received inputs that

contribute substantially to aggregate productivity increases and thus promote staple food grain self-sufficiency (Burmeister, Ranis and Wang, 2001:26).

Institutions provide multiple functions to markets; they transmit information, mediate transactions, facilitate the transfer and enforcement of property rights and contracts, and manage the degree of competition (Shiferaw, Obare and Muricho, 2006:2-3). Farmer-based organisations serve as a voice for its members in dealing with individuals and institutions.

Members from the same community or from neighbouring areas come together to form farmer based organisations. Almost all FBOs and agricultural cooperatives appeared to emerge from a pre-existing and well-defined social cluster or network (that is, kinship) (Salifu et al., 2010:17). It is only with the beginning of the new millennium that Ghana witnessed a rapid emergence of both governmental and nongovernmental projects seeking to promote the development of FBOs and to liberalize existing agricultural cooperatives. Yet policy reforms seem to have mainly generated a shift in the terminology *(from agricultural cooperatives to FBOs)* rather than tangible innovations at the level of rural communities and agricultural production systems (Salifu et al., 2010:3). An FBO Secretariat is operationalizing to serve the FBO Development Board in order to give strategic direction to FBO development in Ghana (NDPC, 2012:58).

Formation of some smallholder organisations were facilitated by governments, exporters, NGOs and donors in the form of organisation, capacity building and resource provision (Narrod et al., 2009:13). These forms of interventions aimed at reducing poverty by improving income levels of farmers through FBOs.

The Directorate of Agricultural extension Service under the Ministry of Food and Agriculture has established a national FBO Secretariat that act on the FBO National Steering Committee whose activities cover all FBOs in the country. It has undertaken in 2008 an exercise of registration of all active FBOs in the country to generate a credible database of FBOs. In the exercise towards registration of FBOs in 2008, MOFA-DAES called for voluntary registration by FBOs and had them screened by a team of consultants for validation and recommendation of those eligible to receive support (Asibey-Bonsu, 2012:16-17). In addition, at the end of the exercise, out of a total of 3,052 FBOs and agricultural cooperatives, 2,324 were eligible, and 728 were ineligible for public support. The secretariat has 5,658 active FBOs and included in the database of FBO Secretariat (Asibey-Bonsu, 2012:17). Some farmer-based organisations exist informally and such organisations do not take into consideration all formal procedures that will make those organisations to grow into complex entities.

Farmer-based organisation members do not treat group production as income-generating activity; instead, most individuals are more interested in capturing assistance from development programs. As a result, investments in collective activities by members are relatively low in comparison with what they put into their individual farming activities, and members see few benefits from group participation (Salifu et al., 2012:6).

2.5 Contributions of Farmer-Based Organisation to Food Production

Farmer-based organisations are widely heralded as leading contributors to poverty reduction and the achievement of food security. Farmer-based organisations have acted fast in pushing forward an agenda for smallholder farmers with emphasis on supporting local autonomy on market regulation particularly in relation to prices

of cash crops and basic commodities (FAO, 2010:2). Members of farmer-based organisation are the main producers of different kinds and quantities of food crops with varied nutritional content that aid in solving nutritional problems in Ghana.

Globally, the most powerful policy voices and actors—and those with the greatest private and public investment resources are focused on strengthening food systems to secure the large scale movement of safe food supplies at low and stable prices for vast populations of consumers especially non-farmers in urban areas. International agribusiness and food trading companies dominate this sphere. These groups are concerned with "Global Food Security" (broadly defined) for the billions who do not currently access sufficient and adequate quality foods (Scherr et al., 2011:3).

An effective FBO must therefore put in place plans and measures to ensure food security (Etwire et al, 2013:42). Cooperatives can provide farmers with bargaining power in increasingly concentrated food markets, thus furthering the equitable distribution of the benefits in the value chain (Bijman and Hu, 2011:100-101).

2.5.1 Acquisition of Land and Inputs

Farmer-based organisations acquire land for collective production through purchase, rental, or gift. However, it is not easy to buy agricultural land in communities. FBOs obtained Land directly from a chief and individuals from a community on free of charge. Thus, in most cases, members decide annually whether to farm collectively and how much to produce (Salifu et al,2012:6).

Farmer-based organisations use a combination of savings from membership dues, profits from the previous season, and ad hoc contributions from members to buy necessary inputs and services for collective farming. The decision of how much to

produce depends on the amount of money members contribute at the beginning of a season. A few of the case study groups had accumulated enough savings to fund input acquisition for their collective activities without having to collect money from members (Salifu et al., 2012:6).

Most of the groups used external inputs such as fertilizer and pesticides, especially for cultivating maize, pepper, and rice. The agricultural extension agents often treat the group farms as demonstration plots. They encourage FBOs to use appropriate seeds and inputs on their individual farms. Production FBOs received training, specifically on fertilizer application, which usually came from fertilizer companies and some received free fertilizer through donor-funded initiatives (Salifu et al., 2012:6).

Majority of the FBOs in this collective activity paid cash for their inputs with very few FBOs obtaining inputs on credit from dealers. Farmer-based organisations collectively procure inputs to minimize transportation costs, to enjoy discounts that come with bulk purchases or service provision and input dealers prefer selling on a credit basis to groups rather than individuals (Asibey-Bonsu, 2012:25). The group members serve as collateral to the input supplied on credit and in case of any default, the entire group is responsible.

2.5.2 Collective Labour Supply by Farmer-Based Organisations

Members usually contribute labour free of charge, but groups often supply food for members on days when the whole group comes together to work on the collective plot. The group occasionally hire labour for the group activities, but this is rare. Members of all groups contributed their labour for collective activities (Salifu et al., 2012:6).

2.5.3 Agricultural Extension Services and Technical Training

The FBO approach plays valuable role in policy advocacy and in realizing economies of scale. One major benefit of the group is that farmers support each other to learn and adopt. Thus farmer-to-farmer extension is amplified, rather than simply being agents for technologies imposed from outside, the extension agents are expected to become catalysts, mobilizing farmers to experiment on an identified need/solution, recognizing local innovations and helping to assess and encourage them (Madukwe 2006 as cited in Akinnagbe and Ajayi, 2010: 356). It is easier for agricultural extension agents to work with farmers in a group and peer learning facilitate easy understanding of expected practices and adoption of new technologies to improve food production.

Production groups were successful in capturing some form of external assistance, particularly training. Groups received training from MiDA on record keeping, business management, business proposal writing, loan applications, and conflict resolution. In several cases, groups received packages from MiDA that included fertilizer, seeds, rubber boots, and spraying masks. Some groups received training from MoFA's extension agents on modern farming methods. MoFA or MiDA provided fertilizers free of charge or at a subsidized rate (Salifu et al., 2012:7).

Most FBOs suggested that their members received more training from agricultural extension agents (AEAs) than farmers who do not belong to FBOs because AEAs specifically target FBOs. FBOs that are into group farming claimed that the training received from AEAs had a positive effect on their productivity. Members of a vegetable growers association, for example, reported that they were able to double their output per acre (from four to eight bags) because of the training they received through the FBO (Salifu et al., 2012:7).

Selling in markets with food safety standards requires considerable market knowledge and FBOs need to be able to work with other agents who can provide appropriate expertise (Narrod et al., 2009:14). Similarly, thus, farmers in a group minimize their costs through bulk purchase of inputs or joint hiring of technical experts and clerks who facilitate compliance. The technical expert keeps records for all members on investment, date of pesticides used, and occasionally conducts field visits with an exporter's agronomist. Some producer organisations also hire a team of expert pesticide applicators, again paid for by farmers as a group. Further, through producer organisations, smallholders jointly make investments, such as cold storage and grading facilities, toilets and pesticide storage units (Narrod et al., 2009:13). Farmer-based organisations members play vital roles in improving food security by taking vital initiatives that boost up quality food production by its members.

2.5.4 Processing of Farm Produce

Farmer-based organisations in most cases are too small and therefore, lack the capacity to put their processing equipment into full use. This implies that non-members have the option to rent the equipment at a fee (Salifu et al., 2012:8). This is common among FBOs that are into food crop production but with the intention of adding value to their farm produce.

Farmers who have organized themselves for collective processing often come together to receive processing equipment for processing of farm produces. Collective processing takes different forms and groups benefit in different ways. Some come together to fill bulk orders and others to reduce transaction costs or reach a market where they could sell at a premium price of higher quality products. Markets for many products offer premium prices for delivery of large

quantities of superior quality. While there is some collective processing, the primary collective action of the group is marketing bulk orders to capture higher prices (Salifu et al., 2012:5). Some FBOs process their produce with the aim of earning better profit from the farm produce; such FBOs are not necessarily processing FBOs but an activity undertaken by production FBO to improve their earnings.

FBOs may also pool resources to buy necessary inputs, whether for processing or for crop production. It is difficult for individuals to raise enough capital for purchasing and transporting raw materials such as oil palm fruit, paddy rice, shea nuts from farm gate for processing. Purchasing inputs for processing together allows members to save on the costs of transportation. Additionally, some groups indicated that, although collectively procuring farm inputs did not necessarily save them money, they still preferred purchasing collectively to take advantage of the knowledge within the group as to what fertilizer or other commercial inputs would be most suitable for their needs (Salifu et al., 2012:5).

2.5.5 Group Monitoring of Farms

As part of the reorganisation in Kenya in the late 1990s, the FBOs were reduced in size to fewer than 30 members per group (from as many as 350 farmers), primarily to facilitate monitoring. The purpose for the reduction is to facilitate comprehension on food safety training. This will improve quality of FBOs farm produce (Narrod et al., 2009:13). Group monitoring promotes participation and transparency in the farmer-based organisations that contribute to effective performance of such organisations. However, many groups lack strong monitoring and evaluation component, which would analyse the extent of progress and achievement of objectives to enable them plan effectively (Lung'ahi, 2012:28).

Lack of participatory monitoring and evaluation of the activities of farmer-based organisation breed corrupt practices and mismanagement of organisational resources in FBOs.

2.6 Farmer-Based Organisations Effects on Natural Environment

A key challenge facing the international community as well as local institutions and farming communities is how to ensure food security for the present and future generations, while protecting natural resource base on which they depend (Garrity and Stapleton 2011:8)..Integrating the food security agenda with the agendas for climate action and ecosystem restoration are very important for agriculture and human development. The greatest driver of land use and management change in the coming decades would be certainly climate response. (Scherr et al., 2011:8). Trees planted by members of FBOs for economic benefits may also serve as habitat for some living organisms and for improving the environment for human existence.

2.6.1 Conservation and Management of Natural Environment

Smallholder associations have developed in order to manage natural resources. These forms of associations do not necessarily have a commercial focus but market natural resource products and manage environmental (Poole and Frece, 2010:73-74). Members of farmer -based organisation undertake the cultivation of certain tree crops that have varied importance to the natural environment.

Farmer-based organisations have established tree nursery and are involved in tree planting, soil and water conservation activities. In addition, they promote the use of biogas technology as an alternative fuel for domestic use. (Kiwazi, 2012:23).

The group activities help in conserving land and water bodies for sustainable agricultural production.

Farmers in many parts of the world are enthusiastically incorporating trees into their landscapes as the benefits of doing so become clear. Data from the Food and Agricultural Organisation show that the number of trees on farms is increasing, even as the amount of forest is decreasing. The benefits of "fertilizer trees" for land regeneration, soil health and food security; fruit trees for nutrition; fodder trees that improve the production of smallholder's livestock… and medicinal trees that combat diseases. Agro-forestry provide many livelihood benefits and environmental benefits, increasing assets of poor households with farm-grown trees, enhancing soil fertility and livestock production on the farms and linking poor households to markets for high-value fruits, oil, cash crops and medicines (Garrity and Stapleton, 2011:8). Most farmer-based organisations rely on external support to undertake tree crop cultivation. However, individual members of FBOs undertake the cultivation of tree crops that provide benefits such as improving soil fertility, income, reduction of crop destruction by windstorm.

2.6.2 Negative Activities of FBOs on Natural Environment

The direct application of herbicides and insecticides is exclusively an activity for only men in Volta and Northern Regions. Women were scarcely involved in spraying chemicals and instead carried water for the group's activities or prepare meals. Women FBOs even hire weedicide applicators for their farming activities. (Salifu et al., 2012:6). This Almost all FBOs used agro chemicals in their cultivation of food crops. The use of chemicals such as weedicide and other poisonous chemicals kills macro and micro organisms that facilitate decomposition of organic matter in soil. The FBOs members use more

agrochemical than non-FBO members because of expansion in farms size with the intension of increasing production out.

The tendency of FBOs to link to external actors is very high due to the environmental risk they are facing, their affiliation with umbrella or national-level organisations, and the size of their membership are influence by the risk element. The more risky the environment, the more likely FBO has external linkages, which may reflect risk-coping and management strategies. FBOs that form part of umbrella or higher-level organisations are more likely to interact and link with other stakeholders, NGOs, and donors than those that are not members. As the size of an RPO increases, the likelihood of interaction with other organisations and stakeholders increases. This may be because of greater membership linkages or better organizational capacity (Ragasa and Golan, 2012:19

2.6.3 The Regulatory Environment

Governments have a specific role to play in establishing and enforcing an appropriate legislative environment to assist in proper development of farmer organisations. Without government support, farmer organisations are prone to interference, which may inhibit their development because of insufficient protection from dishonest or incompetent managers, leaders, or business partners. A critical role for government may be in support for an independent, transparent, and clearly defined system for auditing FBOs (Chirwa et al., 2005:6). Vibrant FBO at the national level influences policies that affect all farmer-based organisations, hence there is both forward and backward linkages between farmer-based organisations and policy decisions taken by government.

Exclusion of poor people from environmentally sensitive areas and regulation of anthropogenic disturbance has been the common approach of governments to resource management. This approach has largely failed and new approaches are on devolving responsibility back to local communities. Community-based natural resource management (CBNRM) is a collective institutional innovation to common pool resources such as land, forest, water, wildlife, fisheries, biodiversity and the economic and ecological systems related to these resources. Community-based management initiatives may be a local response to threats and opportunities and as such are rooted in cooperative economic organisation at the community level. (Poole and Frece, 2010:74). Farmer-based organisations are mostly located in rural areas and their members activities are in connection with natural environment. This means that FBOs activities are relevant for proper protection and management of natural environment.

2.7 General Performance of FBOs

Farmer-based organisation provide services to their members such as: information, facilitating access to inputs and market, credit, support for storage, and processing and marketing services (Rondot and Collion, 2001:2). In a similar view, a wide range of services provided by farmer -based organisation include: marketing services (input supply, output marketing and processing, marketing information), facilitation of collective production activities, financial services (savings, loans and other form of credit) and technology services (education, extension, research). Similarly, education services (business skills, health) , welfare services (health, safety nets), policy advocacy and managing common property resources (water, pasture, fisheries, forests) are some of the services provided by farmer-based organisations (Stockbridge et al., 2003:2).

The provision of processing equipment to FBOs had a significant effect in terms of value addition to agricultural production (AgSSIP 2007c as cited Salifu et al., 2010:8). Ragasa and Golan (2012: 6) used the following measures to indicate FBOs role-played in food production as whether the FBOs have facilitated or provided inputs, technical advice, training, information about agricultural production, marketing, credit, and processing of agricultural produce.

Moustiere (1998) identifies elements against which a farmer-based organisation needs to be evaluated in order to be declared successful as access to resources necessary for exchange to take place, agricultural inputs, labour, knowledge, running capital, credit, transport, storage, transformation, information, environmental risk, partners risk, negotiation power, and political weight (as cited in Tita, 2009:38). In terms of marketing, few FBO members collect and transport the produce to marketing centres to sell on behalf of the group (Salifu et al., 2012:6).

2.7.1 Effectiveness of Farmer-Based Organisations

Bernard et al. (2008) defines performance of farmer-based organisations as the "effectiveness of servicing their members," which they measure by the percentage of members who are said to have benefited from these organisations (as cited in Ragasa and Golan, 2012: 6). This indicates that performance is the ability of an FBO to render vital services to its members. However, poor performing FBO is unable to achieve a significant number of the set objectives.

In understanding what does and what does not work for farmer groups, a historical analysis can indicate areas of promise and areas of failure. In this regard, clearly, intervention has been a necessary factor in providing farmer-based organisations

with working capital, supporting management structures, improving marketing strategies, assisting with market linkages and facilitating legal frameworks. However, the capacity of external actors' intervention to benefit FBOs whilst offsetting the negative impacts of intervention has proven elusive (Poole and Frece, 2010:52). In a similar view, Shiferaw et al., (2006:24) found elections held, initial start-up capital and membership fees to be positively related to performance.

All FBOs are involved in agricultural production, although to varying extents, as one of their main activities. (Ragasa and Golan, 2012: 6). Cooperative support to its members leads to better performance in terms of price and quality of farm produce (Bijman and Hu, 2011:112).

2.7.2 Management of Farmer-Based Organisations

Many farmers' organisations are gaining more autonomy and increasing their economic and technical capacities. The combination of these processes has the effect of encouraging a re-think of the division of responsibilities between public sector research and extension bodies, farmers' organisations and civil society organisations such as international NGOs. The latter actors have taken on a bigger role in the financing and provision of services, while the public sector bodies have retreated to performing a smaller range of functions (quality control, provision of technical expertise) but they typically suffer from severe funding constraints limiting even these roles. FO's and other civil society organisations have taken on critical responsibilities once seen to be reserved for States – for example, provision of extension and research advice, community development support, direct provision of agricultural inputs etc. In this context, linkages between public

and private sector and civil society have become essential to ensure farmers have access to agricultural services (Hussein, 1999:11).

Millennium Development Authority worked with selected FBOs to enhance the technical and commercial skills of their members, simultaneously using the FBOs as platforms to supply farm inputs and facilitate access to credit (Salifu et al., 2012:6).

Management and organizational training among FBOs' key officials is important strategy for supporting FBOs (Ragasa and Golan, 2012: 22). Improving the organisations' governance and management capacities as well as increasing the interaction with external organisations, such as service providers, donors, or governmental agencies, seems to have a positive effect on FBOs performance, whereas negative external events, such as conflict incidences, seem to hamper FBOs performance (Ragasa and Golan, 2012: 1).

Leaders may be appointed by group members or simply appoint themselves. People who played key roles in a groups' formation often appoint themselves as leaders and no conduct of elections in those organisations. These leaders are to serve for a fixed term (usually 2 to 4 years). Majority of leaders offer services without any compensation (Salifu et al., 2012:9).

The most common trainings received by groups were in agricultural practices, bookkeeping, and leadership. Given the generally successful management in most FBOs, leadership training in particular may not be a high priority. Training that goes beyond bookkeeping and focuses on business skills, such as future projections, profit and loss analysis, and entrepreneurial skills, may be more beneficial. Farmer-based organisations may give much attention to collective

activities because it is generally determined by what individual members do on their farms as a result may not consider collective farming as economically feasible (Salifu et al., 2012: 13).

Generally, leaders of FBOs perform variety of functions, such as recruiting new members, motivating individual members to invest in collective efforts, attending external meetings on behalf of the group, finding buyers and negotiating prices for members, and enforcing rules and regulations in the group (Salifu et al., 2012:9).

Strengthening the capacities of farmers' organisations is a pre-requisite for a balance and productive partnerships between research and farmers' organisations. It is evident that initiatives to strengthen farmers' organisations must be based on a secure socio-political and legal context, where there is guaranteed freedom of association and legislation explicitly recognising the economic and social roles of FO's (Hussein, 1999:12). Similarly, producer organisations need an effective communication program to access external information, circulate information to members and to other POs, and access national and international market and policy information sources (Rondot and Collion, 2001:5).

Fundamentally, FOs services provided to their members must be continues and of much importance to the growth and development of the organisation. These services should not be accessible to members from other sources on similar terms, nor should the FBOs offer them to non-members on the same terms as to members. The managerial (complexity) and resources demands of the services provided should also be within the capacity and competence of FBOs. Thus, FBOs should not try to provide too many services, nor services that are very demanding of technical, managerial or financial resources - otherwise they may

become over-extended and unable to sustain effective and timely services at an attractive price (Chirwa et al., 2005:4). Building strong relationships between high level management of farmer-based organisations and its membership can promote greater accountability and transparency, necessary to ensure that associations deliver their designated mandates (FAO, 2010:6), which in effect help reduce corruption and mismanagement in FBOs.

An effective FBO should therefore have an operational bank account, registered formally with the Department of Cooperatives and have functional byelaws. Leaders of an effective group treat members equally and members make financial commitments to the group through payment of monthly dues. An FBO should therefore be able to link its members to structured markets, credit facilities and extension services (Etwire et al., 2013:42). FBOs seek to increase economic and social empowerment through scale: lower costs, increased bargaining power in the market, democratic decision-making rights, access to political and legal arenas, and access to services (Poole and Frece, 2010:71).

2.7.3 Economies of Scale

Most farmer-based organisation members who are into production do not engage themselves in collective production process, as a result could not undertake commercial production to meet market demands, which eventually worsen their living conditions. Similarly, small-scale farmers mainly aim at increasing production and food self-sufficiency, rather than producing for the market and profit making. This problem exists partly because different departments outside agricultural extension are responsible for marketing, processing, and value addition of farm produce (Lung'ahi, 2012:28). Farmer-based organisation

members are able to expand their production when they pool resources together with the aim of making supper normal profit.

The United State Overseas Cooperative Development Council (2009), argues that to be effective, cooperatives need sound business practices, strong membership participation, support of an efficient apex organization(s) that provide oversight and services, facilitating economic and legal environment (OCDC, 2009: 15-16). In addition, Rural Producer Organisations (RPOs) are effective tools for solving problems in rural areas and promoting agricultural development (Ragasa and Golan, 2012: 1).

Similarly, working together as a group is thus important for FOs performance. In order for group efforts to succeed, incentives must be in place that motivate actors to work collectively towards similar goals. The collective action problem is to ensure that individual efforts gear towards increasing collective rural welfare. Such group dynamics are not intrinsic to FBO setting, but based on group relationships within the organisation, as well as interactions with the external environment in which the group operates. Organisational variables are particularly important because they help to define the parameters within which interactions between staff and farmer-members take place. Different organisational structures and processes foster different rules and norms based relationships, generating principal/agent relationships of varying degrees of effectiveness (Burmeister et al., 2001:15-16).

2.7.4 External Linkage and Support

Group farming is a means for members to receive support from external agencies. This may be a response to strategies employed by various development programs,

since majority of FBOs are with the impression that they needed to be registered, have a bank account, and meet regularly in order to receive any support from external agencies (Salifu et al., 2012:5). Similarly, farmer associations or unions perform a representative role, lobby on behalf of members and represent their members' interests in negotiations with government, donors, or the private sector (Rondot and Collion, 2001:2) which serve as the collective voice for smallholder farmers.

The role of governments in directly supporting the establishment of FOs is contentious. The difficulties that most African FOs have in accessing seasonal finance and providing member services outside of the restricted crops and regulatory systems. Contract farming and other interlocking systems work suggests that some degree of government involvement in supply chain coordination for FOs is important (Chirwa et al., 2005:6). Donor participation is critical, but donor ideology has also influenced the choice of organisational forms and marketing interventions. Donor policies and projects are being influence by pragmatic considerations on aid dispensation, targets met, and supporters satisfied. (Poole and Frece, 2010:14).

The partner agency (PA) interventions attempted to improve the marketing performance of smallholder farmer groups by providing group strengthening and marketing skills training, and where possible, linking these farmer groups to other market chain actors. At the heart of this intervention is the PA's attempt to create a culture of entrepreneurship. This involves training farmers to be more business-oriented, to think of their crops as commodities, and to organize group activities as business enterprises, while urging the farmer groups to become less risk adverse (Barham and Chitemi, 2009:59).

Farmers' organisations find it difficult to access points on agricultural service and supply chains. Even so, FOs have increase opportunities to engage in significant partnerships with public and private sector actors and improving service delivery to their members by: Providing extension services to farmers and organising the purchase of inputs and sale of products. Farmer-based organisations represent the interests and collective voice of farmers in key policy debates and processes. They provide primary production, processing, and marketing of agricultural products, or related services. In addition, FBOs introduce farmers to global value chains (now often dominated by large-scale producers) through contract farming arrangements. FBOs offer extension solutions such as farmer-to-farmer training and possible new entry points for farmers to access markets (Thompson et al., 2009:2).

External players such as NGOs and donors have played a significant role in promoting local enterprises as poverty alleviation programmes. However, externally driven organisations have usually met with failure. At the same time, internally driven enterprises have suffered from lack of funds and inadequate capacity. A role exists for external actors in the development of rural community enterprises, but issues of dependence, governance, and ownership for these partnerships to succeed is important in the long term (Poole and Frece, 2010:72).

The aim of forming many FBOs is to receive free goods or services from development programs, especially among groups engaged in collective production. (Salifu et al., 2012:4). Access to training and other external resources are primary benefits of group membership (Salifu et al., 2012:5). Multi-stakeholder interventions are necessary for the formation of social, economic and organisational capital such as efficient farmer associations (Poole and Frece, 2010:14). Similarly, Wilhemina et al., (2010:98) based on their "empirical

evidence show that strong Farmer-Based Organisations (FBOs) are able to access credit, farm inputs, extension services and markets effectively" for their members.

Farmer organisations may operate at national and/or local levels, and may fulfil many functions such as: advocating and lobbying for political rights; representation on advisory bodies (e.g. district councils); providing technical or economic services (e.g. providing input or product) and marketing for access (to local and national markets) to their members. Also, providing support for local development initiatives (Wennink and Heemskerk, 2006:28).

Farmer-based organisations initiated by members are more effective in working together to achieve their objectives than those initiated by outsiders, because they are self-driven. However, the distinction between the two is blurring as many farmers organize themselves in order to access free goods and services from government and other developmental organisations. The motivation behind the formation of an FBO seems to be a better predictor of FBO effectiveness than who started the group. Farmers organize themselves into FBOs primarily to improve their chances of receiving training, grants, and loans (Salifu et al., 2012: 12).

The most important reason to create or participate in FBOs and agri–coops in Ghana is to gain access to external support from either governmental organisations or NGOs. Largely, FBOs are conveyor belts for loans, grants, investments, and training (Salifu et al., 2010:16).

What makes farmer-based organisation successful? Three factors stand out: first, its multifunctional activities, providing credit, training and technological advancement to farmers, second, its strong transparent institutional structure

which keeps its commercial and social objectives separate, third, its activism in seeking external markets. However, few grassroots associations of smallholder farmers can become commercial learning organisations without external support. Farmer-level associations and higher tiers of cooperative organisations need to be subject to external scrutiny for accountability and performance purposes. The poorest smallholders are not part in and/or management of commercially oriented collective organisations (Poole and Frece, 2010:76-78).

2.7.5 Access to Credit by FBO Members

Millennium Development Authority worked with selected FBOs to enhance the technical and commercial skills of their members, simultaneously using the FBOs as platforms to supply farm inputs and facilitate access to credit (Salifu et al., 2012:6). In addition, MoFA strengthened capacity of FBOs that facilitated delivery of financial services to their members (MoFA, 2007).

Farmer-based organisations use a combination of savings from membership dues, profits from the previous season, and ad hoc contributions from members to buy the necessary inputs and services for collective farming. The decision of how much to produce is typically limited by the amount of money members contribute at the beginning of a season (Salifu et al., 2012:6) and the available resources in stock determine the sought of productive activities they should undertake.

Similarly, sustainability of cooperatives largely depends on both the income-generating capacity of production and marketing chains and the management capacity of the cooperatives (Fane et al., 2006: 66). Ragasa and Golan (2012:17) stated that management training has a positive effect on performance and increases the probability of the RPO's providing advice and marketing to its

members. RPO performance is not systematically different from those that are located far from or close to urban areas and large markets. Membership commitment has strong influence on performance. Awareness creation among RPO members and management on the importance of financial contributions and capacity building are important strategies for FBO development (Ragasa and Golan, 2012:21-22).

Farmer-based organisations interested in economic activities look to the profits from the activities as a primary or supplementary source of income. Farmer-based organisations formed with the aim to capture resources are likely to respond quickly to government and NGO intervention strategies. Farmers have been pre informed that they have a better chance of receiving training and aid if they are in a group. Consequently, there has been a dramatic rise in the number of FBOs, though many of them fail to thrive after group formation. The evidence suggests that it is unreasonable to expect these FBOs to evolve into sustainable profit-generating collective organisations (Salifu et al., 2012: 12). However, the income generating capacity and sustainability of the FBOs depend on the collective objective(s), business practice, and the style of leadership adopted after the formation of the organisation. Hence, based on the prevailing conditions, organisations may transform from grass to grace.

Cooperatives and rural associations are now resurgent business forms in Africa. Farmer organisations offer a way to exploit the potential of collective action in order to access markets more effectively. Farmer organisations to take advantage of organisational opportunities to overcome financial (cash and investment) constraints, information asymmetries, and exploit scale economies in production and marketing farm produce (Poole Frece, 2010:13). The existence of a profit-

sharing scheme appears to be a key determinant in whether or not group production is a business or a resource-generating activity (Salifu et al., 2012:7).

2.7.6 Marketing Services

Collective marketing includes the marketing of the collective produce of an FBO, marketing individuals' produce through an FBO, or when an FBO engages in trade as a business. While their focus is much more revenue-oriented than the production and processing groups, the marketing FBOs were also quite successful in capturing assistance. Each of the groups has received substantial training benefits from government or NGO sources. Most were able to secure loans, either for the group or for individual members, at the beginning of their operations. External institutions are more likely to give assistance to profitable activities, as the risk of default is much lower. However, interest rates are too high for collective marketing activity to be profitable using credit (Salifu et al., 2012:8-9). However, there are certain projects implemented by government and development partners that target specifically production oriented FBOs.

Two main reasons why members of FBOs engaged in marketing are first, to minimize the cost of transportation; and second, to give members of the group collective bargaining power. With this form of marketing, members of an FBO do not necessarily engage in collective production or agro-processing but only decide to use a common means to transport their product to market centres. In most cases, one or two members accompany the product to sell on behalf of the group (Asibey-Bonsu, 2012:25).

Farmer organisations marketing services require not only technical knowledge related to storage and transportation on the part of staff, but also the time-specific

and place-specific local knowledge of the commodities that they sell. The scientific information and administrative skills of FO staff about extension and credit services are important to the utilisation of such services by farmer-members, to generate efficiency gains through economies of scale (Burmeister et al., 2001:15).

Selling in markets with food safety standards requires considerable market knowledge. Farmers' groups need to be able to work with other agents who can provide appropriate expertise with the intention of making maximum profit from the farming activities (Narrod et al., 2009:14). This implies that some FBOs come together to reduce transaction costs or reach a market within which they can sell at a premium price produce of higher quality. Markets for many products offer premium prices for delivery of large quantities of superior quality (Salifu et al., 2012:5).

2.7.7 Collective Labour and Welfare Services

FBOs in Ghana are involved in a wide range of collective activities, often engaging in more than one activity at a time. Common collective activities include production, processing, marketing, input procurement, and community development, in addition to activities that have long been practice by groups in Ghanaian rural society, such as internal credit schemes, mutual labour support and welfare services. Both welfare services and labour pooling have roots in pre-colonial Ghanaian society. Farmer-based organisations are engage in mutual labour support and nearly half offer welfare services to their members. Often, members of FBO will have a timetable in place so that all members of the group benefit from labour support on their farms. Weeding is the most common activity for which members pool labour. Welfare services include in-kind or monetary

contributions to meet costs of health care, school fees, or other important social activities (Salifu et al., 2012:3-4).

Group cohesion and team spirit are the basis for successful collective action and cooperation among members of farmer-based organisations. In terms of collective activities, the majority of FBOs were involved in labour exchange (*nnoboa*) or rotating credit schemes (*susu*). In addition to these traditional collective activities, many FBOs also report involvement in collective farming, collective input procurement and output processing and commercialization, community work (village upkeep and infrastructure development), and external credit attainment (Francesconi and wouterse, 2011:9).

2.8 Challenges Facing Farmer-Based Organisations

Historically, extension workers initiate formation of farmer-based organisations but often did not train them properly. As result, many FBOs disintegrate just few years after the formation (Lung'ahi, 2012:27). The challenges facing FOs and the principles for FO tasks, services, establishment, and governance have a number of implications for external support and policy. The challenge is to deliver such support or subsidy in a way that is least distorting to member-focused FBO development (Chirwa et al., 2005:5).

Since the first organised cooperatives, regular theme continue to challenge the operation and success of farmers groups such as lack of capital to grow in scale and complexity, particularly investment in physical assets for value addition through processing and manufacturing (Poole and frece, 2010: 52). Farmer-based organisations that are into farming did not have adequate resources to enable them expand their farms in order to increase output and benefit from the industry.

Farmers' organisations cannot access affordable production inputs such as finance, technology, land, water, and limited access to markets (Lung'ahi, 2012:28). Similarly, Formal farmers' organisations had challenges in terms of difficulties with both raising and controlling finances (Carney, 1996:3). Farmer organisations that do not have access to diverse sources of income and capacity-building support tend to be weak and unable to influence powerful actors with the needs of their members (Hussein, 1999: 2).

Members of farmer-based organisations lack basic literacy, business skills and experience this may provide opportunities for local elites to capture the organisation and allow leaders to misuse FO resources (Chirwa et al., 2005:3). Leadership skills are usually limited in rural Africa, FBOs and agri–coops have no other choice than to stay small and homogeneous (Salifu et al., 2010:18).

Farmer-based organisations and Cooperative organisations typically face a period of growth and good performance. This inevitably increases the likelihood of disagreement, tension, and conflict among members. (Francesconi and Wouterse, 2011:6; Kiwazi, 2012:24). In addition, limited incidence of collective action is major problem faced by FBOs, which relate to barriers on access to external credit, equipment and inputs, and problems of internal cohesion such as tension, disagreement, and eventually conflict among members or between members. Access problems are far more common than cohesion problems among Ghanaian FBOs (Francesconi and wouterse, 2011:9). Cohesion problems are unavoidable and it could collapse farmer-based organisation when not managed properly. The internal conflict becomes serious when individual members of the organisation fight for their own interest that is not consisted with their collective interest.

Conflicts of more recent years have greater effects than those of earlier years on RPO performance; and the number of conflict events per territory and per district affect FBO performance (Ragasa and Golan, 2012: 11). However, an effective FBO usually have minimal conflicts and characterized by a high level of cooperation and brotherliness among its membership. Group cohesion and dynamics are generally good in an effective FBO (Etwire et al., 2013:42). The gravity and the number of conflict events in an area influence the performance of farmer-based organization.

Many members of FBOs attribute their inability to repay loans to poor yields, which relates mainly to unfavourable weather conditions (Salifu et al., 2010:8). Agriculture is full of uncertainties in relation to the weather, pest evasion, and social issues that affect the performance of farmer-based organisations.

Chirwa et al., (2005:3) stated that farmer-based organisations operate with a number of challenges such as:

- Physical and natural difficulties in agricultural production (for example poor soils and uncertain rainfall),
- Poor infrastructure; poor health status and the effects of HIV/AIDS,
- Poor services (for example absent, late, poor quality and/or unreliable input and output markets),
- Unfavourable macro-economic environment,
- Low levels of wealth and economic activity,
- Low levels of literacy,
- Weak and often inappropriate institutional environment,
- Poor security,

- Traditional attitudes to business and business relations,
- Difficulties in separating FO leadership and management from politics,
- Inappropriate and/or poorly enforced regulations for FO governance.

Limited access and control to cultivatable land coupled with prohibitive prices of land and women's low income have been a major setback for farmer groups. Similarly, FBOs suffered from false promises from some of the funding partners who withdrew before completing what they had promised to do thereby demoralising group members (Kiwazi, 2012:24). Most important constraints to collective marketing are lack of credit, price variability and low volumes. In addition, lack of buyers and low business skills appear to be relatively important (shiferaw et al., 2006:28). Similarly, lack of innovation and market responsiveness, relatively low product quality and poor management of production contracts are some of the challenges faced by FBOs (Wilhemina et al., 2010:98).

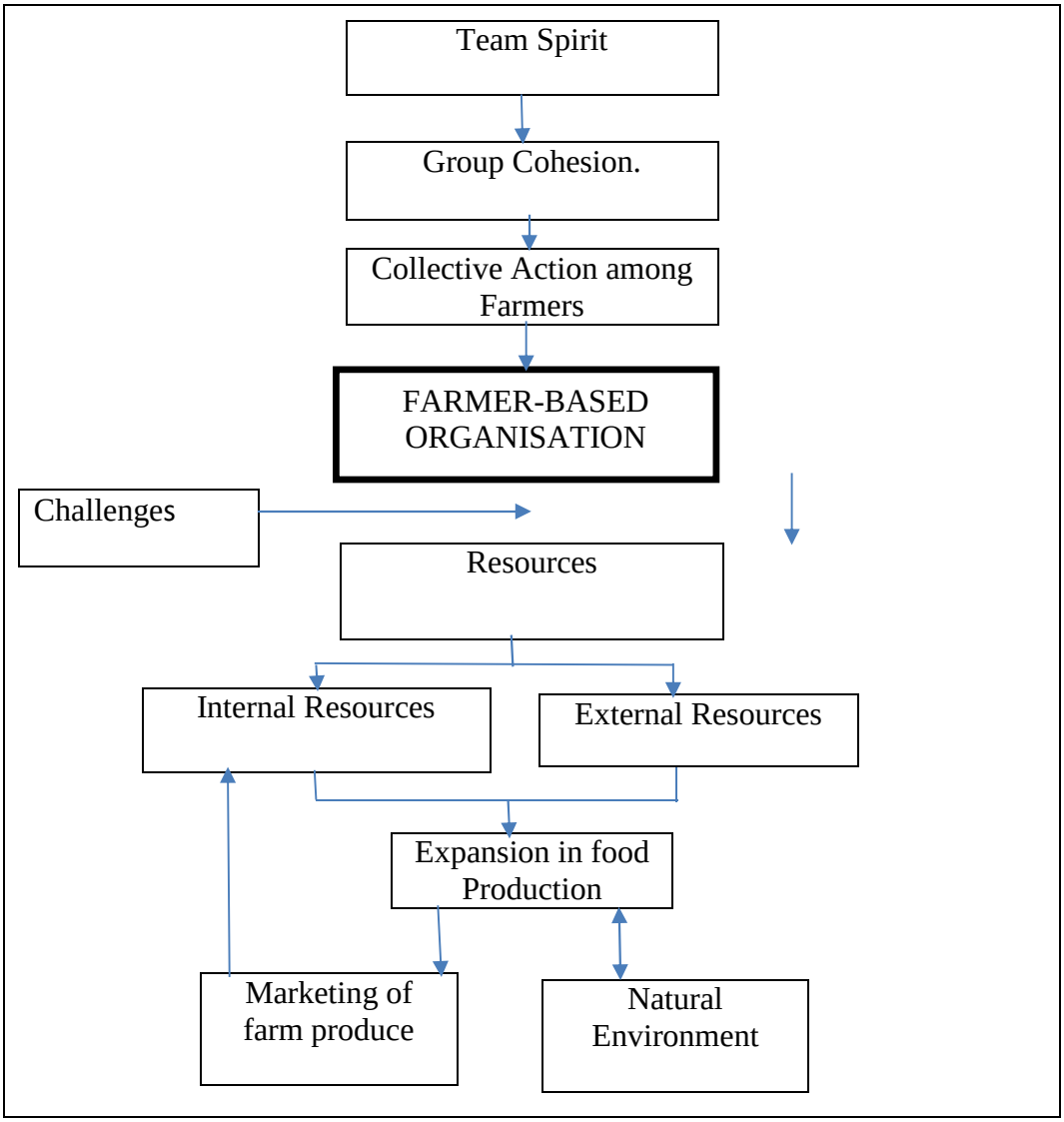
2.9 Conceptual (Theoretical) Framework

The cooperative model is the dominant form of farmer-based organisation. The underlying vision for all FBOs in Ghana is that they would fashioned well based on principles of cooperation such as self-help, self-responsibility, democracy, equality, equity, and solidarity (Asibey-Bonsu, 2012:29).

This model has evolved significantly in advanced economies through institutional innovation by exploiting flexible regulatory environment and innovative management structures created to overcome management weakness by introducing outside skills. In a similar view, FBOs are very prominent form of collective action in agriculture (Trebbin and Hassler 2012:417). Developments in

recent decades have also shown that, although FBOs have many problems, they are still the most relevant organisational forms for small and medium-scale farmers. They have shown resilience in periods of crisis and they have resisted the negative impacts of a rapidly changing environment (Pinto, 2009:3). The overarching incentive for farmers to organize themselves originates from the social and economic benefits that cooperation will generate for them (Salifu et al., 2012:3).

Figure 1 Cooperative Model for Farmer-Based Organisation



Author's own construct, 2015

Team spirit is the willingness of members of a farmer-based organisation that are ever ready to work together with devotion. Similarly, Group cohesion refers to the degree at which FBO members affiliate to one another and are motivated to remain in the group. (Joy et al., 2008:359). Group cohesion and team spirit are the basis for successful collective action and cooperation among members of farmer-based organisation.

Successful cooperation will depend on the potential that group action will improve the members' expected net benefit streams above and beyond what can be achieved without such collective action (Shiferaw et al., 2006:6). The most important reason to participate in FBOs in Ghana is to gain access to external support from either governmental organisations or NGOs (Salifu et al., 2010:16). The general expectation of FBO members is to receive quality services from their respective organisation on time to improve food production.

Farmer-based organisation mobilise resource from internal and external sources to increase farm size and for proper management of farms with the aim of increasing production output. The internal resources include labour, profits, land own by FBO, means of transport, among others and external resources include extension services, credit, fertilizer, seeds among others. FBOs activities affect natural environment both positive and negative ways. Activities that improve soil fertility reduces quantity of fertilizer required per field, hence reduction in cost of production and increases profits. However, if activities of FBOs have much negative effects on natural environment then it increases cost of production. The model further portray that FBOs sell farm produce to consumers and the income generated forms part of internal resources. This income could be plough back into

production of food. Some FBOs face serious challenges that makes them unable to mobilise any kind of resources to improve production and they may collapse because there is no special benefits for being part of such a farmer-based organisation.

CHAPTER THREE

RESEARCH METHODOLOGY

Research is a systematic application of procedures through carefully planned and executed stages of observations and analysis in an attempt to seek new answers to problems and to obtain additional information to enrich existing knowledge. To achieve the desired result, the study carried out a planned research process through all stages of the research study. A stage is devoted to specific aspect of the problem being investigated and a specific aspect of the method is utilised (Kumekpor, 2002:20).

The research took into consideration standards of work and ethical conduct imposed by law and guidelines of regulatory agencies especially University for Development Studies. This research work adhered to ethical principles of justice, veracity, and respect for people and their privacy and avoidance of harm to them as well as respect for non-human subject of research study (CCEIR, 2008:5-8). Similarly, as indicated on the survey instruments, that participation is voluntary in seeking respondents consent and that the researcher sought to protect their anonymity as well as treat the information provided with strict confidentiality (Tannor, 2011:67-68). Hence, the study took into consideration all the research principles to ensure the attainment of quality work.

The theoretical framework informed the research methodology for the study. The conceptual framework of the study directed the development of the research problem, goal and objectives, analyses and presentation of data. Hence, this part of the research work concerns the use of techniques, procedures, instruments, and tools to obtain accurate and reliable results and details are as follows:

3.1 Research Design

A research design is a process of outlining a set of activities for a research process. Similarly, a research design deals with conceptual model (framework) which is made of theoretical ideas that gives direction to the researcher as to what to do throughout the whole research process. According to Kumar (1996:74), "a research design is a procedural plan that is adopted by the researcher to answer questions validly, objectively, accurately and economically". A researcher must conceptualize the research problem and then put it into a (structural) perspective that will guide him in the data collection and analysis (Opoku, 2005: 12-14).

This research is design based on mixed method (both quantitative and qualitative approaches). Quantitative research designs involves gathering large amount of data on participants that would be generalised to cover the entire population and often associated with questionnaires or structured interview schedules (Tannor, 2011:44). Quantitative data are largely numerical, with statistical test for significance and/ or strength of association between variables. Hence, most data presentation are in the form of graphs or tables that summarize the findings of statistical tests. One of the goals of quantitative research is to produce reliable findings (Wolfer, 2007:484-486). Qualitative research design play an important role by suggesting possible relationships, causes, effects and even dynamic processes in a particular social setting (Osuala, 2007:175). The goal of qualitative research is to show intrinsic meaning of data. It focuses on how to make clearer understanding of subjective nature of human views, interactions, and social experiences (Wolfer, 2007:485).

The study employed explanatory sequential mixed method and is a form of mixed methods design in which the researcher first conducts quantitative research,

analyzes the results and then builds on the results to explain them in more detail with qualitative research. It is explanatory because the initial quantitative data results explain further with qualitative data. It is sequential because the initial quantitative phase comes first before the qualitative phase (Creswell, 2014:14). There is more than one gate to the kingdom of knowledge. Each gate offers a different perspective but no perspective exhaust the realm of 'reality' (Osuala, 2007:170). In practice, Qualitative and quantitative research designs appear to be opposite from philosophies, yet both are legitimate tools of research and can supplement each other by providing alternative insights into human behaviour. The choice of the design is contingent on an informed understanding of suitability of that method for this research (Osuala, 2007:176).

3.2 Scope of the Study

The scope of the study is in two parts, the first part focuses on the geographical area for the research work, especially the profile of Northern Region and any information in the area that has bearing on the research work. The second aspect is on the conceptual scope of the study.

3.2.1 Geographical Scope

3.2.1.1 Historical Development of the Region

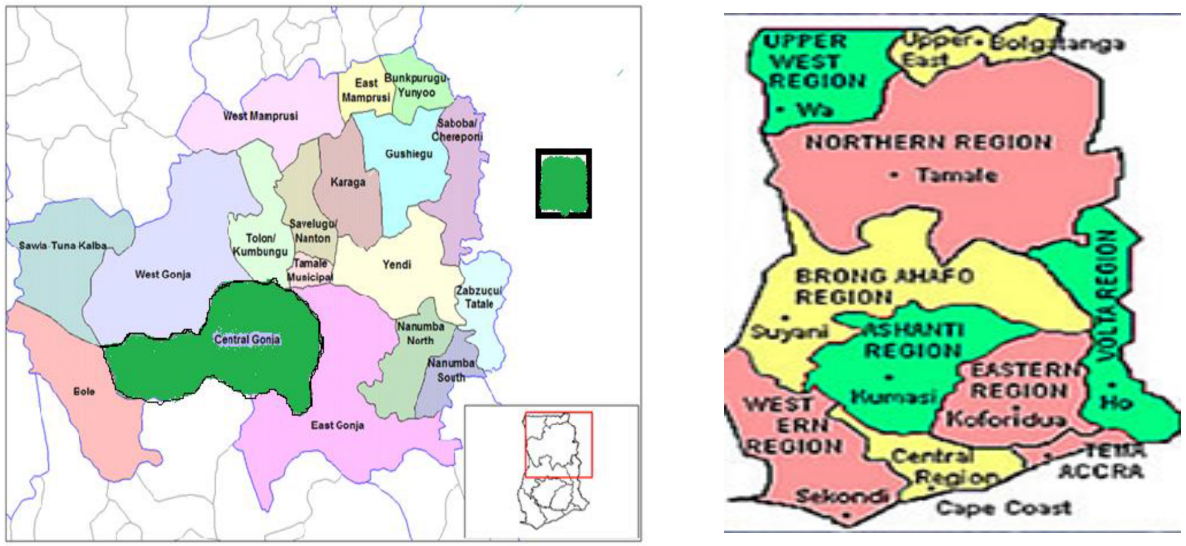
The history of the Northern Region as part of the modern state of Ghana started with the push into the interior by British soldiers garrisoned in the coastal forts and castles. According to Bening (1999), the Coussey Committee in 1949 recommended that the Protectorate of the Northern Territories, a portion of Northern Section of Togoland and beyond the Krachi District should constitute one region. This was because of the intimate connections between the peoples of

the two areas, the recommendation was implemented in 1952 with the attainment of political independence; the Protectorate and the Northern Section of Togoland became part of the Northern Region of Ghana in March 1957. In 1960, the government carved Upper Region out of the Northern Region (GSS, 2013:1).

3.2.1.2 Physical Features

The Northern Region, which occupies an area of about 70,384 square kilometres, is the largest region in Ghana in terms of land mass. It shares boundaries with the Upper East and the Upper West Regions to the north, the Brong Ahafo and the Volta Regions to the south, Togo to the East, and Côte d'Ivoire to the West. The land is mostly low lying except in the North-Eastern corner and the western corridor of the Region. The Region has the Black and White Volta Rivers as the main rivers and their tributaries such as the Nasia and Daka rivers (GSS, 2013:1).

Figure 2 Map of the Northern Region and its districts and Map of Ghana with regional boundaries



Source: GSS, (2013)- 2010 population and Housing from Ghana District Repository

The climate of the region is relatively dry, with a single rainy season that begins in May and ends in October. The amount of rainfall recorded annually varies between 750 millimetres and 1,050 millimetres. The dry season starts in November and ends in March/April with maximum temperatures occurring towards the end of the dry season (March-April) and minimum temperatures in December and January. The harmattan winds, which occur from December to early February, have a considerable effect on temperatures in the region. The temperature vary between 14ºC at night and 40ºC during the day. Humidity is very low, aggravating the effect of the daytime heat. The harsh climatic conditions adversely affect economic activity in the region and in the health sector, it enable cerebrospinal meningitis to thrive to almost endemic proportions. The region also falls in the onchocerciasis zone. Even though the disease is currently under control, a vast area is still under populated and under-cultivated due to past ravages of river blindness. The main vegetation is grassland, interspersed with guinea savannah woodland, characterised by drought-resistant trees such as acacia, (*Acacia longifolia*), mango (*Mangifera*), baobab (*Adansoniadigitata*Linn), shea nut (*Vitellariaparadoxa),* dawadawa, *and* neem *(Azadirachtaindica)* (GSS, 2013:1).

3.2.1.3 Political and Administrative Structure

The main administrative structure in the region is the Regional Coordinating Council (RCC), headed by the Regional Minister, who is also the Chairman of the Regional Security Council (REGSEC). Other members of the RCC include the Regional Coordinating Director, District Chief Executives, and presiding members of the District Assemblies, and two representatives from the Regional House of Chiefs. All heads of decentralised departments are *ex-officio* members of

the RCC. The Regional Coordinating Director is the Secretary to the Council. Prior to 2012, the region had twenty (26) districts (Ghana District Repository, accessed in June, 2014).

3.2.1.4 Population Size and Growth

Northern Region has a total population of 2,479,461 in 2010 with more females (1,249,574) than males (1,229,887). The population of the region increased by 36.2 percent between 2000 and 2010, making it the fastest growing region in the country after the Central (38.1 %) and Greater Accra (38.0 %) regions (GSS, 2013:24). Most of the people in the region engage themselves in food crop farming to feed the region and the nation as a whole.

3.2.1.5 Education and Literacy

The bedrock of every developing society is to have a continuous system of constant training and instruction for the development of the mind and character of its inhabitants. In general, education contributes to the process of moulding attitudinal skills and developing technical skills and increases the ability to understand and respond to new ideas. Education can be formal or non-formal but both play equal roles in the upbringing of an individual and the development of the nation as a whole. Every government has a key policy of providing adequate resources and an environment that is safe for learning and training its future human resources (GSS, 2013:53). The region as a whole has 62.5 percent of the population not being literate in any language (GSS, 2013:53). Literacy, which is low (37.5%) in the region, varies from district to district and is lower for females than for males in all districts. Apart from Tamale Metropolis, the proportion of non-literate population is higher for rural localities as compared to urban localities

(GSS, 2013:110). Since most people in the Region area illiterate, then this may reflect in the composition of membership of farmer-based organisation.

3.2.1.6 Occupation and Industry

The major occupation of employed persons in the region is skilled agricultural, forestry and fishery workers who constitute almost 74.0 percent, followed by craft and related workers, at 8.1 percent (GSS, 2013:66). Agriculture is a very important economic activity in Ghana, employing about 60 percent of the economically active population. Households are engaged in various agriculture activities, such as; crops cultivation and trees grown, type of cropping and acreages, type of livestock reared and fish farming (GSS,2013:80). The specific crops that they produce include yam, maize, millet, guinea corn, rice, groundnuts, beans, soya beans and cowpea. At Gushie in the Savelugu-Nanton District, there is a large plantation of grafted mangoes cultivated by out-growers. Bontanga in the Tolon-Kumbungu District has a big irrigation dam where farmers engage in large-scale rice cultivation during the dry season (GSS, 2013:5).The 2010 census found that a total of 2,503,006 households in Ghana are engaged in agriculture, of which 240,238 households are in the Northern Region. This constitutes 9.6 percent of the national total. The Northern Region's average agricultural household size is 8.5 compared with a national average of 5.3 persons. In contrast to a national average of 10.3 households involved in agriculture with 10 or more members, the Northern Region has 10 or more members in 33.6 percent of agricultural households (GSS, 2013:80). The dominant occupations in Tamale Metropolis are services and sales workers (30.7%) and craft and related trades workers (21.7%), followed by agriculture, then professionals (9.3%) and elementary occupations (7.7%) (GSS, 2013:66). All the districts in the region

have major marketing centres where there is serious trading in agricultural produce and other commodities and Tamale market is the most patronize market in the region.

3.2.2 Conceptual Scope

The study examined the determinants of farmer-based organisation performance, socio-demographic characteristics of farmer-based organisations, contributions of farmer-based organisations to food production, the effects of farmer-based organisation on the natural environment and the challenges facing farmer-based organisations.

3.2.2.1 Population

Population or universe of investigation is the total number of all units of the phenomenon that exists in the area of investigation, i.e., "all possible observations of the same kind" (Kumekpor, 2002:131-132). Population is the entire set of study elements however study population is the population from which the elements were actually selected (Wolfer, 2007: 173-174). The study population consist of farmer-based organisation in the Northern Region of Ghana.

3.2.2.2 Sampling Size

Sampling size is the number of sample units or units of analysis constituting a sample (Kumekpor, 2002: 135). Similarly, Al-hassan (2015:58-59) explained that the calculation of sample size using a formula is as follows:

$$S = \frac{X^2 NP(1-P)}{d^2(N-1)+X^2 P(1-P)}$$

Where

S= Required Sample Size

X^2 = The table value of chi-square for 1 degree of freedom at the desired confidence level

N= Population size

P= Proportion of population (assumed to be 0.50 since this would provide the maximum size). Population for the study is the farmer-based organisation

d= the degree of accuracy expressed as a proportion (0.05). This means desired margin of error that express as a proportion.

The study used Krejcie and Morgan, (1970), sample size determination table to select the sample size for FBOs in Northern Region. This implies that out of about 460 FBOs in Region, the corresponding sample size is 210 FBOs.

3.2.2.3 Sampling

Sampling according to Kumar (1996:148) "is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting a fact, situation, or outcome regarding the bigger group". In addition, the main interest in sampling is to extend the result of analysis based on the sample to the universe from which the sample was drawn. It is clear that units of a sample must be representative of the units of the universe (Kumekpor, 2002:132-133). According to Al-hassan (2015:37), "sampling is about using some elements of a population for an experiment with the aim of drawing conclusions relevant to the entire population". Sample consists of the proportion of the number of units selected for investigation (Kumekpor, 2002:132). Sampling of Farmer-based organisations is to enable the study of the entire FBO population within the period for the research work with available resources (Al-hassan, 2015:37). The study applied this method to help gather accurate data within constrain of resources.

3.2.2.4 Sampling Frame

Sampling frame is a list or quasi list of element from which a probability sample is selected (Babbie, 2005: 206). A list of farmer-based organisation was prepared for sampling purposes that gave fair chances of selecting farmer-based organisations. The aim of the sample frame is to enhance the application of probability sampling techniques, which promote objective conclusion and generalisation.

3.2.2.5 Sampling Procedures and Techniques

Sampling procedures are required for any valid survey since it is often not economically feasible to cover every unit of the population. Procedures for selecting a sample from a population needs to be clearly define in research work. There are two main types of sampling procedures; probability and non-probability sampling technique (Anaman, 2003:40) and (Al-hassan, 2015:56). The research study used both probability and non-probability sampling techniques in different aspects of the work.

Kumekpor (2002:141) was of the view that in probability sampling every individual in the universe has a known chance or probability of inclusion or exclusion in a sample. Similarly, an important principle of probability sampling is that the selected sample must be representative enough of the population from which it is drawn and all units of the population have equal chance of inclusion for a study. The probability theory derived from statistics allowed for the estimation of accuracy or the representativeness of the selected sample (Anaman, 2003:40). The theory is based on the assumption that every element in the study population has equal chance of being selected into the sample and that whoever that is selected is due to chance (Wolfer, 2007:182). Kumekpor, (2002:135), was

of the view that the element of chance or randomness should govern the selection process of a sample.

Simple random sampling requires some type of procedure in which all the elements in a sample frame have equal probability of selection (Wolfer, 2007:188-189). Hence, simple random sampling promotes objectivity, reliability, and reduced biasness, which pave way for objective conclusion, generalisation of findings and replication of the work by other researchers. The research study used a sample frame (random number table approach) to facilitate proper application of simple random sampling method in the selection of the Districts and famer-based organisations for the administration of questionnaires. The selection was by writing all the numbers and corresponding names of farmer-based organisations on pieces of paper, which were kept in a container where selection was done by stirring the numbers on the pieces of paper each time selection is to be done.

3.2.2.6 Purposive Sampling

Purposive sampling is the selection of units of a sample not by a random procedure, but intentionally selected for a study because of their characteristics or qualities. They exhibit most of the characteristics of interest to the study (Kumekpor, 2002:138). In addition, purposive sampling is a non-probability sampling technique in which one selects units to be observe based on his or her own judgement about which one will be the most useful or representative (Babbie, 2005: 189). Babbie share similar views with Kumekpor concerning the mode of selecting a sample or unit. Even though purposive sampling is a non-random sampling but it gives focus to the application of probability sampling techniques, which help reduce sampling errors determined under quantitative research especially the use of regression models (running of regression). This technique

aided the selection of Northern Region as the geographical scope for the study which has twenty-six districts where simple random sampling approach was used in selecting districts such as Central Gonja, Kpandai, Nanumba North, East Gonja, Yendi, Nanumba South and West Gonja in which the research was conducted. Even the selection of the research topic was also for a purpose.

3.3 Method of Data Collection

Data collection is a process of gathering data from both primary and secondary sources that geared towards answering the objectives set for the study. The Research design determine the type of data needed for the study and the collection of the right data matters a lot for a successful study. Primary and secondary data are the categories of data collected for this research work.

3.3.1 Primary Data Collection Approaches

Primary data collection approaches facilitate the collection of raw data from field with the aim of processing the data to make new discovery or contributing to the existing knowledge and some of the approaches are as follows:

3.3.1.1 Interview

Interview is when interviewer or enumerator has a set of questions for which he is seeking relevant, accurate, and objective information. Interviewing is a very elaborate and effective technique developed around man's ability to speak, feel, react, and express opinions. This method is centre on the skilful art of asking questions relevant to a subject of investigation and recording of answers from respondents (Kumekpor, 2002:185). The research used this technique of data collection to gather qualitative data from a member of selected FBOs who have much information about his/her organisation. The respondents answered some

probe in questions. The qualitative data gathered on FBOs has contributed to clearer understanding of complexities of farmer-based organisations.

3.3.1.2 Questionnaires

Questionnaire is a form or document containing a number of questions on a particular theme, problem, issue, or opinion to under investigation. FBO members deem to have answers to the questions in the questionnaire answered the questions. The whole series of questions were organised systematically and sequentially around a central theme or a number of related themes on which uniform, comparable and standardised information gathered in measurable form (Kumekpor, 2002: 156). Any member of a farmer-based organisation had the chance of responding to the semi-questionnaire. The research study collected data on socio-demographic characteristics of FBOs, Contribution of FBOs to food production, the effects of FBOs on the environment, determinants of farmer-based organisations performance and the challenges faced by farmer-based organisations. The research study used this instrument to collect quantitative data on FBOs, which makes the data good for quantitative analysis and to some extend qualitative analysis.

3.3.1.3 Pre-Testing of the Instrument

The study carried out Pre-testing which enable assessment of data collection process, organisational flaws, problem of strategy and co-ordination likely to arise during the main data collection process. The pre-test gave attention to a test for suitability of language, concepts, appropriateness of questions, and respondents' reactions to the administration of questionnaire. Lessons and observations from pilot survey facilitated the review and modification of the original data collection instruments (Kumekpor, 2002:222-223). There is therefore the need to subject all

the instruments for data collection, especially questionnaire and interview schedule to pre-testing to test their effectiveness and viability. This has helped in identifying weakness such as wording and ambiguity of questions (Tannor, 2011:66-67). The rationale for the pre-test was to ensure validity and reliability of data collected on farmer-based organisations.

3.3.2 Secondary Data

The research work used the available relevant secondary data for validation purposes. The study used the reviewed related literature on farmer-based organisation. The secondary data reviewed proved that the issues found warrants a research study on FBOs and findings of researchers on FBOs were compare with the findings of the research work. This research study confirmed some research findings and did not agree with some others.

3.4 Data Analysis and Presentations Techniques

Data processing is a necessary part of research work and it pertains consistency checking on data response, data cleaning, editing, data coding and data entry. Data was analysed by the used of both quantitative and qualitative tools for the individual objectives set for the research work. Specifically, data collected on the individual objectives set for the research work was analysed using descriptive statistics in Statistical Package for Social Scientist (SPSS). However, data on the determinants of FBOs performance was analysed with the use of probit regression.

Descriptive research is a research that specifies the nature of a given phenomenon. It is basic for all types of research in assessing the situation as prerequisite to inference and generalisation. This means that it is prerequisite for

finding answers to questions (Osuala, 2007:197-199). The research analysed and presented the data using descriptive statistics tools such as tables, percentages, and charts on:

- Socio-demographic characteristics of FBOs that include age, gender, education, and formation and registration of FBOs).
- Contributions of FBOs to food production which include collective farming, collective labour supply, facilitate access to tractor services, land, fertilizer, seeds, extension service, financial services, storage facilities, , marketing services, monitoring and processing services.
- Effects of FBOs activities on natural environment that include planting of economic trees, soil conservation, water conservation, cultivation of legumes, use of weedicide, deforestation, pollution of water bodies and the application of environmental bye-laws

The descriptive statistics tools such as tables, percentages, and charts helps to neutralise the assumed bias nature of qualitative research.

- Challenges facing FBOs include difficulty in resource mobilisation, unfavourable weather condition, limited access to fertile lands, poor yield, high illiteracy, lack of training after formation, poor road infrastructure, price variability, limited business skills and conflict. Data on these challenges were analysed using Kendall's W Test (Kendall’s Coefficient of Concordance (W)) in order to rank them in their order of severity.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, AND DISCUSSIONS

The focus of the research work is to examine the role of farmer-based organisation (FBO) in food production in Northern Region of Ghana. The study took into consideration views of 210 respondents through response to questionnaires and interviewed. The data collected from the respondents pertain to socio-demographic characteristics of FBOs, contributions of FBOs to food production, effects of FBOs on natural environment and challenges facing FBOs. The presentation of data were in the form of tables and graphs using frequencies and percentages, which were analysed and discussed for easy comprehension.

4.1 Socio-Demographic Characteristics of Respondents

4.1.1 Age of the Respondents

The data in table 1 shows that 49.1% of the respondents are from 18 years to 40 years, 39.0% are within 41-50 years and 11.9% are above the age 50 years. These indicate that majority of FBO members are within their youthful ages, which range from 18 to 40 years. FBO members who are within this age category play active role in the organisational activities. They are directly involve in farming activities because of their strength and energy, which play vital role in this

economic activity. Interview conducted on FBOs shows that people who play active role in the forma.tion of a farmer-based organisation have better chance of being leaders regardless of their ages. The youth championed the formation of most FBOs in the region hence their dominance in leadership positions. Members' of FBOs give much attention to the hierarchy of the leadership when dealing with people who are not part of their organisation. This means they behave like formal organisations but they are mostly informal in nature in the Northern Region.

Table 1. Age of the Respondents

Ages	Frequency	Percent
18-25 years	2	1.0
26-30 years	37	17.6
31-40 years	64	30.5
41-50 years	82	39.0
>50 years	25	11.9
Total	210	100.0

Source: Field survey 2015

4.1.2 Gender of Respondents

Figure 3 revealed that only 12(6%) of the respondents are females and 198 (94%) being males. This implies that female leaders play minor roles on behalf of the organisations as confirmed by Salifu et al., (2012:9) that women have little interest in contesting for leadership position in FBOs even though they have opportunity of occupying leadership position.

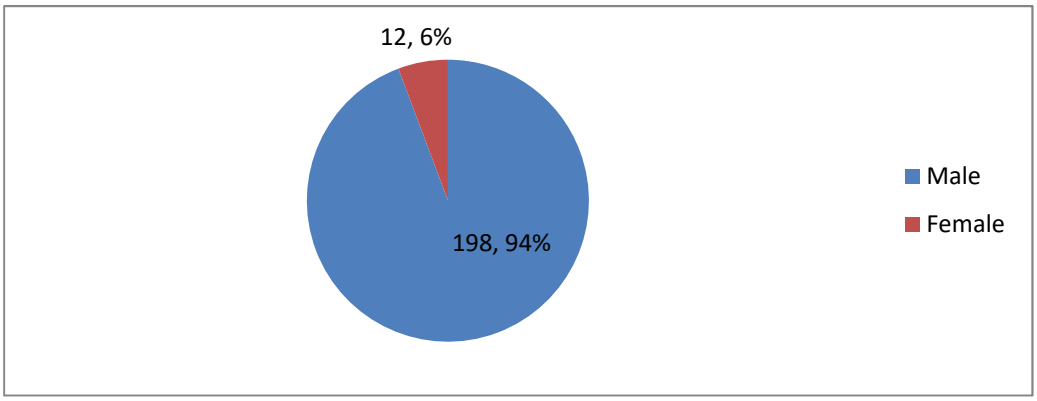


Figure 3. Gender of Respondents

Source: Field survey 2015

The perception that females speak less publicly is still an issues in most farmer-based organisations because they mostly refuse to take leadership position in their organisations. Interview with FBO members revealed that FBOs dominated by males usually consider females in their formation because genders issues are requirement for support from development partners.

4.1.3 Religion of Respondents

Religion plays a vital role on individual food intake and the activities in which they engage themselves. The field survey data as in table 2 revealed that out of the 210 respondents, Muslims formed 51.4%, Christians 44.3% Traditional Believers 2.9% and None Believers were 1.4 %. Religion promotes peace and harmony in various socio-economic organisations such as FBOs in the Northern Region and this in effect pave way for effective management in those organisations.

Table 2. Religion of the Respondents

Religious composition	Frequency	Percent
None believers	3	1.4
Christian	93	44.3
Muslim	108	51.4
Traditional	6	2.9

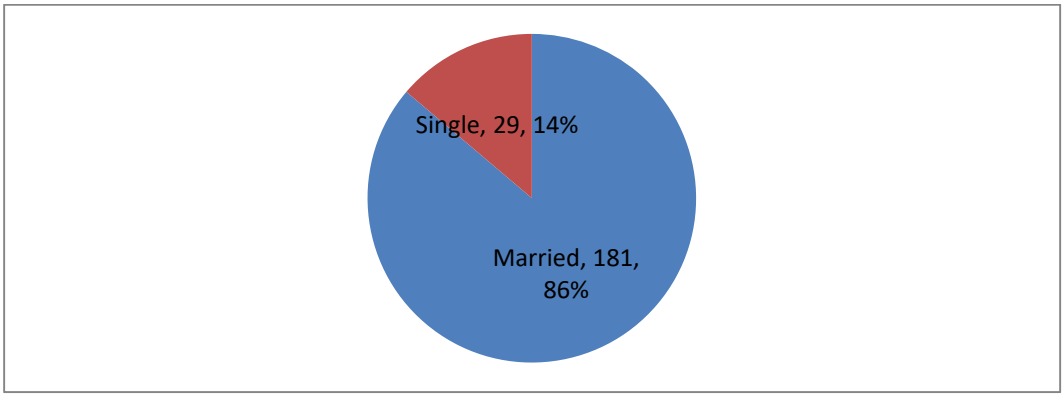
Total	210	100.0

Source: Field survey 2015

4.1.4 Marital Status of the Respondents

Figure 4 revealed that 181(86%) of the respondents are married and 29(14%) are single. In general, many people marry with the aim of procreation and support. Members of FBOs are no exception; couples support each other during planting and harvesting periods. However, some are single due to economic hardship, death of a partner and divorce. Support from the couples gives their partners a stable mind to work in their organisations since work would be in progress at their individual farms. This invariably contributes to increase in food production.

Figure 4. Marital Status of the Respondents

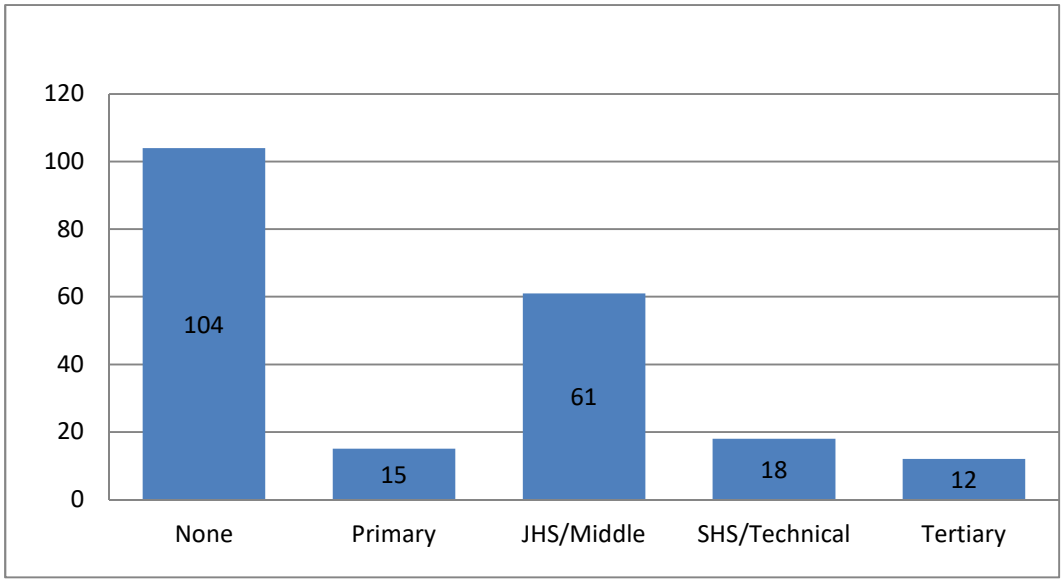


Source: Field survey 2015

4.1.5 Educational Level of Respondents

The level of education that one attains has a greater influence on his/her capabilities in terms of creativity, innovation, management skills, and easy comprehension. In view of this, it was realised in figure 5 that 104 of the respondents representing 49.5% had no education. Most of the respondents who had primary and junior high school (JHS) education representing 36.19% could not read and/or write because quality of basic education in the rural areas is poor

Figure 5. Educational Level of Respondents



Source: Field survey 2015

However, this has negative effect on performing formal roles since only 5.7% that had tertiary education. This result confirms the findings of J Joy et al., (2008) that as educational status of FBO members' increases orientation towards group activity decreases. Interviews revealed that those with tertiary (higher) education feel reluctant to be active members' of their FBOs, except there is an intervention from a development partner. They serve as secretaries to FBOs because most members' cannot read and write well. Generally, the appointment or election of FBO leaders considered FBO members with higher education.

4.1.6 Forms of FBOs Membership

The information in table 3 revealed that the organisations that are formed based on kinship are 5.7%, those formed based on small networks of farmers across the community are 59.5%, and those formed based on homogenous membership are 34.8%. This result is consistent with the work of FAO, (2010) that kinship ties, small networks and homogenous membership are key elements of farmer-based

organisations which tend to be dependent on external assistance with little revenue generation from internal membership. As a means of securing patronage, producer organisations are valued as a source of capital, in a resource poor environment where falling farming returns are pushing a withdrawal of labour from agriculture production.

Table 3. Forms of Membership

Membership	Frequency	Percent
Kinship ties	12	5.7
Small network	125	59.5
Homogenous membership	73	34.8
Total	210	100.0

Source: Field survey 2015

These findings indicate that formation of FBOs is more of the entire community affair in terms of membership and it is voluntary in nature. The small network forms of FBOs where gender is mostly considered are common in Northern Region. These forms of FBOs are mostly project-initiated organisation where support in the form of training, financial resources, and inputs are channelled to farmers in the organisations.

4.1.7 Formation of FBOs

Interviews revealed that farmers who are of the same age category and are of the same sex originally form Farmer-based organisations in Northern Region. These FBOs are in rural communities where farming is the most dominant economic activities. The study revealed in table 4 that 35.7% of the FBOs investigated were initiated by FBO members', 44.3% by MoFA, 1% by DOC and 19.0% initiated by NGOs. This research finding is in agreement with the work of Asibey-Bonsu, (2012) that the major contributor to FBO development drive in recent decade is

the Ghana's Millennium Challenge Account (MCA) Compact. The re-organisation and development of FBOs took a significant proportion of the US$547 million.

Table 4. Formation of FBOs

Formation	Frequency	Percent
FBO members'	75	35.7
MoFA	93	44.3
DOC	2	1.0
NGO	40	19.0
Total	210	100.0

Source: Field survey 2015

In view of these findings, it is clear that support to FBO development was more accessible from MoFA, DOC and NGOs. These bodies played a critical role in the formation, training, and provision of logistics to FBOs in the Northern Region because they formed the FBOs based on certain projects. However, some of these FBOs have not receive the intended support from the government institutions and organisations as a result they become inactive after few years of operation. Table 11 indicated that 150 (71.4) FBOs of 210 FBOs never receive support from any organisation or institutions. MoFA formed 93 FBOs out of the 210 FBOs surveyed but only 43 had support from MoFA as indicated in figure 7. Interview revealed that production FBOs formed without external intervention mostly serve as source of labour support and rendering of welfare services to their members' but with the intention of attracting support from external bodies in future. Some of the FBOs are inactive because their members never intend to form an organisation but came together with the aim of benefiting from MoFA and donor organisation.

4.1.8 Duration of FBO

Farmer-based organisations that operated for a long time are able to overcome most of their challenges. Table 5 indicate that 76.7% of FBOs in the region existed from the period 3 years to 7 years and the average number of years is 5. However, only 5.7% of the FBOs lasted up to 10 years and above. The result confirmed Salifu et al., (2010), findings that historical evidence suggests that farmer groups might be as old as sedentary agriculture, since some of the FBOs existed over a decade.

Table 5. Duration of FBO

Years	Frequency	Percent
2	15	7.1
3	30	14.3
4	47	22.4
5	40	19.0
6	22	10.5
7	22	10.5
8	16	7.6
9	6	2.9
10 +	12	5.7
Total	210	100.0

Source: Field survey 2015

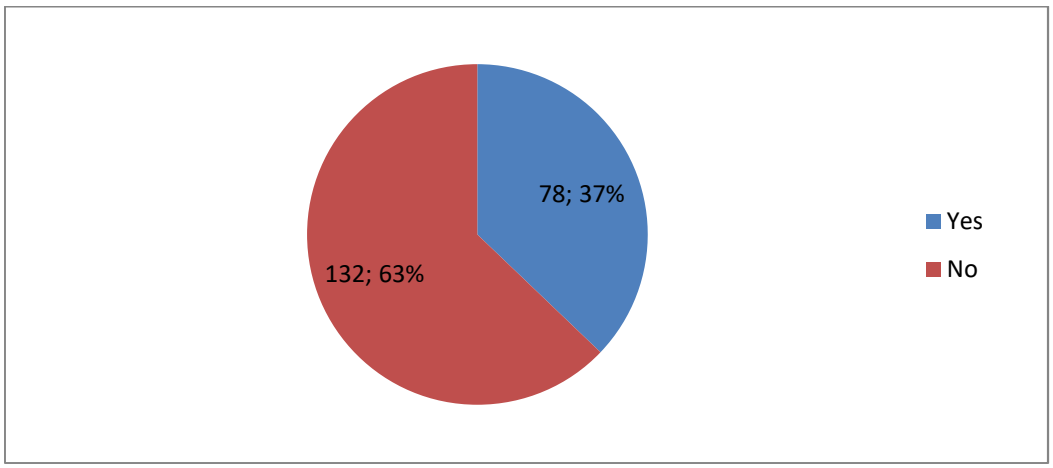
The formation of most FBOs in the Northern Region coincided with the emergence of the MCA Compact. The MCA Compact played a vital role in the

formation of FBOs throughout the country. However, with the exception of training these FBOs received little or no support after formation.

4.1.9 Registration of FBOs

Business registration is one of the basic requirements for the operations of any business entity. FBOs need to register with the appropriate institutions in order to be effective in lobbying for support from other organisations and institutions. The study findings in figure 6 revealed that out of the 210 FBOs studied, only 78 representing 37% were registered and 132 FBOs representing 63% have not registered with any institution or organisation. The result is consistent with the work of Asibey-Bonsu, (2012) that the National FBO Secretariat has undertaken in 2008 an exercise of registration of all active FBOs in the country to generate a credible database. In the exercise towards registration of FBOs in 2008, MOFA-DAES called for voluntary registration by FBOs.

Figure 6. Registration of FBOs



Source: Field survey 2015

Out of 37% of the FBOs that said they had registered with different bodies, some do not have the documentary prove of their registration with any institution/organisation. They could only mention MoFA and NGOs such as Send

Ghana, Snapi Aba Trust, Salaga Farmers Cooperation Union, Maltiti, and AGRA as where they have registered their FBOs. It is unfortunate that none of the FBOs registered with the Registrar General Department. However, a greater proportion of the FBOs did not register at all with any institution.

Table 6. Institutions FBO Registered with

Institution/Organisation	Frequency	Percent
MoFA	58	74.4
NGO	20	25.6
Total	78	100.0

Source: Field survey 2015

Out of the 78 FBOs that were registered, 58 FBOs representing 74.4% registered with MoFA and 20 of them representing 25.6% registered with NGOs. Even though MoFA facilitated the formation of 93 FBOs but only 58 FBOs registered with MoFA. Registration is voluntary as a result FBOs that showed interest were registered. However, there were no multiple registrations by any of the FBOs. However, Agricultural Extension Officers had general information about FBOs operations in various localities. Farmer-based organisations that registered with MoFA and NGOs received support in the form of training, loans, grants, and inputs to help in the production of food. These forms of support is on crop specific and business orientation of a particular farmer-based organisation.

4.1.10 Organisational Structure of FBOs

The study revealed that 207 FBOs representing 98.6% have organisational structures, which defined positions within the organisations, and 3 FBOs representing 1.4% existed without organisational structures. The result is consistent with the work of Asibey- Bonsu, (2012) that the Ghana National Association of Farmers and Fishermen (GNAFF) had its structure at four level

(i.e. community, district, regional and national). FBOs in Ghana range from informal village-level groups to organized groups. The informal village-level groups form the greater proportion of FBOs in Ghana.

Table 7. Organisational Structure

Organisational structure	Frequency	Percent
Yes	207	98.6
No	3	1.4
Total	210	100.0

Source: Field survey 2015

It is clear from the research that 98.6% of the FBOs studied said they have organisational structures but no documented evidence of the structures because record keeping in general in FBOs is very poor. Members' of some FBOs could not state the various positions in their respective organisations and most of these organisations exist in rural communities. This indicates the informal nature of most FBOs in the Northern Region.

4.1.11 Dominants of Gender Composition of FBO

The study revealed that, males dominated in 172 FBOs representing 81.9 % and females dominated in 38 FBOs representing 18.1%. The results lend credence to the work of FAO, (2010) that mainstreaming of gender issues has become a prominent theme within agriculture development. However, the promotion of farmers groups as a vehicle for development has not coincided with the integration of gender approaches to organizational objectives. This also confirmed Salifu et al., (2010) findings that many FBOs and agricultural cooperatives are gender biased in the sense that either males or females dominate them. Small and

homogeneous FBOs are as common in Ghana as in many other Sub-Saharan countries.

Table 8. Gender dominants in Production FBOs

Gender	Frequency	Percent
Male	172	81.9
Female	38	18.1
Total	210	100.0

Source: Field survey 2015

The study findings indicates that male dominated FBOs had a total membership of 3,079 (65%), while FBOs dominated by females had a total membership of 1685 (35%) and no FBO had equal members' in terms of sex composition. The average membership to the FBOs survey is 22 people. There are 11(5%) FBOs made up of only female membership, 60 (29%) of the FBOs are only males and 139 (66%) of the surveyed FBOs have membership made of both males and females. However, 12 female dominated FBOs appointed males as spokespersons for their organisations with the reason that the male could lobby well for them.

4.1.12 Consideration of Education in FBO Leadership

Education is the corner stone of every economy and agriculture is the main source of livelihood for people in Ghana. FBO members' who have specific experiences and professions such as teachers, assemblypersons, marketers , religious leaders, traditional leaders (chiefs) and well-educated members' are often given leadership roles to play in their respective FBOs (Salifu et al., 2012:9-10). In view of the above, the study found that, FBOs that consider education in the appointment of leaders were 178 (84.8%) and FBOs that do not consider education in the appointment of leaders were 32 (15.2%).

Table 9. Educational Consideration in FBO Leadership

Education in FBO leadership	Frequency	Percent
Yes	178	84.8
No	32	15.2
Total	210	100.0

Source: Field survey 2015

The findings from the study made it clear that FBOs had leaders with or without education and the success of each FBO depends on its management system. Quality of management system is influence by the level of education of its leadership. Even though, higher educational level of FBO leaders facilitates smooth operations of FBOs, almost all FBOs in the rural areas operate as informal organisations and as a result have poor record keeping. The FBOs that do not give much priority to education in the selection of its leaders would rather consider factors such as experience, commitment, role played during the formation of the FBO among others as factors, which could improve their performance.

4.1.13 Gender Consideration in FBO Leadership

The study revealed that FBOs that considered gender in the appointment/ election of their leaders' were 132 which represent 62.9% and those that do not consider gender in the appointment/election of their leaders were 78 representing 37.1%. The results contradict the work of Salifu et al., (2012) that participation of women in traditional leadership is negligible, which is similar in FBO leadership. The results also contradict the FAO, (2010) findings that Lack of representation of female members' at senior level within rural cooperatives and farmers groups has made it difficult to ensure that real progress in addressing gender equality is achieved.

Table 10. Gender Consideration in Leadership

Gender consideration in leadership	Frequency	Percent
Yes	132	62.9
No	78	37.1
Total	210	100.0

Source: Field survey 2015

Majority of the FBOs consider gender when electing/appointing their leaders. They do so because most of the FBOs are projects organisations formed under MoFA and/or NGOs and gender consideration is a requirement for support. Mostly, the position of a treasurer that is for female members' in farmer-based organisations that consider gender in appointing and electing its leaders. However, female play dormant role in male dominated farmer-based organisations

4.1.14 Production FBOs

The study however revealed that all the members' of the 210 FBOs under study were into food production and the FBOs help in selling their members' farm produce. This result is in full agreement with the work of Salifu et al., (2012:6) that farmer associations are mostly production oriented and the attention of their members' is on how to increase their farm outputs. However, FBOs treat group production as non-income-generating activity; instead, most individuals are more interested in capturing assistance from development programs. The amount of resources available to FBOs in terms of land, farm inputs, and labour determines the farm size.

All FBOs under study were production oriented and the findings actually showed that all members' of the FBOs were into food crop production, which is similar to the findings of (Salifu et al., 2012:6). This indicates that for one to be a member he or she must be a farmer if possible cultivating similar type of crops. This does

not mean that other members' of the FBOs do not engage themselves in other type of economic activities but that food crop production is the economic activity in the FBOs under consideration.

4.2 Contribution of Farmer-Based Organisation to Food Production

Farmer-based organisations are supposed to facilitate members' access to farm inputs, financial resources, labour, land, marketing services, tractor services, storage facilities and any other form of service/support that facilitate food production. The assessment of the contributions of FBOs to food crop production are as follows

4.2.1 Management of FBOs

Many farmers' organisations are gaining more autonomy and increasing their economic and technical capacities. Extension bodies, farmer-based organisations, and civil society organisations such as international NGOs have taken on a bigger role in the financing and provision of services to farmers and their organisations (Hussein, 1999:11). Especially, MiDA worked with selected FBOs to enhance the technical and commercial skills of their members', simultaneously using the FBOs as platforms to supply farm inputs and facilitate access to credit (Salifu et al., 2012:6).

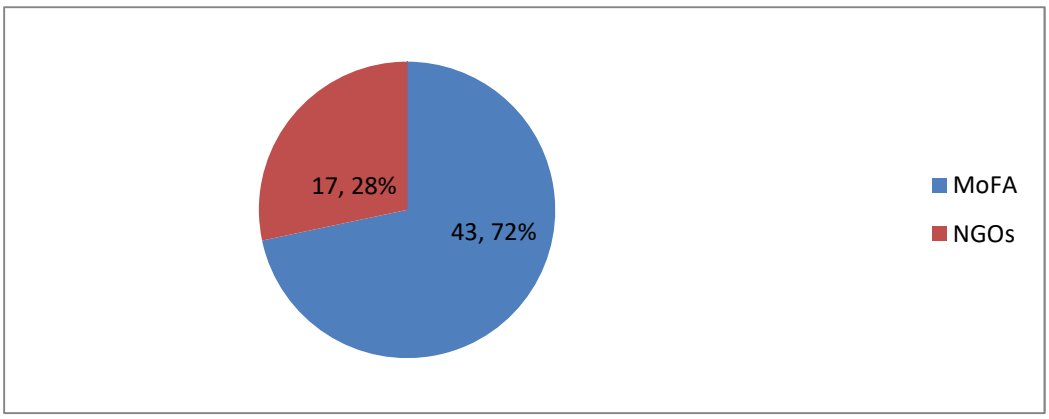
The study revealed that 71.4% of the FBOs under study managed their own affairs without external support, 28.6% had support from MoFA and NGOs such as Send Ghana, Snapi Aba trust, Maltiti, Salaga Farmers' Co-operative Union and AGRA. The study confirmed findings of Hussein, (1999) and Salifu et al., (2012). However, majority of the FBOs could not get support from other organisations because their existence is unknown or because of their inactiveness.

Table 11. Management of FBO Affairs

Management of FBO Affairs	Frequency	Percent
Internally manage	150	71.4
Access to external support	60	28.6
Total	210	100.0

Source: Field survey 2015

Figure7. Support to FBOs



Source: Field survey 2015

Out of the 60 FBOs that had support from external sources, MoFA supported 72% of them through the AEAs' and NGOs supported 28% of the FBOs. This indicates that MoFA and NGOs are the major bodies that give support to FBOs in the Northern Region. Most of the support given to FBOs are in the form of training, farm inputs, and extension service. This supports contributed positively to FBO activities such as production of farm produce and general management of the organisations as revealed through the interview with FBO members.

4.2.2 Collective Farming

Farmer-based organisation members usually take decision as to engage in collective farming or not for a farming season. Table 12 indicates that 51.4% of the FBOs studied undertook collective farming and 48.6% do not undertake collective farming. This result is consistent with the work of Salifu et al., (2012:6) that FBOs use a combination of savings from membership dues, profits from the

previous season, and ad hoc contributions from members' to buy the necessary inputs and services for collective farming. However, most FBOs do not consider group production as income-generating activity. The organisations are more interested in capturing assistance from development programmes.

Table 12. Collective Farming

Collective farming	Frequency	Percent
Yes	108	51.4
No	102	48.6
Total	210	100.0

Source: Field survey 2015

The FBOs without collective farming activities did not receive support from MoFA and NGOs. FBOs that had support from other organisations used collective farms as demonstration farms but not as the major source of revenue. The collective farming facilitated better extension service to FBOs that are involve in the activity.

4.2.3 Access to Collective Labour Force

According to Salifu et al., (2012:6), FBOs members' usually contribute labour free of charge, but groups often supply food for members' on days when the whole group comes together to work on the collective plot. Members' of all groups contribute their labour for collective activities. The results has made it clear that 90.0% of the FBOs studied provide free labour for collective activities and 10.0% did not undertake collective labour supply (see table 13). This results has confirm the findings of Salifu et al., (2012), that FBO members' could collectively work on members" farm on rotational bases and on non-members' farms with the aim of generating revenue for the FBO. Free labour support to individual FBO members has reduce members cost of production. However, some FBOs did not provide

free labour for collective activity in the Northern Region of Ghana because most of their members were not ready to provide free labour to each other.

Table 13. Collective Labour Supply

Collective labour supply	Frequency	Percent
Yes	189	90.0
No	21	10.0
Total	210	100.0

Source: Field survey 2015

4.2.4 Access to Tractor Services

FBOs that are into food crop production heavily rely on tractor services. The study found how FBOs are able to facilitate their members" access to tractor services. Table 14 revealed that 86.7% of the FBOs studied have facilitated their members' access to tractor services and 13.3% of them had not perform such function to their members'.

Table 14. Access to Tractor Services

Access to tractor services	Frequency	Percent
Yes	182	86.7
No	28	13.3
Total	210	100.0

Source: Field survey 2015

Access to tractor services is vital in commercial agriculture. FBOs that helped in providing tractor services to their members' have facilitated the process of increased food production. A situation where collective farm is not practice, leaders of an FBO organise tractor services in such a way that the tractor goes to individual farms to plough and members' make bulk payment to the tractor service

provider. However, due to inadequacy of tractor services, some FBOs had tractor services at certain period that is not convenient for cultivation of certain food crops. There are therefore compelled to cultivate a crop that they did not intend to cultivate at the beginning of the farming season. It was also found that a number of FBOs jointly facilitate their members' access to tractor services at a reduced cost of plough.

4.2.5 Land Accessibility

According to Salifu et al., (2012:6), FBOs acquire land for collective production through purchase, rental, or gift. The study found that 53.3% of the FBOs studied facilitated their members' access to land and 46.7% of the rest of the FBOs were not involved in land acquisition for their members (see Table 15).

Table 15. Access to Land

Access to land	Frequency	Percent
Yes	112	53.3
No	98	46.7
Total	210	100.0

Source: Field survey 2015

Farmer-based organisations members' helped made land available to some of their members' who have problem of getting fertile land for cultivation of certain crops. The interview revealed that FBOs usually contacted the community leaders especially the chief and his elders. A chief could give land to an FBO in his community for a specific period in a form of a gift or lease. Chiefs prefer given land to FBOs than individual community members because he may benefit more from the FBOs that individual farmers. It appears that almost all members' of FBOs who are indigenes of their localities own land and access to land had not

been a problem for individual farms. However, most of the land are not fertile due to continuous cropping.

4.2.6 Access to Fertilizer

The research findings indicate that FBOs facilitated their members' access to fertilizer to boost food production. The study revealed in table 16 that 58.6% of the FBOs studied facilitated their members' access to fertilizer and 41.4% of the rest of the FBOs could not facilitate their members' access to fertilizer inputs. This research finding is consistent with the work of Narrod et al., (2009) that farmers in a group minimize their costs through bulk purchase of inputs. In another related view, Salifu et al., (2012:6) found that most of the groups used external inputs such as fertilizer and pesticides, especially for cultivating maize, pepper and rice. Production FBOs received training, specifically on fertilizer application, which usually came from fertilizer companies and some received free fertilizer through donor-funded initiatives.

Table 16. Access to Fertilizer

Access to fertilizer	Frequency	Percent
Yes	123	58.6
No	87	41.4
Total	210	100.0

Source: Field survey 2015

Most FBOs in the Northern Region were not able to facilitate their members' access to fertilizer either at a reduced price or free fertilizer because they are not well connected with organisations that could facilitate their members' access to

fertilizer. FBOs members obtain fertilizer from projects run by MoFA and NGOs that are into agriculture. The interview revealed that access to fertilizer from projects are benefits for FBO members as compare to non-FBO members and this fertilizers are used to expand production. However, most FBO members had access to fertilizer based on their individual ability to afford at the open market prices.

4.2.7 Seeds for Planting

The research found that 65.7% of the FBOs studied facilitated its members' access to seeds and 34.3% of the FBOs studied had not played any facilitative role for their members' access to seeds for planting (see table 17). This result is in consonant with the work of Salifu et al., (2012) that FBOs use a combination of savings from membership dues, profits from the previous season, and ad hoc contributions from members' to buy the necessary inputs and services for collective farming. Similarly, Narrod et al., (2009) found that FBOs made seeds accessible to their members' through bulk purchase of inputs and this confirms Stockbridge et al., (2003) findings that some of the services provided by FBOs included inputs.

Table 17. Access to Seeds

Access to seeds	Frequency	Percent
Yes	138	65.7
No	72	34.3
Total	210	100.0

Source: Field survey 2015

However, with the exception of the FBOs benefiting from MoFA and NGOs projects that facilitate their members' access to improve seeds, the rest of the FBOs in the communities multiply the local variety of seeds among their members' by storing selected seeds from previous season towards the next season.

4.2.8 Access Technical Training on Good Agricultural Practices

Thus, farmers in a group minimize their costs through joint hiring of technical experts who facilitate compliance. The technical experts keep records for all members' of the type, amount, and date of pesticides used, and occasionally conducts field visits with an exporter's agronomist. Some producer organisations also hire teams of expert pesticide applicators and pay by farmers as a group (Narrod et al., 2009). Similarly, FBOs facilitate the provision of technological education for their members' (Stockbridge et al., 2003). However, the study discovered that 7.1% of the FBOs had received technical training and 92.9% of the rest of the FBOs did not receive technical training on good agricultural practices (see table 18). The findings in table 11 indicate that 28.6% of FBOs had support but this finding on access to technical training means that most of the FBOs limited support on technical training.

Table 18. Technical Training on Good Agricultural Practices

Technical training	Frequency	Percent
Yes	15	7.1
No	195	92.9
Total	210	100.0

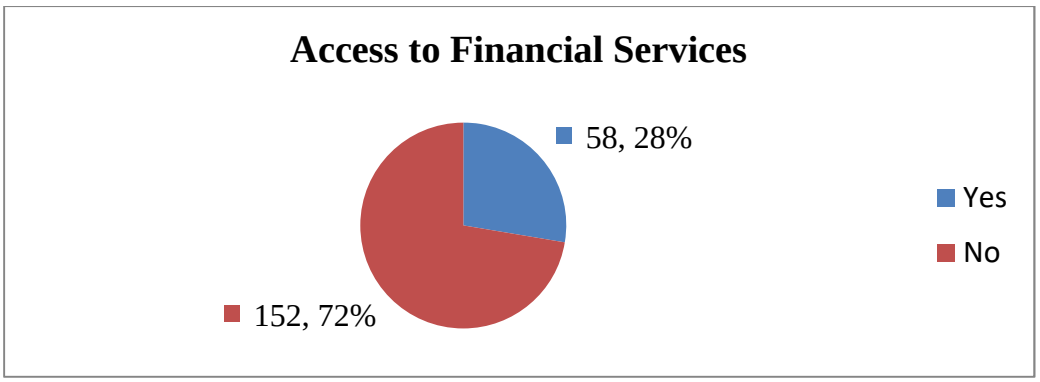
Source: Field survey 2015

Most members' of FBOs have not received free technical training from AEAs and technical experts in the form of good farming practices, weedicides, pesticides and fertilizer applications. They could not also hire the services of technical experts to impart the skills needed to improve food production.

4.2.9 Access to Financial Services

The research work seek to find out how accessible is financial resources to members' of FBOs in the Northern Region. The Millennium Development Authority worked with selected FBOs to enhance the technical and commercial skills of their members', simultaneously using the FBOs as platforms to supply farm inputs and facilitate access to credit (Salifu et al., 2012:6; Stockbridge et al., 2003:2). From the study, it was found that 28% of the FBOs members' under consideration had access to financial resources and 72% of the FBOs had not receive any form of financial resources (see figure 8).

Figure 8. Access to Financial Services



Source: Field survey 2015

The study confirms that some FBOs had financial support for their members', but it is just a few. They 58 FBOs that had access to financial services used collective farm output as a means of accessing loans from financial institutions. The FBOs banked the income generated from the farm produce. Financial institutions

developed confidence in those FBOs that they could pay back loans given to them; as a result, the FBOs had access to loans to expand their farms. However, majority of the FBOs had not gotten financial resources for their members' due to default in loans payment. Some of the FBOs do not operate as business organisations as a result could not develop business plans to access loans and at the same time, they lack collateral to guarantee loans. This implies that financial flow into agriculture through FBOs is growing at a very slow pace because of poor recovery of loans.

4.2.10 Access to Storage Facilities

The role FBOs played towards making storage facilities available to their members' is much appreciated in this study. Farmer-based organisations provide services to their members' such as information, facilitating access to inputs and market, credit, support for storage, marketing services among others (Rondot and Collion, 2001:2 and Moustiere 1998 as cited in Tita, 2009:38). In view of the role played by FBOs, the study revealed that 25.2% of the FBOs studied had access to storage facilities and 74.8% did not have access to storage facilities (see table 19).

Table 19. Access to Storage Facilities

Access to storage facilities	Frequency	Percent
Yes	53	25.2
No	157	74.8
Total	210	100.0

Source: Field survey 2015

FBOs members' need storage facilities to store/preserve their farm produce but in the Northern Region, only few FBOs had facilitated their members' access to storage facilities. It is specifically Send Foundation and other NGOs that have made storage facilities available to FBOs that are into soya bean, maize and yam

production. The FBOs are able store the farm produce until when there is good prices for the farm produce.

However, a greater number of the FBOs in the Region could not facilitate their members' access to storage facilities as a result their members' farm produce were sold at cheaper prices and some farm produce gets spoiled by insects. These invariably increase post-harvest loses which affect general food production levels in the Region.

4.2.11 Marketing Services

The study found that 92.4% of the FBOs under consideration were engaged in marketing of their farm produce and the remaining 7.6% were not engage in marketing of their farm produce (see table 20). This result strongly confirms the work of Salifu et al., (2012:8) study that collective marketing includes the marketing of the collective produce of an FBO, marketing individuals' produce through an FBO, or when an FBO engages in trade as a business. In a similar view, a wide range of services are provided by farmer -based organisations which include: marketing services such as input supply, output marketing, processing and marketing information all with the intention of making maximum profit from the farming activities(Stockbridge et al., 2003:2).

Table 20. Marketing of Farm Produce

Marketing of farm produce	Frequency	Percent
Yes	194	92.4

No	16	7.6
Total	210	100.0

Source: Field survey 2015

Majority of the FBOs in the Northern Region were engaged in marketing of their produce with the intention of making high profit from their economic activities. They under take collective marketing from which they are able sell their produce at markets where there is high demand for their produce with high returns. The produce for marketing are mostly from the individual FBOs members' farms because most of the FBOs in the Region do not undertake serious collective farming and even those FBOs engaged in collective farming, much attention is on the individual farms. However, the few FBOs that do not engage themselves in marketing of their members produce are dormant and do not have the capacity for lucrative marketing. Production FBOs are more involved in marketing because they perceive traders as people who cheat them and it affects their income.

4.2.12 Monitoring

The study found that 55.2% of the FBOs under study carried out monitoring and the rest representing 44.8% had not (see table 21). This finding contradict with Lung'ahi, (2012:28) work that Many groups lack strong monitoring and evaluation component as part of their activities which would analyse the extent of progress and achievement of objectives to enable them plan effectively. Group monitoring promotes participation and transparency in the farmer-based organisations, which contribute to effective performance of such organisations.

Table 21. Monitoring

Monitoring	Frequency	Percent

Yes	116	55.2
No	94	44.8
Total	210	100.0

Source: Field survey 2015

A significant number of the FBOs studied carried out monitoring with the intention of improving their performance. It was realised that monitoring by the FBOs was not well organised and mostly done informally. The rationale for monitoring is to reduce stealing and verify performance of crops at a point in time. However, some FBOs that do not carry out monitoring and are with the view that monitoring is not necessary. In summary FBOs that carry out monitoring are active with good performance in terms of food production.

4.2.13 Access to Agricultural Extension Services

Salifu et al., (2012:7) found that some groups received training from MoFA's extension agents on modern farming methods. Most FBOs suggested that their members' received more training from agricultural extension agents (AEA) than farmers who do not belong to FBOs because AEAs specifically target FBOs. FBOs involved in-group farming claimed that the training they received from AEAs had a positive impact on their productivity. Similarly, Stockbridge et al., 2003:2) found that some of the services provided by FBOs include technology education that pertains with education, extension, and research. In view of the above, the study revealed that 93.3% of the FBOs studied had access to extension service and the rest of the FBOs representing 6.7% had not received extension services (see table 22).

Table 22. Access to Agricultural Extension Services

Access to agricultural extension services	Frequency	Percent
Yes	196	93.3
No	14	6.7
Total	210	100.0

Source: Field survey 2015

Most FBOs in the Northern Region of Ghana have access to extension services because the agricultural extension officers work within their catchment areas. However, there is pressure on the agricultural extension officers because they are few and could not visit all farms regularly as expected of them but they still render relevant services to FBOs. This confirms the findings of Salifu et al., (2012:7). There are more FBOs in the region that have not made their presence known to the agricultural extension officers, are mostly not vibrant, and as a result could not access extension services.

4.2.14 Access to Processing Services

Table 23 in this study revealed that 16.7% of the FBOs under consideration are able to facilitate their members' access to processing services and the rest representing 83.3% could not facilitate their members' access to processing services. This results contradict the work of Rondot and Collion, (2001:2); Stockbridge et al., (2003:2); Ragasa and Golan (2012: 6), that producer associations provide services such as processing and marketing services to their members'. It also deviates from the view that the provision of processing equipment to FBOs had a significant effect in terms of value addition to agricultural production. This is common among FBOs that are into food crop production but with the intention of adding value to their farm produce. (AgSSIP 2007c as cited in Salifu et al., 2010:8).

Table 23. Access to Processing Services

Access to processing services	Frequency	Percent
Yes	35	16.7
No	175	83.3
Total	210	100.0

Source: Field survey 2015

Most of the FBOs studied were not into processing of their farm produce before selling to consumers and other users. Farm produce such as yam, maize, millet, guinea corn, beans, cassava, soya beans, and groundnut were not process into different products by FBO members before selling. Some community members process FBOs farm produce but they are not part of the FBOs. Production FBOs investing much of their resource into processing would affect scarce resources available for production. Management of the two areas of specialisation would be a big challenge for most FBOs.

4.2.15 Access to Transport Services

The study revealed that 51% of the FBOs under consideration played a vital role in providing transport services to their members' and 49% did not help provide transport services to their members' (see table 24). This confirms with the work of Moustiere (1998) as cited in Salifu et al., (2012:6) in which he identifies elements against which a farmer-based organisation needs to be evaluated in order to be declared successful included transport services and others.

Table 24. Access to Transport Services

Access to transport services		Frequency	Percent
Valid	Yes	107	51.0
	No	103	49.0
	Total	210	100.0

Source: Field survey 2015

The findings indicated that a larger proportion of the FBOs under consideration helped in the provision of transport services to their members' by persuading individuals within groups to help convey their farm produce from farm to home or markets with motor bikes and motor kings. This has help reduce cost of transporting farm produce from Farms to home or markets. However, a significant number could not provide transport services because of low production levels and minimal engagement in collective activities.

4.3 Effects of FBOs on Natural Environment

The study investigated the activities of FBOs and their effects on natural environment in the Northern Region of Ghana.

4.3.1 Planting of Economic Trees

According to Kiwazi, (2012:23) farmer groups have established tree nursery and are involved in tree planting. Similarly, Garrity and Stapleton, (2011:8) indicated that farmers incorporated trees into their landscapes as the benefits of doing so become clear. The benefits of “fertilizer trees” for land regeneration, soil health, enhancing soil fertility, increasing assets of poor households with farm-grown trees and environmental benefits are very important for poverty reduction. In relation to the above findings, the study found that 25.2% of the FBOs under consideration are engaged in planting economic trees and 74.8% of the rest of the FBOs do not plant trees (see table 25).

Table 25. Planting of Economic Trees

Planting of economic trees	Frequency	Percent
Yes	53	25.2
No	157	74.8
Total	210	100.0

Source: Field survey 2015

The finding contradicted that of Kiwazi, (2012:23) and Garrity and Stapleton, (2011:8). It was rather fewer FBOs that were engaged in planting of economic trees because the benefits of the trees take a long time to be realised. Most farmer-based organisations rely on external support to undertake tree crop cultivation and such supports are not easily accessible. Trees provide benefits such as improving soil fertility, reduction of crop destruction by windstorm, income, general support to ecosystem, among others which in effect improve the wellbeing of FBO members' and the community at large. Interviews with FBOs revealed that most organisations do not have interest in tree crop cultivation. Farmer-based organisations inter-crop trees on the maize and beans farms. The specific trees planted included mango and cashew.

4.3.2 Soil conservation activities

The study revealed that 33.8% of the FBOs were engaged in soil conservation activities and 66.2% were not engaged in any soil conservation activities (see table 26). This finding contradicts the work of Kiwazi, (2012:23) that Farmer groups are involved in soil conservation activities. Garrity and Stapleton, (2011:8) found that agro-forestry provide many environmental benefits which include enhanced soil fertility is much appreciated in the study.

Table 26. Soil Conservation

Soil conservation	Frequency	Percent
Yes	71	33.8
No	139	66.2
Total	210	100.0

Source: Field survey 2015

Soil fertility plays a vital role in crop production but most FBOs do not consider soil conservation as a means of improving their production. Poor farming

practices and other unacceptable modes of handling land, predisposes soil to erosion, leaching, and loss of biodiversity, which eventually make soil infertile for crop production. This increases cost of production because FBOs need more inputs to facilitate food production.

4.3.3 Water Conservation Activities

The study found that out of 210 FBOs, only 16 representing 7.6% conserve water and 194 FBOs representing 92.4% were not engaged in water conservation (see table 27). The results contradict the work of Kiwazi, (2012:23) that farmer groups are involved in water conservation activities.

Table 27. Water Conservation

Water conservation	Frequency	Percent
Yes	16	7.6
No	194	92.4
Total	210	100.0

Source: Field survey 2015

Insignificant number of FBOs are involved in water conservation activities and even these FBOs that are engaged in these activities is as a result of their engagement in activities of certain environmental NGOs. Lack of FBOs comprehensive plan towards water bodies' management facilitate the drying up of streams and rivers for dry season crop cultivation. Drying up of water bodies has negative effects on the climate of the region and the general wellbeing of FBO members.

4.3.4 Clean up Exercise.

The environment in which one lives matters a lot to his or her survival and wealth creation. The study found that 64.3 % of FBOs under take clean up exercises and 35.7% do not carry out clean up exercises in their operational areas (see table 28).

Table 28. Clean up Exercise.

Clean up exercise	Frequency	Percent
Yes	135	64.3
No	75	35.7
Total	210	100.0

Source: Field survey 2015

FBO members' and other community members' carry out clean up exercises in their communities, especially when environmental officers give notice about their visit to the community. Since majority of FBOs are involved in clean up exercises, it means that there is positive effect of FBOs activities towards their immediate surroundings and this reflects much on the reduction of sanitation related diseases in the community. However, this clean up exercises are not regular as expected and some FBO members deliberately refuse to participate in clean up exercises with the reason that what benefit would they derive from the exercise. Proper environmental sanitation has positive effect on the communities and the country as a whole.

4.3.5 Cultivation of Leguminous Crops

The study revealed that 71% of the FBOs surveyed cultivate legumes and the rest representing 29% did not cultivate legumes (see table 29). This indicates that most FBOs in the Northern Region cultivate different type of legumes with the intention of getting both economic and environmental benefits, especially FBOs

benefiting from certain projects. FBOs confirmed that the climate for the region is good for cultivation of leguminous crops.

Table 29. Cultivation of Leguminous Crops

Cultivation of leguminous crops		Frequency	Percent
Valid	Yes	149	71.0
	No	61	29.0
	Total	210	100.0

Source: Field survey 2015

The cultivation of legumes does not need fertilizer or limited application of fertilizer for the cropping. It helps fixed nitrogen into the soil, which improves the fertility of the soil for cultivation of other crops. This in effect reduces cost of production since there is no need for much application of inputs.

4.3.6 Weedicide in Land Preparation and Weed Control

According to Salifu et al., (2012:6), most farmer groups used external inputs to cultivate different types of crops. In a similar view, the study found that 99.5% of the FBOs under study use weedicides during land preparation and weed control at their farms and only 0.5% of FBOs did not use weedicide (see table 30).

Table 30. Weedicide used on Land Preparation and Weed Control

	Weedicide	Frequency	Percent
Valid	Yes	209	99.5
	No	1	.5
	Total	210	100.0

Source: Field survey 2015

Almost all FBOs in the Northern Region used weedicides (such as sarosate, sunphosate among others) and pesticide on both group and individual farms. The reasons for the application of weedicides and other chemicals on their farms are to

expand farm size, weed control, and facilitation of easy preparation of land. However, some FBO members indicated that weedicides and pesticide had negative effects on their health and on the environment, especially soil fertility of the farms, which pave way for strong weed growth. Lack and Low educational level of FBO members has manifested in the application of weedicide and pesticide because some FBO members could not read instruction on weedicide and pesticide containers. This in effect means that they could not determine the right quantity of chemicals needed for a specific condition in terms of weedicide and pesticide application.

4.3.7 Deforestation

Deforestation is one of the major activities that make arable land infertile for crop cultivation. The survey found that out of 210 FBOs, 90% of them were engaged in deforestation and 10% not engaged in deforestation (See table 31).

Table 31. Deforestation

Deforestations	Frequency	Percent
Yes	189	90.0
No	21	10.0
Total	210	100.0

Source: Field survey 2015

Majority of FBOs in the Northern Region are engaged in deforestation because they cultivate new lands by clearing of vegetation on those lands to enable tractors gets space to plough. The expansion of farm size by FBOs leads to clearing of more trees as compare to non-FBO members and this activity is on annual bases. FBO members are of the view that slash and burn help reduce the number of termites and other living organisms that could affect crop production in the form

of pest infestation and cutting of crops roots. They do not appreciate the harm being cause to the natural environment but only complain of reduction in soil fertility. This affect soil fertility because land is predisposed to erosion, burning and leaching.

4.3.8 Poisonous Chemical Containers

The study revealed that members' of the 210 FBOs use poisonous chemical containers to fetch water from rivers and other water bodies. These containers do not necessarily mean only weedicide and pesticide containers but gallons used to fetch water for the application are inclusive because during the application of the chemicals water containers are contaminated with the chemicals and these containers are used in fetching water without being cleaned. However, FBO members' use these containers not for agricultural purposes only but for fetching water for other uses including domestic, construction and processing of cassava. These containers pollute water bodies, which affects both aquatic and other lives on land.

4.3.9 Environmental Byelaws

The study revealed that out of the 210 FBOs researched, 16.2% of them have environmental byelaws and 83.8% of them do not have environmental byelaws (see table 33).

Table 32.Environmental Byelaws

Environmental byelaws	Frequency	Percent
Yes	34	16.2
No	176	83.8
Total	210	100.0

Source: Field survey 2015

The activities of FBOs and the environment are interconnected and there is both forward and backward linkages between them. The few FBOs that have environment byelaws did that with the purpose of securing external support, especially from NGOs and other bodies. AEAs that educate FBO members' plays very little role in relation to environmental education as a result most FBOs destroy vegetation without finding ways and means of restoring it.

Out of the 34 FBOs that have environmental byelaws, 33 of them have not apply the law. One FBO has applied the law by fining a member who has burnt its protected vegetation. In view of the law, it implies that 99.5% of FBOs in the Northern Region do not protect the environment that they depend on for their survival and meeting of other needs.

Table 33.Punishment for Violating Environmental Byelaws

	Punishment for violating environmental byelaws	Frequency	Percent
	Yes	1	2.9
	No	33	97.1
Total		34	100.0

Source: Field survey 2015

4.4 Challenges Facing FBOs

There are many challenges facing FBOs worldwide. The study used semi-structured questionnaires and interview to collect data on these challenges. However, the respondents did not add more of the challenges but limited their responses to the stated challenges in the questionnaire. The reason is that the ten challenges are the most pressing issues facing FBOs. The study considered the ten challenges responded during the data collection and they are ranked based on the severity of the challenge starting from the most severe challenge that has a mean

of one (1) and the least severe challenge in the ranking has a mean of ten (10). The study found that none of the challenges either had a mean of one or ten. This implies that none of the challenges is completely out of control or not a challenge to FBOs in the Northern Region.

The research study used Kendall's W. Test to rank the challenges in the table below based on their mean score. Kendall's Coefficient of Concordance used to rank challenges facing FBOs indicates 35.2% agreement in the ranking of the challenges facing FBOs by FBO members' in the Northern Region and it is significant at one percent (see table 37). This level of agreement is because of all surveyed FBOs were into production of food crops and their level of activeness in the production of food crops. Most of the production FBOs in the Region had common challenges.

Table 36. Kendall's W. Test (W)

Challenges	Mean Rank	Position
Difficulty in resource mobilisation	2.93	1
Unfavourable weather condition	3.67	2
Limited access to fertile land	3.86	3
Poor yield	4.65	4
High illiteracy	5.55	5
Lack of training after formation	5.60	6
Poor road infrastructure	6.49	7
Price variability	6.61	8
Limited business skills	6.66	9
Conflict	8.97	10

Source: Field survey 2015

Table 37. Test Statistics

N	210
Kendall's W[a]	0.352
Chi-Square	664.411

Df	9
Asymptotic Significance	0.000

a. Kendall's Coefficient of Concordance

The study in table 36 revealed that out of the ten ranked challenges, the first five most severe challenges were difficulty in resource mobilisation, unfavourable weather condition, limited access to fertile lands, poor yield, and high illiteracy. The least challenge is conflict and this means there is great unity among FBO Members' in the Northern Region. However, the most severe challenge is difficulty in resource mobilisation affects management and the entire production cycle of FBOs and challenges in general resulted in decrease in food production and income level of FBO members'. Details of the challenge are as follows:

4.4.1 Difficulty in Resource Mobilisation

The study revealed that the ten ranked challenges, difficulty in resource mobilisation is the most severe challenge with a mean of 2.93 (See Table 36). This result is in agreement with the work of Lung'ahi, (2012:28) that farmers' organisations cannot access affordable production inputs such as finance, technology, land, and water. Similarly, (Kiwazi, 2012:24) found that FBOs suffered from false promises from some of the funding partners who withdrew before completing what they had promised to do thereby demoralising group members. Similarly, Poole and frece, (2010: 52) also found that the main challenge to success of farmer groups is lack of capital to grow in scale. Shiferaw et al., 2006:28) and Hussein, (1999: 2) found that FO's lack access to diverse sources of income and capacity-building support. In addition, it confirms the work of Carney, (1996:3) that FBOs faced difficulties with both raising and controlling finances.

The major causes of this challenge include lack of collaterals, no business plans, frequent crop failure due to uncertainty in rainfall pattern and poor soil fertility. This indicates that almost all FBOs in the Northern Region have serious challenges in mobilising resources to undertake productive activities and performing certain mandatory functions to satisfy the needs of their members. However, these organisations are able to cope with this challenge by contributing money and farm produce for welfare issues.

4.4.2 Unfavourable Weather Condition

The second most severe challenge is unfavourable weather condition with a mean of 3.67 (See Table 36). This result is consistent with the work of Salifu et al., (2010:8) that many members of FBOs attribute their inability to repay loans to poor yields, which relates mainly to unfavourable weather conditions. In addition, Chirwa et al., (2005:3) found that FBOs operate with a number of challenges this include: physical and natural difficulties in agricultural production (for example poor soils and uncertain rainfall). Uncertainty in the weather condition is a serious challenge facing most farmer organisations because most production FBO members in the Region depend mostly on rain fed agriculture. This means that the uncertainty in the weather condition actually affect the production of food crop and general activities of FBOs in the Region. However, FBOs do not have a reliable means of handling draught issues. The reliable way of handling unfavourable weather condition is construct dam but these organisations are cash trap, hence unable to find solution to this challenge.

4.4.3 Limited Access to Fertile Lands

The study rank limited access and control of fertile lands as third with arithmetic mean of 3.86 (See Table 36). This result is consonant with the work of Kiwazi,

(2012:24) that limited access to cultivatable land coupled with prohibitive prices of land and women's low income have been a major setback for farmer-based organisations. In addition, Chirwa et al., (2005:3) found that FBOs operate with a number of challenges which include poor soils. Arable land in the Region easily loses its fertility and getting access to the land is a serious challenge among members of FBOs that are into food crop production. This means that averagely it is a challenge across most farmer-based organisations in the Northern Region. FBOs are not able to improve soil fertility as a means of finding solution to limited access to fertile land in their operational areas.

4.4.4 Poor Yield

This challenge is fourth with arithmetic mean of 4.65 (See Table 36). This result is consistent with the work of Shiferaw et al., (2006:28) that one of the most important constraint to FBOs collective marketing is low volumes of farm produce. This challenge exists because of poor farm management, unfavourable weather condition, pest infestation, limited access to fertile land. This challenge has affected food production and income level of FBO members and the situation is worse when poor yield is of poor quality. Most FBOs try to solve this problem by applying more farm input such as fertilizer but there are many causes to this challenge.

4.4.5 High Illiteracy

The study found that high illiteracy is a major challenge with a mean rank of 5.55 (See Table 36).This result is consistent with the work of Chirwa et al., (2005:3) that FOs operate with a number of challenges which include low levels of literacy. This challenge prevails in FBOs because the Northern Region is characterised with low level of education. Most people with low level of education in the

Region are engaged in farming as the best of enterprise and as means of survival in the Region. This challenge has a serious negative effect on performance of FBO activities such as food production because education plays a vital role in execution of FBO leaders mandatory functions. Interview with FBOs revealed that few FBOs are able to co-opt people with high level of education as members of their organisations. This challenge still exist because as people attain high level of education, their orientation towards FBOs activities decrease.

4.4.6 Lack of Training after Formation

Lack of training after formation is sixth with a mean rank of 5.60 among challenges facing FBOs in the Northern Region (See Table 36). Similarly, Lung'ahi, (2012:27) found that formation of farmers' organisations were mainly supported by extension workers who initiated farmer groups but often did not train them properly. As a result, many groups disintegrated after just a few years. This implies that most FBOs are project base organisations with the aim of receiving training, farm inputs and financial resources. The organisations never receive training and other forms of support as promised by project financiers. This has made those organisations, both management and technically incapacitated. FBO members had a lot of training from AEAs on good farming methods than non-FBO members. However, there are limited number of AEAs in the region but the few available are of great support to FBO activities.

4.4.7 Poor Road Infrastructure

The seventh challenge with a mean 6.49 from the ranking of ten challenges facing FBOs in the Northern Region was poor road infrastructure(See Table 36).This finding confirms the work of Chirwa et al., (2005:3) that FBOs operate with a number of challenges which include poor infrastructure. This poor infrastructure

comes in the form of poor road network, inadequate standard storage facilities, and inadequate telecommunication facilities. This challenge has made most FBOs in the region unable to ripe the full benefits of their economic activities because of post-harvest losses and poor pricing of their farm produce which worsen the poverty situation of FBO members. However, FBOs are unable to find any immediate solution to the problem.

4.4.8 Price Variability

The Eighth challenge was price variabilitywith a mean rank of 6.61 (See Table 36). Similarly, Wilhemina et al., (2010:98) found that lack of innovation and market responsiveness, relatively low product quality are some of the challenges faced by FBOs. In addition, Shiferaw et al., (2006:28) also discovered that the most important constraints to collective marketing are price variability and low volumes. Also, Chirwa et al., (2005:3) found that FBOs operate with a number of challenges which include poor services (for example absent, late, poor quality and/or unreliable input and output markets) and an unfavourable macro-economic environment. This challenge exists because of lack of storage facilities, pest infestation, poor road infrastructure, and limited business skills. Most farmer organisations sell their goods at lower prices, which affect profit levels from their economic activities. Even though price variability is a challenge, FBO members did not rate it as a major challenge. FBOs are not able to cope with this challenge well because they do not have proper storage facilities for their farm produce, hence poor prices for farm produce.

4.4.9 Limited Business Skills

The ninth challenge was limited business skills with a mean rank of 6.66 (See Table 36).This result did not conform to the work of Salifu et al., 2010:18) that

leadership skills are usually limited in rural Africa, FBOs and agri–coops have no other choice than to stay small and homogeneous. In addition, Shiferaw et al., (2006:28) found that low business skills appear to be relatively important. Similarly, Chirwa et al., (2005:3) found that FOs operate with a number of challenges that include traditional attitudes to business and business relations. FO members lack basic literacy, business skills and experience this may provide opportunities for local elites to capture the organisations and allow leaders to misuse FOs resources. This challenge is one of the least obstacles facing FBOs in the Northern Region of Ghana. This has manifested as part of the difficulties faced in resource mobilisation and poor pricing of the farm produce. Most FBOs are under performing because members do not see their organisations as complete business entities and do not know the importance of business skills to the growth of the FBOs. FBOs have taken any action to help solve this problem.

4.4.10 Conflict

The least out of the ten challenges facing FBOs in the Northern Region is conflict with a mean rank of 8.97 (See Table 36). Ragasa and Golan, (2012: 11) discovered that Conflicts in recent years have greater effects than those of earlier years on RPO performance; and the number of conflict events per territory and per district affect FBOs performance. Similarly, Francesconi and wouterse, 2011:6 and Kiwazi, 2012:24) also found that FBO and Cooperative organisations typically face a period of growth and good performance. This inevitably increases the likelihood of disagreement, tension, and conflict among members. In addition, Francesconi and wouterse, 2011:9) finding was that limited incidence of collective action is attributed to major problems faced by FBOs, which relate to problems of internal cohesion such as tension, disagreement, and eventually

conflict among members or between members and leaders. There was limited number of conflicts among FBO members in the Northern Region because membership is voluntarily and characterised with voluntary exit. FBOs Members know each other's character and attitude before the formation, hence limited conflicts in the organisations.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1 Introduction

This chapter entails summary and conclusion drawn based on the findings. The recommendations made on the study will improve farmer-based organisations role in food production. This study analysed the role of farmer-based organisations in food production and findings indicate that FBOs are able to serve their members by facilitating access to farm inputs, market, welfare services, extension service, and access to land in the Northern Region of Ghana.

5.2 Summary of Findings

Farmer-based organisations contributes so much to food production. They serve as a means of gathering resources for cultivation of crops and tree plants. This research found that the youth play very active role in FBOs activities and FBO members who played active role during the formation of FBOs had the chance of being leaders. The research study found that males played active role in production FBOs than their female counterparts. However, majority of FBO members have low level of education and the few with basic education mostly could not read and write which affect understanding of farmers during training programmes. The Ministry of Food Agriculture led the formation of modern

FBOs in the Region, these FBOs existed averagely for the past five years with average membership of 22 people, and most of them operated without being registered. The farmer-based organisations considered education in the appointment of leaders, especially secretaries.

The Millennium Development Authority (MiDA) worked with selected FBOs to enhance the technical and commercial skills of their members', simultaneously using the FBOs as platforms to supply farm inputs and facilitate access to credit (Salifu et al., 2012:6). The research findings indicate that majority of FBOs that are engage in collective labour and farming, used collective farms as demonstration fields but not as a major source of revenue. Farmer-based organisations facilitate access to tractor services, land, fertilizer, seeds, markets, transport services, and free extension services from MoFA and NGOs to ensure commercial agriculture. However, there is limited access to standard storage facilities, financial resources and technical training for FBOs and some FBOs could not get support from other organisations because their existence is unknown or their inactiveness.

The research findings show that FBOs participate actively in clean up exercise, cultivation of legumes, deforestation, and use of poisonous chemicals to pollute water bodies. Almost all FBOs in the Northern Region used weedicides and other chemicals on both group and individual farms for expansion and management of farms that turn to have negative effects on their health and the environment. However, these organisations play minimal role in planting of economic trees, and practicing soil and water conservation activities in their operational areas because it takes a long time to realise the benefits. Poor farming practices and other

unaccepted mode of handling land predisposes soil to erosion, leaching, and killing of macro and micro organisms, which eventually make soil infertile for crop production. As a result, FBOs need more inputs to facilitate food production, which leads to high production cost. They do not have environmental byelaws that regulate their activities towards the environment. This implies that FBO members did not appreciate the harm they cause to the environment but only complain of reduction in soil fertility.

Kendall's Coefficient of Concordance of 35.2% agreement with the ranking of the challenges facing FBOs in the Northern Region and it is significant at one percent. The first five most severe challenges are difficulty in resource mobilisation, unfavourable weather conditions, limited access to fertile lands, poor yield, and high illiteracy. The least challenge is conflict, which means there is great unity among FBO Members' in the Northern Region.

5.3 Conclusion

Farmer-based organisations contribute to increase in food production. These FBOs serve as a means of gathering resources for cultivation of food crops and tree plants. They facilitate access to tractor services, land, seeds, storage facilities, transport services, markets, and free extension services from MoFA and NGOs to ensure commercial agriculture. However, some FBOs cannot get support from other organisations because their existence is unknown or because of their inactiveness. FBOs activities cause land degradation without any measure to protect the environment. This implies that FBO members do not appreciate the effects of negative activities of FBOs on the environment but only complain of reduction in soil fertility and farm output. However, FBOs are able to facilitate

food production while facing severe challenges in the production process in the Northern Region.

5.4 Recommendations

The research work findings indicate that FBOs perform well in relation to most of their core mandates. However, FBOs perform poor on access to credit and that is critical to expansion in food production because it is a major factor that influence most peasant farmers join FBOs. This research study makes the following recommendations to all stakeholders in Agriculture to improve and sustain FBOs contributions to food production:

- Government should create enabling environment to facilitate smooth operation of FBOs as business entities. MoFA should lead in the process of FBOs registration with Registrar General Department and facilitate access to support in the form of inputs, agricultural extension services, and training on business management to ensure proper enterprising in FBOs. Proper business registration and management training facilitates the preparation of funding business plans and that offers FBOs the opportunity to accessing credit facilities.
- The Ministry of Food and Agriculture, and NGOs into agriculture should orientate FBOs on the importance of pooling resources together to undertake commercial farming in the form of collective farms. Collective activities and resource mobilisation can facilitate easy access to tractor services, improve variety of seeds, suitable storage facilities, and government subsidise fertilizer.
- The Ministry of Food Agriculture should help educate FBOs on the use of chemicals and disposal of chemical substances to reduce the hazards on individuals and on the natural environment. There is the need for Farmer-

based organisations in the Northern Region to cultivate trees crops because they provide benefits such as improving soil fertility, reduction of crop destruction by windstorm, income, and general support to the ecosystem. This in effect improves the wellbeing of FBO members' and the community at large.

- Poor road infrastructure has made most FBOs in the region unable to ripe the full benefits of their economic activities. Post-harvest losses and poor pricing of farm produce is because of poor road network and this has worsen poverty situation among FBO members. Government should help construct both major and feeder roads in the region.

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APPENDIX A

QUESTIONNAIRE FOR FBO MEMBERS

UNIVERSITY FOR DEVELOPMENT STUDIES
FACULTY OF INTEGRATED DEVELOPMENT STUDIES
DEPARTMENT OF GENERAL AND AFRICAN STUDIES

TOPIC: DETERMINANTS OF FARMER-BASED ORGANISATIONS PERFORMANCE IN NORTHERN REGION OF GHANA.

This research is part of a Master's Thesis conducted in the Department of General and African Studies. The study selected a sample in the Northern Region, so your participation is vital. The outcome of this study will enhance knowledge on the Determinants of Farmer-Based Organisations Performance in Agricultural Development.

Participation in this study is voluntary, all who participate will remain anonymous, all information offered are confidentially, and no individuals may be recognized.

District:.....Community:.....
Group name:.....Position of respondents:.....
Questionnaire number [.....]Date of Interview:……
Name of interviewer …….....

NOTE: Please provide the correct information by ticking (√) appropriately and fill in the blanks where necessary.

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF FBOs

1. What is your age category? 1 = less than 18years, 2 = 18 – 25 years, 3 = 26 – 30 years, 4 = 31 – 40 years, 5 = 41 – 50 years, and 6 = > 50 years
2. Gender of the respondent [___] 1 = Male 2 = Female
3. What religion do you belong to? 1=None [ ], 2=Christian [ ], 3=Muslim [ ], 4=Traditional [ ], 5=Others [specify].....
4. What is your marital status? Please tick: 1= Married [ ] 2=Single [ ]
5. What is your education level as leader of your organisation? 1=None [ ], 2=Primary [ ], 3=JHS/Middle [ ], 4=SHS/Technical [ ], 5=Tertiary [ ], 6= Others (Specify)…….....
6. How is membership of your FBO based? 1= kinship ties, 2=small network 3= homogenous membership 4= other [specify].....
7. Who facilitated the formation of your farmer-based organisation? 1= FBO Members 2=MoFA 3= Department of Co-operatives 4=NGO 5=Other (specify).....
8. How old is your farmer-based organisation? [ ]
9. Have you registered your organisation? 1=Yes 2= No
10. Which institution/organisation have you registered your FBO with? 1= MoFA 2= Department of Co-operatives 3=Registrar General Department 4=NGO 5=Other (specify).....
11. Do you have organisational structure in place? 1=Yes 2= No
12. Gender composition of your FBO is dominated by? 1=Male 2=Female
13. What is the detail composition of gender in terms of numbers? 1= Male..... 2= Female.....
14. Do you consider education when choosing your leaders? 1= Yes 2= No
15. Do you consider gender when electing/appointing leaders for your FBO? 1=Yes 2=No

16. Are all your members in production? 1=Yes 2= No
17. If no in Q16, what other trade do they engage in? 1=Processing 2= Marketing 3= Others (Specify).....

CONTRIBUTIONS OF FARMER-BASED ORGANISATION TO FOOD PRODUCTION

18. How does your FBO manage it affairs? 1= Internally manage 2= External support 3= Both 1 and 2
19. If 2 or 3 in Q17, from whom/which.....
20. Did your FBO practice collective farming? 1=Yes 2= No
21. Does your FBO facilitate its members access to collective labour (mutual labour) 1=Yes 2= No
22. Does your FBO facilitates its members access to tractor services? 1=Yes 2= No
23. Does your FBO assist its members to acquire land for food production? 1=Yes 2= No
24. Has your FBO facilitated its member's access to fertilizer? 1=Yes 2= No
25. Does your organisation assist in the provision of seeds for planting to its members? 1=Yes 2= No
26. Has your FBO facilitated access to technical training on good agricultural practices? 1=Yes 2= No
27. Has your FBO facilitated its members' access to financial services? 1=Yes 2= No
28. Has your FBO played a vital role for its members' access to storage facilities? 1=Yes 2= No
29. Does your FBO assist its members in marketing of their produce? 1=Yes 2= No
30. Does your organisation undertake group monitoring? 1=Yes 2= No
31. Does your FBO assist its members to access agricultural extension services? 1=Yes 2= No
32. Did your organisation assisted its members to have access to processing service? 1=Yes 2= No
33. Did your FBO facilitated access to transport services to its members? 1=Yes 2= No

FARMER-BASED ORGANISATIONS EFFECTS ON NATURAL ENVIRONMENT

34. Does members of your FBO undertake planting of economic trees? 1=Yes 2= No
35. Does your FBO members participate in soil conservation activities in its operational area? 1=Yes 2= No
36. Does your organisation embark on water conservation activities that have multiple benefits to the community? 1=Yes 2= No
37. Does your FBO members participate in clean up exercise in its catchment area? 1=Yes 2= No
38. Has your organisation undertakes cultivation of leguminous crops to boost up soil fertility? 1=Yes 2= No
39. Do members of your FBO use weedicide in the land preparation and weed control at their farms? 1=Yes 2= No
40. Does your FBO members' activities contribute to deforestation in the catchment area? 1=Yes 2= No
41. Do members of your FBO occasionally use poisonous chemicals containers for fetching water in water bodies for farming activities? 1=Yes 2= No
42. Do you have environmental byelaws as a farmer-based organisation that help regulate activities of its members on the environment? 1=Yes 2= No
43. Has your FBO ever punished somebody for violating the environmental byelaws? 1=Yes 2= No

CHALLENGES FACING FBOs:

Please rank these challenges by writing a number from the scale in each box.

CHALLENGES	RANK
	SCALE: 1= Very serious and 10=Not serious 1 ⟷ 10 The scale could go beyond 10 if there are more challenges
Lack of training for FBO members after formation	
Difficulty in resource mobilization	

High illiteracy	
Poor yield	
Unfavourable weather condition	
Poor road infrastructure	
Limit access to fertile lands	
Price variability	
Conflict	
Limited business skills	
Others state (if any): 1……....	
2……....	
3……....	
4……....	

APPENDIX B

INTERVIEW GUIDE FOR FBO MEMBERS

TOPIC: DETERMINANTS OF FARMER-BASED ORGANISATIONS PERFORMANCE IN NORTHERN REGION OF GHANA.

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF FBOs

1. How important is education to your FBO?
2. What criteria is use in finding members to your FBO?
3. Who facilitated the formation of your farmer-based organisation and why?
4. What experience have you gotten from the FBO?
5. Why did you register your organisation?
6. How important is your organisational structure to you?
7. How relevant is gender to your FBO?

CONTRIBUTIONS OF FARMER-BASED ORGANISATION TO FOOD PRODUCTION

1. How do you manage your FBO affairs?
2. How important is collective farming to your FBO?
3. How relevant is collective labour force (mutual labour) to your FBO?
4. What are the relevant of tractor services provided by your FBO to its members?
5. How does your FBO assist its member's to acquire land for food production?
6. How does your FBO facilitate its members' access to fertilizer and why?
7. How does your organisation assist in the provision of seeds for planting to its members?
8. How does your FBO facilitate its members' access to technical training?
9. How does your FBO facilitate its members' access to financial services and why?
10. How has your FBO aided its members' access to storage facilities and why?
11. How does your FBO assist its members in marketing of their produce and why?
12. How does your organisation carry out monitoring and why monitoring?
13. How does your FBO assist its members to access agricultural extension services and why?
14. How does your organisation assist its members to have access to processing service and why?
15. How does your FBO facilitate its members' access to transport service and why?

FARMER-BASED ORGANISATIONS EFFECTS ON THE ENVIRONMENT

1. Why does members of your FBO undertake planting of economic trees?
2. Why does your FBO members' participate in soil conservation activities in its operational area?
3. Why does your organisation embarked on or do not take part in water conservation activities?
4. Why does your FBO members participate in clean up exercise in its catchment area?
5. Why did your FBO cultivate of leguminous crops

6. Why does members of your FBO use weedicide in the land preparation and weed control at their farms?
7. How does your FBO members' activities contribute to deforestation in the catchment area?
8. Why does members of your FBO occasionally use poisonous chemicals containers for fetching water in water bodies for farming activities?
9. How relevant is environmental byelaws as a farmer-based organisation in regulating activities of its members on the environment.
10. How do you punish somebody for violating the environmental byelaws and why?

CHALLENGES FACING FBOs:

1. How is limited or lack training a problem to your FBO?
2. Why challenges in resource mobilisation?
3. Why is high illiteracy a challenge to your FBOs?
4. What contribute to poor yield?
5. What is unfavourable weather condition and how does it affect food production?
6. What is poor road infrastructure and why is it a problem?
7. How does limited access to fertile lands affect you as FBO?
8. Why is price variability a problem to your FBO?
9. What are the effects of conflict on your FBO?
10. How is limited business skill a problem?

APPENDIX C

Table 38. Districts in Northern Region

Name of District	**District Capital**
Bole	Bole
Bunkpurugu-Yunyoo	Bunkpurugu
Central Gonja	Buipe
Chereponi	Chereponi
East Gonja	Salaga
East Mamprusi	Gambaga
Gushiegu	Gushiegu
Karaga	Karaga

Kpandai	Kpandae
Nanumba North	Bimbilla
Nanumba South	Wulensi
Saboba	Saboba
Savelugu-Nanton	Savelugu
Sawla-Tuna-Kalba	Sawla
Tamale Metropolitan	Tamale
Tolon-Kumbungu	Tolon
West Gonja	Damongo
West Mamprusi	Walewale
Yendi Municipal	Yendi
Zabzugu-Tatale	Zabzugu
North Gonja	Daboya
Kumbungu	Kumbungu
MamprugoMoaduri	Yagaba
Sagnarigu	Sagnarigu
Mion	Sang
Tatale Sangule	Tatale

Source: Ghana District Repository, accessed in 2014