UNIVERSITY OF CAPE COAST

DETERMINANTS OF DEVELOPMENT EFFECTIVENESS OF THE MILLENNIUM DEVELOPMENT AUTHORITY COMMERCIAL AGRICULTURAL DEVELOPMENT PROJECT IN THE EFFUTU MUNICIPALITY, GHANA

ISAAC KWASI ASANTE

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BY

ISAAC KWASI ASANTE

Thesis submitted to the Department of Agricultural Economics and Extension of the College of Agriculture and Natural Sciences, University of Cape Coast in partial fulfilment of the requirements for award of Master of Philosophy degree in Non-governmental Organization Studies and Community Development

MAY 2015

DECLARATION

Candidate's Declaration

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

Candidate's Signature: …… Date…….……

Name: Isaac Kwasi Asante

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature …….. Date: ……..

Name: Prof. Festus Annor-Frempong

Co-Supervisor's Signature …….. Date: …..……..

Name: Dr. Moses Kwadzo

ABSTRACT

Development effectiveness measures project relevance, effectiveness, efficiency, impact and sustainability. The MiDA project lacked empirical data to indicate the extent to which it has achieved development effectiveness and improved the welfare of farmers in the study area. The study investigated the determinants development effectiveness of the MiDA project in the Effutu Municipality of Ghana. Descriptive survey design, random sampling technique and structured interview schedules were used to select and collect data from 170 farmers in five communities in the municipality. Frequencies, percentages, means, standard deviation, chi-square, appropriate correlation coefficients and linear regression were generated to establish and describe relationships among variables of the study. The study revealed that the MiDA project was very relevant, sustainable, effective, efficient and highly impacted on the beneficiaries. Project relevance was influenced by farmer participation in project implementation and monitoring and evaluation; project effectiveness by yield of maize, farmer participation in implementation, monitoring and evaluation, farm size and level of education. Project efficiency was also influenced by yield of maize and farmer participation in implementation whiles project impact was influenced by yield of maize, farmer participation in implementation and income from the sale of maize. Project sustainability was influenced by farmer participation in project implementation, years of farming experience, level of education and not holding position in the farmer based organizations. The study recommends among others the need for development agencies to encourage farmer participation in project activities and improving the yield of crops which to a large extent will improve development effectiveness in the study area.

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DEDICATION

To my wife Akua, and daughters Ewuradwoa and Mama Obuobea Asante

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LIST OF ACRONYMS

ABZ	Afram Basin Zone
AEAs	Agricultural Extension Agents
AfDB	African Development Bank Group
AGRA	Alliance for the Green Revolution in Africa
ALNAP	Active Learning Network for Accountability and Performance in Humanitarian Action
CBOs	Community Based Organizations
CNFA	Citizens Network for Foreign Affairs
DAC	Development Assistance Committee
FASDEP	Food and Agriculture Sector Development Policy
FBOs	Farmer-Based Organizations
FFS	Farmers Field Schools
GDP	Gross Domestic Product
IFAD	International Fund for Agricultural Development
IPM	Integrated Pest Management
ISSER	Institute of Statistical, Social and Economic Research
ITTO	International Tropical Timber Organization
MCA	Millennium Challenge Account
MCC	Millennium Challenge Corporation
MDGs	Millennium Development Goals
MiDA	Millennium Development Authority
MoFA	Ministry of Food and Agriculture
NAZ	Northern Agricultural Zone
NGOs	Non-Governmental Organizations

OECD	Organization for Economic Cooperation and Development
PEIS	Project Evaluation Information Sheet
RBM	Results-Based Management
SFSA	Syngenta Foundation for Sustainable Agriculture
SHB	Southern Horticultural Belt
SIL	Syngenta India Limited
SMART	Smallholder Market and Agricultural Resilience Transformation project
SPSS	Statistical Product and Service Solutions
UNDP	United Nation Development Programme
VIFs	Variance Inflation Factors
WIAD	Women in Agricultural Development

CHAPTER ONE

INTRODUCTION

Background to the Study

Development is about creating programmes to address existing problems that affect the growth and well-being of people (Schuh, 1982), reducing vulnerability (Watkins, 2000) and improving the standard of living of the people, especially increasing the quality of the standard of living of the people (Okorley, Deh & Owusu, 2012). Agriculture is often used to bring about development due to its capability of enhancing food security, supplying of raw materials to industry, creating employment, generating of foreign exchange and reducing poverty (Food and Agricultural Sector Development Policy II, 2007).

Agriculture is said to be contributing immensely towards the economic development in developing countries and offering employment to the majority of the labour force (De Laiglesia, 2006). Research has shown that Agriculture accounted for 22.7% and 32% of Gross Domestic Product (GDP) in Ghana and Sub-Sahara Africa respectively in 2012 and employed 51% and 65% of the labour force (Alliance for the Green Revolution in Africa, 2013; Ghana Statistical Service, 2013). Hence many dynamic and forward looking Nations have taken to agriculture as the backbone of their economic development (Debrah, 2013).

According to Losch (2011) sub-regional governments, which Ghana is no exception, have no choice but to facilitate inclusive agricultural development policies and programmes that benefit a greater number of the population. The government of Ghana, in anticipation to advance agricultural productivity has implemented many policy interventions and projects such as the national buffer stock company, the national fertilizer and input subsidies and the Youth in Agriculture programmes to help reduce the losses and enhance food production.

The Government of Ghana also promulgated policies that promote agricultural development. One of such polices is the Food and Agricultural Sector Development Policy (FASDEP II). This policy was formulated with the objective of providing the right policy framework for all categories of farmers while targeting the poor, risk prone and risk-averse producers that is smallholder farmers (FASDEP II, 2007), who are often marginalized (Nwanze, 2011). Mr. Kofi Annan, the chairperson of the Alliance for the Green Revolution in Africa added his voice by emphasizing the importance of smallholder farmers to economic transformation when he remarked that "the advancement of agriculture, with a focus on small-scale farmers, is central to economic progress in the developing countries of Africa" (AGRA, 2008, para. 25). Hence government's policy interventions in agriculture focused on smallholder farmers to drive growth and development in Ghana.

These interventions have not been without challenges. According to the World Bank (2009a) the major challenge facing agricultural development programmes is investment in developing more productivity-driven base agriculture over a long period that provides support to the people. In order to

solve such a major challenge the United States government in 2006 signed an agreement with the Government of Ghana through the Millennium Development Authority (MiDA) and the Millennium Challenge Corporation (MCC) under the Millennium Challenge Account (MCA) worth US$ 547 million (Institute of Statistical, Social and Economic Research, 2012). The Millennium Challenge Account Ghana Programme was implemented by the Millennium Development Authority MiDA to support the expansion of critical sectors of the Ghanaian economy including agriculture. The commercial agricultural development component, farmer and enterprise training in commercial agricultural activities, provided assistance to smallholder farmers in over thirty districts covering three agricultural zones that is, Northern Agricultural Zone, the Central Afram Basin Zone and the Southern Horticultural Belt (ISSER, 2012).

The MiDA project was aimed at accelerating the development of commercial skills and capacity building among Farmer-Based Organizations (FBO) and their business partners such as processors and marketers by adding value to agricultural crops. The beneficiaries of the MiDA project were introduced to three thematic modules which included business capacity building, technical training and sale maximization training for twenty contact days over a three week period after which each farmer received a starter pack (ISSER, 2012). The training was to improve the organizational capacities of smallholder farmers. Knowledge and skills acquired by the farmers through the trainings were to be implemented using the starter pack which contained a cash amount for land preparation, certified seed and fertilizer for an acre of farm land and protective clothing all valued at US$230 (ISSER, 2012).

Three hundred smallholder farmers in the Effutu Municipality of the Central region in the Southern Horticultural belt were beneficiaries of the MiDA project between 2008 and 2011. Winneba is the capital of the Effutu Municipal Assembly area which is made up of 68 settlements and covers an area of 417.3 square kilometers (Ghana Districts, 2013). The Ghana Statistical Service, 2010 Population and Housing Census revealed that the municipality had a population of 68,597 people with fishing and related enterprises, trading and farming as the main occupation of the people.

Every project has a definite time line, hence stakeholders including donors, development agencies and governments who invest huge funds into projects demand to know how the funds were disbursed (Okorley et al., 2012). Very often project based interventions might be seen as a success but the overall performance may not be easily seen (United Nations Development Programme, 2001). There are several approaches for evaluating development projects such as formal surveys and impact evaluation (World Bank, 2004), however, the focus on global goals and development outcomes highlights the crucial importance of development effectiveness (UNDP, 2003) which is driving development actors, to define clear and measurable indicators, monitor the indicators and report on the performance of development interventions (UNDP, 2001).

Development effectiveness as an evaluation approach provides the indicators for measuring development that has taken place as a result of the intervention over a period of time and support in accessing the development outcomes of that intervention (African Development Bank Group, 2004). The attributes for measuring development effectiveness are relevance,

effectiveness, efficiency, impact and sustainability (Organization for Economic Cooperation and Development-Development Assistance Committee, 2000; Picciotto, 2013). In simple terms a project can be labeled to have achieved development effectiveness only if it achieved its relevant objectives efficiently, in a sustainable fashion and with good results (Picciotto, 2013). For the purpose of this study the terms intervention and project are used interchangeably.

Statement of the Problem

According to Morris (2009), simulating agricultural growth is critical to reducing poverty in Africa. However, the agricultural sector has suffered severe consequences due to the neglect by international donor community and local government's efforts to comply with difficult foreign demands are the major challenges that hinder agricultural growth on the continent (Annan, 2008). The deficiencies has impacted on agricultural research and development, construction of roads connecting rural communities to markets centres resulting in discrimination against exports, poor investment in agricultural production, poor infrastructure and inadequate agricultural services to farmers (Nwanze, 2011).

The Food and Agricultural Sector Development Policy (FASDEP II, 2007) delivers a comprehensive analysis of the problems in agriculture in Ghana hinged on human resource and managerial skills, natural resource management, technology development and dissemination, infrastructure, market accessibility, food insecurity and irrigation development and management with cross cutting issues of gender inequality, access to land and finance, energy availability and cost. According to Seini, Jones, Tambi and

Odularu (2011), smallholder farmers are the most disadvantaged, because they are faced with the challenge of accessing agricultural inputs, credit facilities, market opportunities, high rate of soil depletion, and low information, knowledge and the skills to manage the farming enterprise. Nwanze (2011) also adds that the overall effect these challenges is the low yields of agricultural products leading to low domestic food availability, low income of farm households, low nutritional intake and poor health condition of the farmers.

Zhou (2010) however suggested that, in the face of growing populations, it is necessary to increase food production to feed the population. The United States Government provided assistance and funding through the MiDA Ghana project. The goal of the project was to increase agricultural productivity, high-value commercial and basic food crop production and private-sector investment in agriculture and also to boost overall farmers' income and improve community well-being whiles eliminating the challenges in agriculture. After the implementation of the project, it is important to provide stakeholders with the needed information on the improvement in the welfare of the beneficiaries through an evaluation. The measurement of the development effectiveness of the MiDA project will provide the basis to determine whether the MiDA project achieved its relevant objectives efficiently, in a sustainable manner and with good results.

A study conducted by (ISSER, 2012) on the MiDA project focused on the impact of the project but not the project relevance, effectiveness, efficiency and sustainability. There is however limited empirical information on the MiDA project relevance, effectiveness, efficiency, sustainability and

the factors that defines them. The problem that was investigated in this study was to the determinants of development effectiveness of the MiDA commercial agricultural development project in the Effutu Municipality, Ghana.

General Objective of the Study

The general objective of the study was to examine the determinants of development effectiveness of the MiDA commercial agricultural development project in the Effutu Municipality, Ghana.

Specific Objectives

1. Analyze the background and farm related characteristics of the farmers who participated in the MiDA project.
2. Evaluate the extent of farmer participation in the MiDA project planning, implementation, monitoring and evaluation.
3. Examine the challenges that affected MiDA project implementation.
4. Analyze the development effectiveness of MiDA project in terms project relevance, effectiveness, efficiency, impact and the sustainability of the project.
5. Predict development effectiveness from the background characteristics and the extent of farmer participation in the MiDA project.

Hypotheses of the study

The following hypotheses were formulated and tested at 0.05 alpha level:

1. H_0: The MiDA project has not significantly improved the yield of maize in the study area.
2. H_0: The MiDA project has not significantly increased the yield of chili pepper in the study area

Research questions

The following research questions were formulated for the study;

1. What is the background and farm related characteristics of the farmers who participated in the MiDA project?

2. What is the extent of farmer participation in the MiDA project activities?

3. What challenges affected the MiDA project implementation?

4. How did the project measure up to development effectiveness in terms of relevance, effectiveness, efficiency, impact and sustainability?

5. To what extent do the background, farm related characteristics and farmer participation influenced development effectiveness?

Justification of the Study

This study examined the determinants of development effectiveness of the MiDA commercial agricultural development project implemented in the Effutu Municipality of Ghana. Different attributes of development effectiveness has been used to make recommendations to stakeholders involved in agricultural development. Lessons learned can be used to support future implementation of agricultural development programmes in the Municipality and Ghana as a whole.

The study has provided an understanding of development effectiveness and how farmers of the MiDA project perceive development effectiveness. The outcome of the study with respect to the best predictors of development effectiveness will help other development agencies to allocate resources to programmes areas that will best influence development effectiveness of the programme.

The findings will closed the gap in the ISSER (2012) impact study that recommended a study to assess significant impact of the intervention on crop yield and cash income of the farmers who participated in the project. Finally the study has added to the body of knowledge on development effectiveness of development programmes. Development agencies across the length and breadth of the developing world could use this study as a basis for future interventions.

Delimitation of the Study

There were many stakeholders involved in the MiDA project such as farmers, input dealers, processors, exporters and participating financial institutions, however, farmers who participated in the MiDA project implemented in the Effutu Municipality of Ghana were involved in this study. Furthermore, only the smallholders who received the MiDA training and the starter packs were the focus of the study specifically maize and chili pepper farmers. MiDA provided the farmers with training and starter packs, some of the trained beneficiaries received additional financial support from some of the participating financial institutions, however the aspect of the financial support was not involved in the study. Development effectiveness was examined based on MiDA project relevance, effectiveness, efficiency, impact and sustainability of the project.

Limitations of the Study

Since a structured interview guide was used for this study, there was no room for additional information that could have been obtained through probing, prompting and clarification of questions from respondents. The

instrument was however made valid by analyzing items that were responded to by the respondents. The result of which was captured in chapter four.

The data provided by farmers were based on memory recall. The ability to recall responses often varied with farmers since all farmers were trained at different periods during the implementation of the MiDA project. There was the possibility of farmers giving inaccurate responses to some items. The study was also limited by individual interpretations of items. The failure of the FBOs to receive the loan package had created apathy among the farmers which affected their willingness to respond to the study which was also a limitation.

Definition of Terms

The key terms used in the study are defined in this section.

Development effectiveness: Development effectiveness reflects the extent to which an intervention brought about the targeted change in the life of the individual beneficiaries. Development effectiveness in this case means the changes in terms of relevance, effectiveness, efficiency, impact and the sustainability of the MiDA project on the people of the Effutu Municipality.

Effectiveness: The extent to which the MiDA project achieved its objectives and produced the desired results in the Effutu Municipality, independent of the costs that were needed for it.

Efficiency: The extent to which financial/resources cost were minimized by MiDA to produce projected outputs in the Effutu Municipality. This included a combination of human and material resources during management of the MiDA project municipality.

Impact: The overall effect of the MiDA project on social and economic life of the people in the Effutu Municipality, and the effect on other developmental areas as environment and gender.

Participation: The process through which the farmers in the Effutu Municipality influenced and shared control over the MiDA project, decision making and resources during project planning, implementation, monitoring and evaluation.

Perception: Personal indications to disregard something of emphasize and put meaning in ones' own way. Perceptions, opinions and attitudes of the farmers in the Effutu Municipality were given the same meaning in this study.

Project: The intervention which consisted of planned activities aimed at achieving the MiDA project objectives in the Effutu Municipality.

Relevance: The degree to which the MiDA project objectives remain pertinent to the immediate context and environment of the beneficiaries in the Effutu Municipality.

Smallholder Farmers: Farmers in the Effutu Municipality who own or cultivate less than 2.0 hectares of farm land.

Sustainability: The durability of the MiDA project results in the Effutu Municipality after the project was terminated.

Organization of the Study

The thesis consists of five chapters. Chapter One introduced the statement of the problem and described the specific objectives that guided the study as well as justification of the study. Chapter Two is made up of a review of available related literature relevant to the study. Chapter Three constitutes the methodology which describes the procedures followed in carrying out the

study. Chapter Four focused on the analysis and presentation of the findings of the study. Finally, Chapter Five discussed the summary, conclusions, recommendations, and areas for further studies.

CHAPTER TWO

LITERATURE REVIEW

General Overview

The chapter presents the theoretical and empirical studies that provide the basis for the study. Items reviewed include Neo-liberal theory, modernization theory, the concept of development effectiveness of interventions, participation as well as background characteristics of participating farmers in agricultural development programmes.

Theoretical Framework

Two theoretical frameworks namely neo-liberal and modernization theories are set out as the foundation that guided the study. It is important to understand how the MiDA project was conceptualized and implemented theoretically in order to establish the development effectiveness of the project in the study area.

Neo-Liberal Theory

According to Wahidi (2012), neo-liberalism emerged as a set of economic policies to replace Keynesianism and became widespread following the 1973 oil crisis when OPEC countries increased the price of oil. This increase in oil prices led to a surplus of funds in OPEC countries who deposited the funds into private banks in developed countries. The money was then loaned to poorer countries who were also suffering from the escalation in

the price of oil. The Author further added that, the development later led to the rise of interest rates which resulted in the failure of borrowing countries to pay the loans or the interest, hence the rise of what is known in Latin America as "the debt crisis" of the 1980s (p. 1). As a result of the crisis and in order to prevent the complete collapse of the indebted economies, Wahid revealed that the countries were forced to refinance their foreign debt, reduce government expenditure and restructure their economies in manners prescribed by the IMF, the World Bank, and the International Development Bank. The outcome is the introduction of conditionality in the form of Structural Adjustment Programmes (SAPs).

The SAPs were based on the Washington Consensus Agenda and required borrowing countries to bring about major structural changes, which included the liberalization of trade and financial regulations and privatization of many government enterprises in order to secure loans and lower interest rates. Grewal (2008) also added that neoliberalism favours the separation of economy from the social reality by means of a strong, technocratic discourse and is driven by the power of its principle agents – the global policy institutions like World Bank, IMF and OECD – whose belief system is informed by the neo-classical economic theories. Ruthjersen (2007) refers to neoliberalism as a political-economic theory, practice and ideology which promotes a view of good life emphasizing individualism, material well-being, economic growth, efficiency and profit, competitive free markets, global trade liberalization, individual freedom and choice and deregulation and the downsizing of the state/government in fovour of private investment and incentive. It can be established that the goal of the MiDA project which was to

increase agricultural productivity, high-value commercial and basic food crop production and private-sector investment in agriculture and also to boost overall farmers' income and improve community well-being is fundamentally in line with the theory of neoliberalism.

The MiDA project sought to promote individualism, material well-being, economic growth, efficiency and profit, competitive free markets, global trade, individual freedom and choice and private sector investment by accelerating the development of commercial skills and capacity building among Farmer-Based Organizations (FBO) and their business partners such as processors and marketers by adding value to agricultural crops. Thus the beneficiaries of the project were introduced to three thematic modules which included business capacity building, technical and sale maximization trainings (ISSER, 2012).

Grewal (2008) posited that neo-liberalism is a path to political freedom which can be achieved through economic freedom. The MiDA project sought to enhance the political freedom of small holder farmers in Ghana through capacity building FBO members to individually and collectively solve problems and have collective bargaining power to negotiate contract and prices with business partners. To achieve economic freedom the project pursued yield improvement of farmers through the distribution of starter packs and linked them to financial institutions with bankable business plans to access credit to expand the farm enterprise. Despite the fact that the strengths of neo-liberalism approach to development are promoted by its proponents as the path to development and prosperity, its opponents warn of it as a development disaster. Wahidi (2012) suggested that whilst both economic

freedom and political freedom are vital aspects of development, it is hard to see the alleged causal link between the two. The Author posited that economic freedom in the form of neo-liberalism where political freedom is either weak or non-existent only opens the door for widespread abuse and exploitation of labour. Political freedom on the other hand enables workers to establish effective mechanisms to protect their rights and entitlements. He however established that, neo-liberalism takes away some of the political freedom; it does not add to it. Hence, argues that, why should political freedom be attributed to economic freedom? Why not debate the opposite, which may even look more plausible?

Ruthjersen (2007) adds that, neo-liberalism has had an increasing influence on development interventions in the West developed countries, stating that the neo-liberal agenda include cutting costs to obtain higher level of efficiency by viewing development as a commodity rather than for the public good. The Author further posited that, deregulation and withdrawal of state from development interventions has been common in many countries since the 1970's whist privatization of state own projects has increased worldwide. Grewal (2008) concluded that free markets and free trade will set free the creative potential and the entrepreneurial spirit which is built into the spontaneous order of any human society, and thereby lead to more individual liberty and well-being, and a more efficient allocation of resources which was espoused by the MiDA project the study area.

Modernization Theory

According to Tipps (1973) modernization theory which can be described as a multifaceted process involving changes in all areas of human

thought and activity emerged in the United States in the late 1940s and early 1950s. Moon (2004) also adds that, the theory is distinctive in the corpus of development theory, because it came to being as part of the broader ideological conflict of the Cold War. The theory was rapidly embraced by most Western governments as the basis for planning for development, particularly in the area of in non-Western communities. Tipps (1973) revealed that, during the two decades after the war, American social scientists and their graduate students, with support of governmental and private agencies, turned increasing attention to the problems of economic development, political stability, and social and cultural change in these societies. The result is the elaboration of numerous conceptual schemes which served as surrogates for a tradition of inquiry into the problems of these societies which was almost entirely lacking giving rise to the case of modernization theory.

Moon (2004) in the developmental study revealed that the paternity of Modernization theory can be traced back to President Harry Truman's inaugural address of 1949 in which the American President outlined a bold new programme for making the benefits of scientific advances and industrial progress available for the improvement of growth and underdeveloped area. Adjei (2007) also suggest that modernization is a transformative process that renders tradition and modernity mutually exclusive. The Author further adds that that a society's traditional structures and values must be replaced by a set of modern ones in order for it to enter into modernity. The assertion by Adjei means that development is equivalent to modernization, thus anything traditional detracted from the surge toward modernization must be discarded on the path toward development. It is wealth knowing that the MiDA project

was conceptualize to improve agriculture in production by eliminating the traditional and indigenous methods used by small holder farmers through capacity building which was intended to transform the small holders into commercial farmers using improved methods and modern knowledge and skills for managing the farming business.

Adjei (2007) posited that the influence of the theories of modernization on the planning and implementation of development strategies in Africa lasted till about the mid-1960s, and was characterized by two related trends. According to the Author, the first was the investment predominantly financed by private capital in enhanced production of mineral, agricultural and forestry resources for American and European industries and economies. The second trend involved the establishment of large, shiny, capital-intensive projects incorporating the latest technology and sited where everybody could see which meant in or near cities. The trend of modernization were upheld by the MiDA project through the promotion of private sector investment in the agricultural enterprises and the establishment of pilot farms where the starter packs were used together with of modern agricultural technologies to demonstrate how effective the technologies could lead to the transformation of agriculture in the country. The modernization theory also fundamentally informed the basis for planning and implementing the MiDA project in the Effutu municipality.

Development Effectiveness

According to Endo, Miyaslitta and Hayashi (2010), the issue of development effectiveness began gaining attention, notably after the end of the cold war when poverty level mainly in Africa stagnated and the poverty issues in developing countries was considered as global issue rather than an issue to

specific country. Lingán, Cavender, Lloyn and Gwynne (2009) in a study found that a number of initiatives emerged following the 1994 genocide in Rwanda, and the subsequent joint evaluation on the international response to the genocide recommendations that agencies strengthen the accountability system of receipt of assistance. The result is global poverty becoming a capital agenda of the international development community resulting in the adoption of the Millennium Development Goals (MDGs) in the year 2000.

The African Development Bank (2004) noted that the historical background of development effectiveness started widening in the nineties, when institutions began measuring in addition to project outputs, the development impact of projects and other interventions as reducing poverty became the overarching objective of development activities. It may appear that the fight against poverty (poverty reduction) was failing prompting development institutions to refocus attention toward achieving development results. The failure brought pressure on NGOs to demonstrate impact they are having on society (AfDB, 2004, Ling `an, et al., 2009, UNDP, 2001).

The concept of poverty reduction was therefore broadened from growth with distribution to an increasing number of social and economic welfare measures embodied in the Millennium Development Goals (AfDB, 2004). Also the emergence of the common development goals and frameworks and the acceptance that relevant development knowledge is located in developing countries was crucial (United Nations Development Programme, 2001). The first Roundtable forum on Managing for Development Results and the Monterrey International Conference on Financing for Development both held in 2002, followed by the Second Roundtable forum held in Marrakech in

February 2004, which resulted in a number of Results-Based Management (RBM) initiatives by donors (AfDB, 2004) expanded the debate on development effectiveness. NGOs and development agencies began to regard the development effectiveness debate as necessary and useful, recognizing the options for action and support in structuring the Aid Architecture and offering possibilities to support countries by creating a more development-friendly environment with emphasis on human rights (especially for women, children, marginalized groups) gave way for the acceptance of the term development effectiveness and its measurement (OBberger, 2010).

Development effectiveness is about the extent to which an institution or intervention has brought about change in a country or the life of the individual beneficiaries (UNDP, 2000, 2001) and the achievements of less attributable, longer-term outcomes and impacts to which the agency efforts are ultimately aimed, and contributes, but which are beyond the manageable, controllable interest of that agency alone (AfDB, 2004). The underlining meaning is the ability of an intervention to bring about change in the life of the beneficiaries however the change might not necessarily be due to only a specific intervention but the ability of the intervention to contribute to the change as a result of different interventions. Development effectiveness can be deduced to signify the performance in bringing about a range of social, economic and political changes.

In Bangladesh an evaluation study by the World Bank (2006) found that the support for female secondary schooling and rural electrification significantly contributed to the reduction in child mortality alongside health sector interventions. It may imply that secondary schooling, rural

electrification and the health sector interventions all contributed to the reduction in child mortality. The question then will be how to verify the contributions of the three interventions in achieving the outcome (reduction in child mortality). Project monitoring and evaluation are building blocks for generating good information on development outcomes (World Bank, 2009b). The World Bank (2006) asserted that high level international meetings, such as the Monterrey Forum on Harmonization, the Marrakech Roundtable on Managing for Development Results, and Paris Forum on Aid Effectiveness highlighted the need for a shift from a focus on development inputs to the achievement of verified outcomes. There is the need for NGOs and development agencies to increase attention on effective monitoring and evaluation of development projects. This means that a robust monitoring and evaluation system at the project level will increase the chances of effectively verifying project results and its impact on beneficiaries.

Development Effectiveness versus Organizational Effectiveness

In attempting to measure development effectiveness one should not lose sight of organizational effectiveness which in some respect intersects with development effectiveness (UNDP, 2001). AfDB (2004) also indicated that in view of the need to have management systems that enhance accountability and performance, it is important to make a distinction between organizational and development effectiveness which together constitute corporate effectiveness.

The UNDP (2001) observed that whereas measuring development effectiveness is an exercise in tracking progress towards development goals, organizational effectiveness requires measuring progress towards the time-bound objectives that an organization sets for itself. In principle,

organizational effectiveness is about the more direct, accountable and attributable measures of performance over which an agency has relatively more control or manageable interest in terms of relevance, efficiency, and efficacy at the level of outputs and some intermediate outcomes (AfDB, 2004). It appears organizational effectiveness can be sub-divided into measures which relate to the quality of policy, process and resources. But development effectiveness answers the fundamental question about how to reach the goals of a development project (UNDP, 2003). These can be deduced to be the factors and conditions that help improve people's lives and the processes that produce results, especially results that are pro-poor and promote equity. The distinction may leave room for overlap, but it is a distinction that needs to be maintained (UNDP, 2001).

Criteria for Measuring Development Effectiveness

The World Bank (2006) said that, it is important that development agencies and NGOs measure the effectiveness of developmental projects or interventions to draw lessons from the interventions carried out. Measuring the impact of projects contributes to the issue of attribution of outcomes to the efforts of the agency in development. The availability of credible information needed to monitor progress towards results and ultimately to measure the development impact of particular interventions, remains a formidable challenge for many development agencies and NGOs.

Even though there is a challenge for many development agencies and NGOs, the search for development results is at the center of the debate over development effectiveness which is driving changes in the international aid architecture (World Bank, 2009b). The World Bank (2006) also noted that

despite the challenge of measuring results, evidence is emerging from projects, country, sector, and thematic evaluations about the factors that increase the likelihood of achieving results. Hence there is the need for a framework for measuring development results. Development effectiveness as a measure of development; contributes to the shaping of policies and programmes (UNDP, 2003).

To help measure the development effectiveness at the project level the UNDP has put together the following criteria to measure the effectiveness of all its developmental projects (UNDP, 2000; 2001). The criteria for project evaluation focus typically on the following; project relevance, effectiveness, efficiency, impact and sustainability. In determining the contribution of its activities to country level outcomes, the African Development Bank has adopted what it calls the "triple A" requirement: Alignment, Aggregation and Attribution to measure development effectiveness (AfDB, 2004).

The Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) in 1991 established a five criteria evaluation standard for development programme and intervention (OECD/DAC, 2000). The five criteria to evaluate development interventions are relevance, effectiveness, efficiency, impart and sustainability. It is clear that the three criteria by the three organizations (UNDP, AfDB and OECD) are geared toward ensuring that evaluation of development programmes or interventions is very comprehensive. Since the evaluation of effectiveness project may show that objectives were met, but that might not necessarily mean that the objectives were appropriate for the entire affected population, were efficiently met, are sustainable, or feed into impact (Active Learning

Network for Accountability and Performance in Humanitarian Action ALNAP, 2006). The OECD/DAC criteria will be adopted for this study to examine the variables that will best determine the relevance, effectiveness, efficiency, impart and sustainability of the MiDA project in the Effutu Municipality of the Central Region of Ghana.

Project Relevance

The UNDP (2001) asserts that project relevance can be seen as the degree to which the objectives of a project remain valid and pertinent either as originally planned or as subsequently modified owing to changing circumstance within the immediate context and external environment of the project. The meaning of the term is far from self-evident. However, under the best circumstance, the term can be interpreted to reflect priorities of beneficiary target groups, recipients and donors (OECD/DAC, 2000; UNDP, 2001). Picciotto (2013) noted that target beneficiary group's priorities are key criteria for determining the relevance of a programme or a project. Relevance is about doing the right things since achieving the wrong goals efficiently is counterproductive.

UNDP (2001) revealed that relevance is measured as the extent to which beneficiary needs have been acted upon during the project design phase. The OECD/DAC (2000) therefore noted that in evaluating the relevance of a programme or a project, it is useful to consider the following questions: to what extent were the objectives of the programme still valid? Were the activities and outputs of the programme consistent with overall goals and attainment of its objectives? And were the activities and outputs of the programme consistent with the intended impact and effects?

Buadi (2008) in his study revealed that a sizeable proportion of the farmers rated as 'very relevant', four out of the five services received from the NGOs, namely; training (35.6%); agricultural information support (36.4%); agricultural inputs (46.8%) and technology transfer (48.5%). About 45 percent of the farmers rated credit as 'relevant'. This implies that farmers may rate NGO services as very important to agricultural productivity and social development.

Project Effectiveness

The UNDP (2001) revealed that project effectiveness measures the extent to which a programme or a project has achieved its objectives independent of the cost required for it. Picciotto (2013) and UNDP (2009) added that project effectiveness is the measure of the degree to which the results (outputs or outcomes) have been achieved or progress toward the achievement of the results taking into accounts their relative importance. Effectiveness is vital, excellence of goals matter little if the embodied vision is not realized (Picciotto, 2013). UNDP (2009) therefore concluded that evaluating effectiveness of programmes must involve an assessment of cause and effect, attributing observed changes to project activities and outputs, for example, the extent to which changes in the number of voters can be attributed to a voter education programme.

The OECD/DAC (2000) in a study found that in evaluating project effectiveness, it is useful to consider the following questions: to what extent were the objectives achieved or are likely to be achieved? What were the major factors influencing the achievement or non-achievement of the objectives. The UNDP (2009) added that assessing effectiveness is more likely

to examine the contributions of the programme toward the achievement of the intended outcomes. In other words an intended change in a population or a target group cannot be attributed to a single intervention or the efforts of a single agency but how much the intervention or agency contributes to the intended change. IFAD (2011) in a study reported that the Rural Enterprise Project II implemented in Ghana made substantial contributions to the overall national objectives, and was effective in reaching project objectives and in building the medium scale enterprise sector at the national and district levels.

Project Efficiency

The OECD/DAC (2000) observed that efficiency is the measure of outputs (qualitative and quantitative) in relation to input. The UNDP (2000) also added that efficiency is the measure of optimal transformation of inputs into outputs. Whereas Picciotto (2013) and UNDP (2009) see efficiency as the measure of how economically resources or inputs (funds, expertise, time etc) has been converted to results. It can be deduced that an initiative is efficient when it uses resources appropriately and economically to produce the desired outputs or deliverables.

Picciotto (2013) observed that efficiency matters since when excessive cost are incurred or scares resources are misallocated, reaching high relevant operational goals cannot qualify as success. OECD/DAC (2000) found that in evaluating project efficiency it is useful to consider the following question; were activities cost-efficient? Were objectives achieved on time? and was the programme or project implemented in the most efficient way compared to alternatives?

According to Simula, El-Lakany and Tomaseli (2013), the efficiency of the International Tropical Timber Organization (ITTO) projects has been measuring an average of satisfactory as a result of appropriate resource allocation, high cost-efficiency, effective monitoring and keeping expenditure within budget limits but there were hardly any explicit information on financial and economic rates of return of the productive activities promoted. They observed that bureaucratic delays in fund transfer, changes in government policy and institutional responsibilities and exceptional weather conditions are some factors that affect the efficiency of ITTO programmes. IFAD (2011) in a study also revealed that the efficiency of the Rural Enterprise Project II was moderate.

Project Impact

Impact is a statement of the overall development aim (or goal) of a development intervention (Dart, Petheram & Staw, 1998) which measures the changes in human development (UNDP, 2009) positive and negative, primary and secondary long-term effects produced by the intervention, directly or indirectly, intended or unintended (Picciotto, 2013). It could be deduced that project impacts generally capture changes in people's lives. To measure impact there is usually one goal, which is very broad and related to a wider national or regional objective (Dart et al., 1998). The project would not be expected to achieve that goal alone, but to contribute towards the achievement of the goal.

The UNDP (2009) suggested that the completion of activities tells little about changes in the development condition or in the lives of people but the results of the activities is significant to assessing the impact of the

intervention. Simula et al. (2013) says that impact should be assessed in a programme that has been (a) closely targeted at specific substantive often technically oriented themes to deliver verifiable impact and (b) focused on problems which simultaneous intervention in more than one impact area are necessary. The UNDP (2001) also adds that impact is assessed to capture the effect of the project on the target groups, the environment and gender. The UNDP (2009) concluded that impact should be assessed in terms such as 'improved', 'strengthened', 'increased', 'reversed' or 'reduced'. These expressions may be used to describe the global, regional, national or local social, economic and political conditions in which people live.

Successful identification of beneficiary needs contributes to impact particularly in strengthening of social capital and generating economic impact (Simula et al., 2013), technical, environmental, individual (gender and age-groups) communities and institutional benefits (ALNAP, 2006). The UNDP (2009) noted that programmes are formulated to communicate substantial and direct changes in the conditions in which people live over a long time such as reduction in poverty and improvements in people's health and welfare, environmental conditions or governance (When evaluating the impact of a programme or a project, OECD/DAC (2000) revealed that it is useful to consider the following questions; what has happened as a result of the programme or project? what real differences has the activity made to the beneficiaries? and how many people have been affected? According to Simula et al. (2013), ITTO projects have had satisfactory impact in strengthening capacity beneficiaries, institutions as well as information and knowledge level

of beneficiaries but lower ratings were found in gender, building up social capital, empowerment and economic impact.

Project Sustainability

Picciotto (2013) and UNDP (2001) posited that project sustainability is the durability of positive project results after the termination of the project assistance. The OECD/DAC (2000) and White (2003) also adds that sustainability is concerned with measuring whether the benefits of an activity are likely to continue after donor funding has been withdrawn. A sustainable project is therefore one which is able to produce positive results which continue to persist long after the intervention has ceased. Projects need to be environmentally and financially sustainable (OECD/DAC, 2000; White, 2003). In other words, project sustainability should be seen economically, socially, environmentally and financially because project documents define when the intervention should be completed but often activities continue to ensure sustained impact (Picciotto, 2013; Simula et al., 2013).

The UNDP (2009) asserted that in evaluating a programme or a project, evaluators should expand the scope of project sustainability to cover the ability of national institutions to ensure that development results persist over a long time. The UNDP added that sustainability involves evaluating the extent to which relevant social, economic, political and institutional conditions are present, and based on that assessment, make projections about the national capacity to maintain, manage and ensure development results in the future. Simula et al. (2013) also added that project with high degree of national policy compatibility contributes to high sustainability.

When evaluating the project sustainability, OECD/DAC (2000) suggested that evaluators should expand the scope of the evaluation capture the following useful questions; to what extent did the benefits of the programme or project continue after donor funding ceased? What were the major factors which influenced the achievement or non-achievement of sustainability of the programme or project? What is the resilience of the project to risks of future net benefits flows? How sensitive is the project to changes in the operating environment? Will the project continue to produce net benefits as long as intended or even longer? And how well will the project weather shocks and changing circumstances (White, 2003)?

According to Simula et al. (2013), ITTO projects have been either satisfactory or moderately satisfactory with technical viability and environmental sustainability rated as satisfactory while institutional, economic and social sustainability rated poorly. They also observed that more than half of all the sampled projects, led to the design/implementation of follow-up projects or post-project activities which suggests that the interventions opened up new opportunities for future support or the need to continue to support the activities started to ensure sustainability. White (2003) also posited that project sustainability should reflect the resilience of a project to risks and be measured by the likelihood that the project estimated net benefits will be maintained or exceeded over the project's intended useful life. The lack of post-project financial support often endangers valuable results in many interventions, emphasizing the importance of developing adequate exit strategies starting from project design phase (Simula et al., 2013).

From literature it can be concluded that development effectiveness is a complex measure of development outcomes (AfDB, 2004; UNDP, 2000, 2001, 2003; World Bank, 2006, 2009b) hence development agencies adopting different approaches in determining the development effectiveness of projects interventions based on the capacity of the evaluation mechanisms available to the agencies. The study adopts the project level evaluation criteria of (UNDP, 2001) to determine which factors best predict development effectiveness with some emphasis on background characteristic of farmers and their participation in the MiDA commercial agricultural project.

Challenges in Assessing Development Effectiveness

According to UNDP (2001) the challenges involved in gauging development effectiveness of a project are many and complex. The following challenges were encountered in the measurement of development effectiveness project interventions according to the UNDP;

1. Complete and spatial disaggregation of set indicator of development
2. Drawing causal relations between finely demarcated intervention and related intangible development processes.
3. A project evaluation which focuses on quality of design, implementation and the achievement of outputs and immediate objectives becomes a snapshot of development effectiveness.
4. The impact evaluation which does not capture the social, economic, environmental and other developmental changes that take place as a consequence of the project is an approximation of development effectiveness.
5. The over reliance on Project Evaluation Information Sheet (PEIS) which is standard attachment to project document has some limitation due to

the impression that questionnaire format tends to be the subject of differing interpretations (pp. 13-14).

The different meanings of impact evaluation adopted by evaluators underpin the challenge in measuring development effectiveness. According to White (2003), impact evaluation has been used with four different meanings by evaluators which are not mutually exclusive and are focused on; rigorous analysis of the counterfactual, outcomes, evaluation carried out some years after the intervention has ended and country or sector-wide studies (p. 9).

The UNDP (2001) concluded project evaluation which focuses on quality of design, implementation and the achievement of outputs and immediate objectives becomes a snapshot of development effectiveness. White (2003) suggests a more technical innovative sampling technique of randomization or propensity score matching be adopted for measuring impact of projects. Randomization and propensity score matching are applicable only to certain types of intervention, (that is interventions that can be seen as delivering treatments to clearly defined groups). White however noted that most of the activities supported by development agencies may not fit the description of delivering treatments to clearly defined groups. Impact evaluations should therefore be modeled based on the determinants of the outcomes (inputs) given by the objectives and linking the outputs of the interventions to the determinants of the outcomes as an alternative approach to impact evaluation.

Agriculture in Ghana

Ghana depends on agriculture as the backbone to the economic improvement (Debrah, 2013). FASDEP (2007) adds that, agriculture plays an

important role in enhancing food security, supplying of raw materials to industry, creating employment, generating of foreign exchange and reducing poverty in Ghana. De Laiglesia (2006) also added that, agriculture contribute immensely towards the economic development in developing countries and offers employment to the majority of the labour force. Research has shown that, in Ghana agriculture accounted for 22.7% (GDP) in 2012 and employed 51% of the labour force (GSS, 2013). The Statistics, Research and Information Directorate (SRID) of MoFA (2013) revealed that, agricultural subsector by GDP was livestock (8.7%), cocoa (10.1%), Forestry/logging (9.9%), fisheries (7.0%) and crops (64.2%) in 2013.

Diao (2010) also posited that, agricultural structure and the regional distribution of agricultural GDP significantly differed across Ghana's agro-ecological zones. The Forest Zone remains the major agricultural producer, accounting for 43% of agricultural GDP, compared to about 10% in the Coastal Zone, and 26.5% and 20.5% in the Southern and Northern Savannah Zones, respectively.

SRID (2013) added that, agriculture is predominantly on a smallholder basis in Ghana revealing that, about 90% of farm holdings are less than 2 hectares in size. There are however, some large farms and plantations, particularly for rubber, oil palm and coconut and to a lesser extent, rice, maize and pineapples.

Main system of farming is traditional, that is, hoes and cutlasses as the main farming tools. The agricultural sector in Ghana however, is characterized by a lot of challenges. Annan (2008) observed that, the agricultural sector has suffered severe consequences due to the neglect by the international donor

community and the government's efforts to comply with high foreign demands, as the major challenge that hinder agricultural growth in Ghana. Diao (2010) confirms the stand of Annan (2008) and noted that, the agriculture sector in Ghana has not developed without a comprehensive long term strategy and public investments which has limited the positive impacts on sectors. FASDEP (2007) also delivered a comprehensive analysis of the challenges of the sector. FASDEP noted that the challenges are hinged on human resource and managerial skills, natural resource management, technology development and dissemination, infrastructure, market accessibility, food insecurity and irrigation development and management. Among are cross cutting issues of gender inequality, access to land and finance, energy availability and cost.

Seini, Jones, Tambi and Odularu (2011) expanded further by noting that, smallholder farmers are the most disadvantaged. The authors posited that, smallholders are faced with the challenge of accessing agricultural inputs, credit facilities, market opportunities, high rate of soil depletion, and low information, knowledge and the skills to manage the farming enterprise. FASDEP (2007) concluded that, the composite effect all the challenges mentioned above is the low yields of agricultural products. FASDEP noted that the low yields lead to low domestic food availability, low income of farm households, low nutritional intake and poor health condition of the farmers. Okorley et al (2012) however posited that, development challenges such as the agricultural sector challenges in Ghana can be reversed through agricultural development interventions. Nankani (2009) noted that the government implemented interventions as the national buffer stock company, the national

fertilizer and input subsidies and the Youth in Agriculture programmes to help reduce the losses and improved food production in Ghana.

Development Interventions

According to Cummings and Worley (2009), intervention refers to a well-planned actions, activity or events carried out with the intention of helping improve the life of group, individuals and organizations. Intervention may be the central theme of approaches for implementing development programmes. Lipson and Wixson (2012) in a study on students' response to intervention identified the following definitions of interventions as; enhancements of the general education curriculum, based on student's performance on a variety of assessment measures, targeted to a particular skill or set of skills to improve student outcomes, Short-term, explicit instruction, monitored frequently to document progress and revised as necessary based on student performance (p. 122). The authors also noted that students will not respond the same way to the intervention therefore teachers must use the information from their interactions with them to make decisions to improve the effectiveness of intervention approaches for their students.

Buadi (2008) described agricultural development interventions as specific activities carried out by government or public organizations to prevent course of events or to influence a situation in some way. Agricultural interventions may be intended to promote, protect or restore the livelihood of people who are deprived or need to improve some areas of their life. Annan (1999) said that the job of the United Nations is to intervene; in agricultural related outbreak of diseases where we can, to put a stop to it when it has broken out, or when neither of those things is possible at least to contain it and

prevent it from spreading. This means that the world expects the UN to intervene in crisis situations across the world and to ensure that life and property of the citizens are protected.

Buadi (2008, p. 19) observed that "interventions have social and economic goals". This implies that interventions are intended to empower the poor, to confront the systems and structure that cause the retrogression to development. Poverty reduction programmes can and do provide needed materials and supplemental supports, but cannot provide the exact response that vulnerable people need (Lipson & Wixson, 2012). For an intervention to be effective, it must be aligned with the core instructional programme and focus on the specific needs of individual beneficiaries. This means that the careful description of key attributes of an intervention, including materials and instructional techniques, is central to success (Lipson & Wixson, 2012).

The World Bank (2005) enumerates the following as objectives that health systems interventions usually attempt to achieve; increase the health status of the population, reduce poverty and socioeconomic inequalities in health outcomes, provide services at a lower cost or get more for the same cost and increase patient satisfaction (p. 26). These indicate that, the objectives of the health system interventions can apply to other interventions in industry, politic, education and agriculture. Implementing interventions in industry, education and agriculture does not guarantee success; there is the likelihood of failure. The World Bank (2005) says that many health sector interventions do not work, and some are even harmful to the beneficiaries. It is important for any implementing organization to facilitate a good feasibility study in the area

of the intervention to identify the problems and determine right interventions to resolve it.

The World Bank (2005) enumerated five steps for conducting feasibility studies for health system interventions. These include identifying the health sector problem meriting public subsidies and the aims of the voucher scheme, justifying the selection of the health sector problem (above others) and the inputs or outputs to be subsidized and identifying potential sources of funding. The others include documenting key stakeholders and their interests, as well as possible partnership opportunities and identifying existing service delivery systems that address the problem (pp. 25-26). A good feasibility study even though may not guarantee success but may reduce the possibility of total failure of an intervention.

Lipson and Wixson (2012) also identified some critical matters that can undo a good intervention which must be addressed to ensure the success of an intervention; these include which individuals will be selected for intervention? Who will provide instruction in the intervention(s)? What professional tools will be required to ensure that the highest quality intervention is provided? What systems are in place for enacting intervention, monitoring progress, and collaborating for success? (p. 114). The attention on the critical matters will be crucial in ensuring the success of intervention in any field including agriculture. Therefore development agencies implementing interventions should ensure that, issues that will hinder the success of any intervention be addressed to avoid failure.

Heeks (2003) indicated that central to the success and failure of an intervention is the amount of change between 'where we are now' and 'where

the intervention wants to get us.' He explains that 'where we are now' means the current reality of the situation. 'Where the intervention wants to get us' means the model or conceptions and assumptions built into the project design. It can therefore be said that the success or failure of an intervention depends on the size of the gap that exist between the current realities and the design of the intervention. Heeks also identified seven project dimensions necessary and sufficient for understanding of the realities and design gap. These include; information, technology, processes, objectives and values, staffing and skills, management systems and structures and other resources such as time and money (p. 3). World Bank (2005) also identified eight obstacles to the voucher scheme interventions. The impediments in the way of implementing a voucher scheme are; legal or regulatory impediments, lack of political support, sociocultural barriers to service use (social stigma), lack of capacity to provide services, lack of a competitive or contestable market for the services provided, lack of institutional capacity to perform the voucher Agency role, administrative and transaction costs, and lack of adequate transport and communications (pp. 34-40).

Cummings and Worley (2009) also found that intervention failure is based on the beneficiaries' readiness or commitment for the change, the timing of the intervention, the cultural context where the change is expected and the change agent's skills and abilities. From the literature, it can be deduced that responsiveness and readiness of the beneficiaries, the societal context, the objectives and values of the intervention, both administrative and human skills, competencies and capacities of the intervening agencies and the timing

of the intervention may highly influence the success or failure of an intervention.

Development Interventions in Agriculture

Okorley et al. (2012) explained that development organizations exist to provide support for the vulnerable and marginalize in society with the passion to serve the people they represent and operate by implementing development programmes which can be said to be interventions. Dale (2004) noted that development programmes are organized interventions which are made up of activities undertaken by development agencies and which may be more or less formalized and are intended to be performed in accordance with organized based principles, rules and systems. Cummings and Worley (2009) added that development programme may include several projects.

Dale (2004) asserted that development programmes or interventions are (or should be) unambiguously people focused, in the sense that the intervention should help in promoting improvements in some aspects of people's quality of life. He added that intervention should be viewed from the broader societal context by analyzing changes relating to people. Thus, implementing interventions should directly affect the material living conditions and involve economic activities, such as initiatives regarding alternative forms of production and marketing in rural areas. Buadi (2008) revealed that development agencies in agriculture are active in educating clients, extending knowledge and skill in production, technology and management to help clients involved in agricultural enterprises. Kindness and Gordon (2001) in a study identified eight intervention strategy categories that development agencies use in improving access to agricultural markets. These

include, the intended beneficiaries, skills and training, access to agricultural inputs, agro-processing technologies, market linkages, credit programmes and market information (p. 17).

Any particular marketing intervention may comprise elements from several categories (e.g., inputs and training, or technology, training and finance). The concept and experiences associated with each category may have to be reviewed by development agencies to permit for more promising strategies in agriculture. Kindness and Gordon (2001) reported that TechnoServe development organization with activities focused on the provision of food processing technologies for rural communities in Ghana initially focused its work on small-scale oil palm processing and extraction, but had to expand its activities to include processing service centers, inventory credit schemes and production and processing of non-traditional export crops. The study revealed that the purpose of the oil palm scheme was to build on traditional processing (which was laborious and slow) and to exploit the potential for expansion in a strong market, by introducing small-scale mechanized oil mills to community-based groups.

However, the authors noted that, TechnoServe after recognizing that the entrepreneurial skills in the communities were weak and observing that group development activities, financial and business training (including linkages to formal credit and extension services) were necessary. The authors also added that, TechnoServe went beyond providing technical assistance and technology and adopted a more integrated training and support package that contributed to the adoption and improvement of the oil processing enterprises. This means development organizations will have to tailor interventions to

meet the actual needs of the beneficiaries but not force down project on the people.

Buadi (2008) in a study identified education and training as important interventions used by development agencies in agriculture to help rural farmers break out of poverty and ignorance by intervening in the following area; land preparation, cultural/management practices, improvement of soil fertility, input supply, processing, storage and preservation and marketing (p. 30).

Kindness and Gordon (2001) concluded that development agencies implement educational and training interventions in agriculture by focusing attention on helping to improve the knowledge that farmers lack in area such as land preparation, improvement of soil fertility, input supply and agro processing through agricultural extension delivery. The societal context in which interventions are implemented have key role to play in the success or otherwise of the intervention.

Development Organizations and Agricultural Extension

According to Ministry of Food and Agriculture (MoFA, 2011), agricultural extension is about organizations that support and facilitate people engaged in agricultural production to solve problems by obtaining information, skills, and technologies to improve livelihoods and well-being. Syngenta Foundation for Sustainable Agriculture (2013) added that agricultural extension the function of proving need and demand based knowledge in agronomic techniques and skills to rural communities in a systematic and participatory manner with the objective of improving production, income and quality of life.

Agricultural extension can thus be seen as agricultural education with the aim of acquiring and sharing information that can bring about a positive behavioral change among farmers. MoFA (2011) asserted that agricultural extension delivery should provide information that can solve problems and help farmer improve productivity to influence livelihood and quality of life. Ferroni and Zhou (2011) said that the purpose of agricultural extension is to disseminate information to farmers. Syngenta Foundation (2013) added that agricultural extension consists of;

1. the dissemination of useful and practical information related to agriculture, including improved seeds, fertilizers, implements, pesticides, improved cultural practices, and livestock
2. the practical application of useful knowledge to the farm and the household (para. 2).

MoFA (2011) asserted that agricultural extension delivery should be put in a framework that looks at extension from a broader context of demand-led service market, hence the term 'advisory services' should be used instead of 'extension', to include the many non-traditional tasks, such as market information, micro-finance, health issues (AIDS), farmers' self-organisation. Ferroni and Zhou (2011) added that agricultural extension should be demand led but the self-selection on the part of larger and more commercial farmers may bring bias outcomes since farmers live in widely dispersed communities which are difficult to reach. The authors observed that farmers' information needs vary across locations, thus makes extension challenging and therefore supply side rationing may also be a problem in the sense that there are likely to be too few extension agents available relative to the number of farmers.

MoFA (2011) conclude that delivering meaningful extension may not be easy, hence calling for multiple service providers to participate in extension delivery.

Ferroni and Zhou (2011) in the study in India identified multiple extension service providers involved in extension delivery. The service providers include companies in the private sector (crop science industry, seed and input companies, distributors and agro dealers, service providers of various kind including food processors and retailers), private companies in partnerships (input providers and product aggregators) and public/private partnerships between government and NGOs. In Ghana, MoFA (2011) acknowledged a range of approaches to extension delivery (from top-down commodity based approach to a more participatory approach) which have been promoted over the years by the various extension service providers, including government (MoFA, the main actors in extension), non-governmental organizations (NGOs), producer organizations and other farmer organizations. Agricultural extension services under MoFA are provided by Agricultural Extension Agents (AEAs). According to Zhou (2012) agricultural extension calls for a pluralistic mix of actors in a given setting, emphasizing the need for governments, commercial bodies, academic institution, NGOs and collaborating agencies to get agricultural extension right to reach all categories of farmers.

Ferroni and Zhou (2011) posited development agencies are very important source of support for small farmers. The development agencies according to the authors may range in size, from small, local entities to large organizations with multiple approaches. The level of professionalism and

knowledge of agriculture by these agencies may vary, but social commitment is high. The role of development agencies in agricultural extension is to complement the efforts of government in developing agriculture in the country. MoFA (2011) revealed that development organizations in Ghana involved in agricultural extension use diverse methods in information delivery to farming communities. The methods include programme planning, home visits, demonstrations, field days, farmers training, farmer meetings, Farmers Field Schools (FFS) and the use of the mass media.

Development organizations receive support from external sponsors and donors to deliver extension services for increased productivity and improved links to markets (Ferroni & Zhou, 2011). Buadi (2008) found that international donors view development agencies as more effective in community mobilization, especially when contrasted with the bureaucratic government extension services because they tend to be managed more efficiently than public extension systems and have lower operational costs. It can be deduced that since development agencies have lower operational cost, donors support them with more funds to implement agricultural development programmes. Buadi (2008) further added that development organizations use participatory extension approaches because they are able to draw on local knowledge to ensure that introduced technology and agricultural methods are appropriate for poor resource farmers, which explains why they have been more effective than top-down extension systems. The merits of non-profit organizations over the public extension system may explain why these private development agencies are the driving force behind agricultural development (Ferroni & Zhou, 2011).

Distinct Features of Agricultural Activities of Development Organizations

Development organizations, according to Buadi (2008) continue to show the way for agricultural development by implementing projects that benefit all category of farmers. Buadi asserted that these organizations respond quickly to crop failure due harsh environmental conditions, state and market failure across the globe. This means that development agencies have a clear understanding of the agricultural activities of the farmers and the natural, social, economic and political environment in which agriculture is carried out. Ferroni and Zhou (2011) noted that the Syngenta Foundation for Sustainable Agriculture (SFSA) together with Syngenta India Limited (SIL) initiated work in India to address problems facing smallholder farmers in collaboration with some development organizations working with rural people but not in agriculture. The first task was to reorient the approaches of these agencies to include farming. Small extension team were put in place, led by a qualified agriculturalist and assisted by field workers consisting of local youth leaders. Then the process of capacity-building of the targeted farmers as well as the extension teams began. Advanced crop technologies were passed on through farmers' workshops, trials in farmers' fields, and demonstrations. When it was realized that knowledge alone would not suffice, steps were taken to make available the recommended inputs and tools (paid for by farmers). Seed multiplication by farmers was introduced to improve availability and bring down the prices of seed.

These authors further explained that encouraging results began to emerge by farmers following improved methods. Vegetable cultivation turned out to be a remunerative option for many of the farmers. A striking feat was

achieved by a couple who earned a net income of US$ 200 by growing tomato on just 337 meter square of land in 2008. The good seed and the right choice of variety, coupled with agronomic support made the difference. The Syngenta Foundation for Sustainable Agriculture decided to scale up its activities to reach thousands of smallholder farmers in consultation with the partner non-profit organizations. The programme has gone a long way in assisting smallholder farmers. The outreach covered over 45,000 farmers, not including those who have graduated from the programme. It can be deduced that due to the flexibility of development organization, they can reorient themselves to area outside their jurisdiction to offer services that support the improvement of the society. This means that non-profit organizations possess distinct features that enable them to reorient themselves to provide support the poor in diverse conditions.

The International Fund for Agricultural Development (IFAD) has been working with partner development agencies for years in the fight against poverty and hunger due to some distinct features of these agencies that builds the foundation for effective collaboration. The distinct features that enable IFAD to collaborate with these agencies as enumerated by IFAD (2002) are because:

1. Non-profit organizations are often able to reach segments of rural populations that government neglect or do not target as priority. It implies these often find their way into remote rural areas to identify the poorest segment of communities, deliberately seeking out those normally excluded from development processes because they are isolated, lack assets or are vulnerable.

2. Development organizations engage the poor in capacity building activities as a major component of their programmes or projects. It seems whether literacy programmes or agricultural extension or handling of credit, the activities of development agencies lay the foundation for creating local groups and organizations that can link with other groups having common interest through federations, coalitions and networks.

3. Development agencies are recognized for the role they play developing new initiatives, new programmes, new approaches and new mechanisms to address development issues and problems. It can be said that these agencies have been in the forefront of many innovations that have provided ideas and models that have been replicated in other settings and situations.

4. Non-profit organizations possess extensive knowledge of local conditions. In some cases innovations may not be the answer, but rather a sober consideration of the normal needs of small enterprises and serious attention to how the needs can be sustainably served may employ consultants with long term experience in the target area to help because development agencies can provide baseline data and information on the local economy and infrastructure, the existence of self-help organizations and the major obstacles to development.

5. Development agencies deem active participation by the poor in the development process as an essential precondition for empowerment, participation not only in the implementation of programmes and projects but also in the conceptualization, design, monitoring and evaluation of the programmes and projects. Development agencies have developed highly effective participatory processes to increase the involvement of the poor in

their own development processes to analyze and to act upon their situations through their own eyes and not as defined by outside agencies or development agencies (pp. 9-10).

Ferroni and Zhou (2011) noted that non-profit agencies have ideals and values which include the strong spirit of volunteerism and independence and consider empowerment of the poor as the major goals and objectives. Buadi (2008) explained that empowerment can be seen as basic as enabling groups to improve conditions through socio-economic development programmes and projects. He added that many of these agencies view empowerment as much more encompassing process that enables particularly the poor, to confront and deal with the systems and structures that cause socio-economic or political marginalization, through the implementation of projects. Empowerment can therefore mean as essentially transferring power to the poor so that they can control and change the structures and mechanisms that cause poverty and powerlessness.

Despite the good features of development organizations, Buadi (2008) asserted that they may have technical weaknesses (replication of projects, self-sustainability, managerial and technical incapacity, a narrow context for programming and politicization) which may not been seen when the organization work in small villages. However, when the organizations grow and become a system catalyst the technical weaknesses and inefficiencies are exposed. Development organizations may need to work on the technical weaknesses to be effective in an era of growing numbers of non-profit agencies in the society since they stand the risk of losing public trust in the activities if efforts are not made to address the technical weaknesses.

Background to the MiDA Programme in Ghana

The Government of Ghana through the Millennium Development Authority (MiDA) under the Millennium Challenge Account (MCA) signed a five year compact (2006-2011) for an amount worth US$547 million with the Millennium Challenge Corporation of the United States of America. The compact was aimed at reducing poverty in the country through economic growth and agricultural transformation. Programmes under the compact consisted of three projects namely agriculture, transportation and rural services. The agricultural project had two main objectives which formed the basis for the achievement of the overall program goals. The objectives were;

1. To increase the production and productivity of high-value cash and food crops
2. To enhance the competitiveness of high-value cash and food crops in local and international markets (p. 1).

ISSER (2012) revealed that three project areas under agriculture, transportation and rural services form the basis for the achievement of the overall programme objectives. The projects were implemented in 30 districts in the Northern Agricultural Zone, the Central Afram Basin Zone, and the Southern Horticultural Belt in the southern part of the country. ISSER added that the selected districts were districts with high incidence of poverty among the population where average household incomes were well below $2 a day. The activities of the programme were anticipated to directly alleviate poverty and enhance the livelihoods and welfare of over 1.2 million Ghanaians (ISSER, 2012). Since the Ghana program was centered on agricultural transformation, the key objective of the modernization programme was to

improve farmer productivity and income. The modernization under the programme was to be achieved through farmer training. The farmers were organized into Farmer Based Organizations (FBOs).

It can be observed that the MiDA commercial agricultural project was implemented to transform Ghana's agricultural sector and to decrease poverty. However, the impact study conducted by (ISSER, 2012) found that the project interventions had no impact on crop yield and cash income of the beneficiary farmers but in the Southern Horticultural Zone there was a negative impact of the intervention on cash income. This means that the participants rather lost income instead of the project helping to reduce poverty.

The UNDP (2001, p. 5) asserted that the failure of projects is great cause of concern in the era where development aid has been shifted away from "aid-as-entitlement" concept towards emphasis on results and performance The UNDP added that the shift has produced increasing pressure on aid agencies to improve organizational effectiveness and demonstrate clear development results. The growing convergence around global development goals underlines the interest by citizens in donor and developing countries to know how better and more concrete development interventions supported by aid agencies improve the lives of the recipients. AfDB (2004) also added that there is an increasing demand on development institutions to demonstrate results and effectiveness on the ground. The trend should signal a change in development practice.

There is the need for development agencies to focus on demonstrating results and effectiveness. The ability to promote concrete improvements in people's lives lies at the heart of what is termed development effectiveness

(UNDP, 2000). Development effectiveness cannot be measured exclusively in terms of achievement of project objectives but also on how effective are development projects and interventions in changing people's lives and the extent the project contributed to poverty reduction. Wasihun, Kwarteng and Okorley (2014) and MoFA (2011) indicated that, level of participation in an intervention and the background and farm related characteristic of the beneficiaries are success factors that influence an agricultural development intervention.

The Concept of Participation

Wasihun et al. (2014) revealed that, the importance of beneficiaries' participation in development interventions or programmes is widely understood by development practitioners as a means for increasing successful achievement of the outcomes of the intervention. Participation is about the processes through which stakeholders influence and share control over development initiatives, decisions and resources that affect them (Bass, Dalal-Clayton & Pretty, 1995).

Wasihun et al. (2014) further noted that beneficiaries are key stakeholders at the grass root level hence their participation in the various stages of the development process of an intervention enhances efficiency and effectiveness of the planned changes. They concluded that participation accelerates mutual learning among stakeholders, develop ownership of the change programme and bring about long lasting change in the community and the behaviour of the beneficiaries.

Similarly, Cornwall (2008) found that transformational interventions can meet a dead end when beneficiaries decide not to take part or where

powerful interest groups (stakeholders) within a community turn down well-meaning efforts to their own end due to participation fatigue in other development interventions. Owing to this effect, the success of a development programme largely depends on the roles played by key stakeholders such as intervening agency and beneficiaries in the programme (Kumba, 2003) and beneficiaries making an input in the decision making process as well as the development practitioners (Wasihun et al., 2014). The question then is to what extent did the beneficiaries partake in information gathering, analysis, decision making process (planning), implementation and monitoring and evaluation to ensure the success of MiDA project?

Typologies of Participation

Siraj (2005) found that the challenge in measuring participation is the extent of its effectiveness and the influence that participant in a development programme exert in decision-making. The author added that researchers and development practitioners have attempted to device tools and instruments useful for measuring participation known as typologies. Typologies are useful starting points for differentiating degree and kinds of participation by providing a series of ideal types along which forms of participation can be ranged along an axis of 'bad' to 'good' (Cornwall, 2008).

Pretty (1995) developed a typology outlining seven distinct interpretation of participation which range from manipulative and passive participation, characterized by situations where participants are told what is to happen and making unilateral decisions. (Siraj, 2005) also added that better forms as participation by consultation and for material incentives, functional participation mostly used in development where people participate to meet

project objectives effectively and to reduce cost after the main decision has been made by external agents. Cornwall (2008) also added that interactive participation described as 'learning process' where local groups take control over decisions by gaining a stake over structures and resources. Cornwall (2008) Siraj (2005) concluded that self-mobilization which is the highest level of participation where participants take development initiatives themselves without influence of external agencies on the management of project resources.

Leeuwis and Van den Ban (2004) also developed a typology outlining five distinct classification of participation which range from; receiving information, where participants are informed or told what a project will do after it has been decided by others. In passive information giving, participants can respond to questions and issues that interventionists deem relevant for making decisions about projects. Under consultation, participants are asked about their views and opinions openly and without restrictions, but the interventionist unilaterally decide what they will do with information. In collaboration, participants are partners in a project and jointly decide about issues with project staff. Finally, self- mobilization where participants initiate, work on and decide on the project independently, with interventionists in the supportive role only.

Evidence in literature shows similarities in both typologies however, Leeuwis and Van den Ban's typology does not provide two categories in the Pretty (1995) typology which are functional and interactive participation. The two categories are important when it comes to the implementation of

development programmes. This study sought to determine the extent of farmer participation in the MiDA project.

Table 1: Pretty's Typology of Participation

Type	Characteristics of each type of participation
Manipulative participation	Participation is simple pretence with 'people's' representation on official boards, but who are un-elected and have no power.
Passive participation	People participate by being told what has been decided or has already happened. It involves unilateral announcements by an administration or project management without any listening to people's responses. The information being shared belongs only to external professionals.
Participation by consultation	People participate by being consulted or by answering questions. External agents define problems and information-gathering processes, and so control analysis. Such a consultative process does not concede any share in decision-making, and professionals are under no obligation to take on board people's views.

Table 1: Continued

Participation for material Incentives	People participate by contributing resources; for example, labour, in return for food, cash or other material incentives. Farmers may provide the fields and labour, but are involved in neither experimentation nor the process of learning. It is very common to see this 'called' participation, yet people have no stake in prolonging technologies or practices when the incentives end.
Functional participation	Participation seen by external agencies as a means to achieve project goals, especially reduced costs. People may participate by forming groups to meet predetermined objectives related to the project. Such involvement may be interactive and involve shared decision-making, but tends to arise only after major decisions have already been made by external agents. At worst, local people may still only be co-opted to serve external goals.
Interactive participation	People participate in joint analysis, development of action plans and formation or strengthening of local institutions. Participation is seen as a right, not just the means to achieve project goals. The process involves interdisciplinary methodologies that seek multiple perspectives and make use of systemic and structured learning processes. As groups take control over local decisions and determine how available resources are used, so they have a stake in maintaining structures or practices.

Table 1: Continued

Self-mobilization	People participate by taking initiatives independently of external institutions to change systems. They develop contacts with external institutions for resources and technical advice they need, but retain control over how resources are used. Self-mobilization can spread if government and NGOs provide an enabling framework of support. Such self-initiated mobilization may or may not challenge existing distributions of wealth and power.

Adapted from Pretty (1995)

Participation in Practice

Cornwall (2008) revealed that the distinctions that typologies present are clear and unambiguous since in practice all the forms and meanings of participation identified may be found in a single project or process at different stages. Bass et al. (1995) added that development at local level depends not just on the motivations, skills and knowledge of individual people, but on the actions taken by interest groups and communities as a whole.

Siraji (2005) however said that, donors, development agencies and government view of beneficiaries as clients of services which by implication means donors want partnership with beneficiaries based on commercial principles which restrict direct participation in planning and management decision in development projects. In unassuming terms donors and development agencies more often during project planning simply ignore local people and institutions (Bass et al., 1995). Kumba (2003) found that indigenous farmers in resource-poor communal farming regions in Namibia were much less involved in the decision-making processes in most projects

and programmes intended to benefit them compared with their commercial counterparts. The fundamental reason for the exclusion of local people in the planning of developmental programmes was found by Siraj (2005) in a study to be the bureaucratic style of planning by development agencies which involves preparing and appraising programme documents according to set formats before inputs and remarks from other relevant institutions before implementation.

Bass et al. (1995) also found that during the implementation of an Integrated Pest Management (IPM) project in Indonesia, farmers who participated at the functional and interactive level of participation in the IPM farmer field school, reduced pesticides application substantially. This led saw an increase in yield and keep exercising greater control over conditions they once felt beyond their means to deal with effectively. Siraj (2005) also revealed that at the implementation level of development programmes, beneficiaries participated at consultative and functional levels which represented a better form of participation with some degree of authority resting with the participant. Wasihun et al. (2014) also discovered that farmers' level of participation in monitoring and evaluation of agricultural extension programmes was very passive.

It can be seen that participation is crucial for the successful achievement of development outcomes of development projects, therefore lessons needs to be identified from the MiDA experience to guide the formulation and implementation of similar programmes in the future. Siraj (2005) concluded that participation which is manipulative and passive in nature does not yield benefits instead it reduces the chances of success. He

suggested that steps need to be taken to advance from lower levels of participation to higher and more effective levels of participation by overcoming bureaucratic resistance to the concept of participation and institutionalizing participatory approaches in formulation, implementation, monitoring and evaluation of development programmes.

Background and Farm Related Characteristics of Farmers

Literature on background characteristics focused on variables such as; sex, age, position held in FBO, highest level of education and farming experience. The literature also examined farm related features such as type of agricultural enterprises, farm size, yield of crop and income received from sales of crops.

Sex of Farmers

Bosompem (2006) observed that men and women have different needs and desires therefore it is wrong to assume that an effective development programme for males will automatically translate into an effective programme for females. A study undertaken by Atidjah (2004) in the coastal districts of the Central Region of Ghana revealed that out of the number of respondents who participated in the study, 71.8% were males whilst 28.2% were females. Buadi (2008) in his survey reported that out of 328 participants in the study, 47% were males and 53% were females. The study reported fewer males than females because 5.7% of the respondents were both farmers and fish mongers, accounting for the high number of women than men. This is because fish mongering activities are mostly carried out by women.

Another survey by MoFA (2011) on farmer beneficiaries in agricultural extension services in Ghana revealed 73.5% males and 26.5% females. ISSER (2012) developmental study on the MiDA commercial agricultural project reported of 58.3% males and 41.7% females. Result from the Southern Horticultural Belt showed a marginal increase of male respondents of 65.1% and a decrease in the female respondents to 34.9%, representing a male to female ratio of 2:1. The above statistics implies that generally there are more men involved in farming than women but farming may not be the preserve of males.

Age of Farmers

Studies have shown that the average age of farmers in Ghanaian communities is between 30 and 60 years with the majority of farmers in the age bracket above 30 years (Atidjah, 2004: Buadi, 2008; MoFA, 2011). Generally, the farming activities of the farmers come down when they are approaching 60 years and above. The study conducted by (ISSER, 2012) revealed that the mean age of all the farmers interviewed was 45 years whilst the farmers in the SHB was 46.7 years which is consistent with the ages revealed by other studies mentioned above.

Educational Level of Farmers

Bosompem (2006) suggested that a farmer's level of education to some extent determines the type of tasks he or she can undertake in any programme and therefore the type and level of participation in the programme. He further added that, the educational level of farmers may facilitate and enhance the mode of communication and adoption of new technologies introduced by

development agencies. Buadi (2008) in his survey found that 39.3% of farmers and fish mongers who participated in NGO programmes were illiterates whilst 60.7% have had some form of formal education. The study also revealed that out of the educated beneficiaries, 47.8% were educated up to the Junior High or Middles School Certificate level. The survey conducted by MoFA (2011) also reported that 71.5% of the farmers had some form of formal education whilst 28.5% had no education with the mean number of years spent in school by the farmers being 6.8 years whilst the maximum years in school was 16 years.

ISSER (2012) in the developmental study revealed that out of the total number of farmers surveyed, 42.6% had no education, 15.3% had primary education and 41.1% had education above JHS/Middle/Secondary. However, in the SHB, 17.4% had no education, 19.7% had primary education whilst 62.9% had JHS/Middle/Secondary and above. The statistics implies that majority of farmers in Ghanaian farming communities have some form of formal education from primary education or better.

Years of Farming Experience

Buadi (2008) in his survey found that, majority (62.2%) of the farmers had farming experience of between 5 years and 30 years, 23.2% had less than 5 years of experience whilst 14.6% had over 30 years of experience. MoFA (2011) also revealed that the mean years of farming experience was 11 years whilst the minimum and maximum years of experience was 4 years and 40 years respectively. It can be deduced that farmers with considerable number of

years of farming experience may easily adopt new technologies and training information.

Agricultural Enterprises by Farmers

Buadi (2008) reported that 75.5% out of 323 respondents in the study through multiple responses were involved in crop production. Of the farmers involved in crop production, 28.2% were citrus farmers, 25.1% maize farmers, 15% vegetable farmers, 11.1% pineapple farmers and 4.6% cassava farmers respectively. Atidjah (2004) also discovered that 92.7% of farmers surveyed were into maize production, 87.9% into cassava, 28.2% into citrus, 7.2% into pineapple and 29.4% into chili pepper production. ISSER (2012) in the study revealed that the main crops cultivated by farmers across the entire MiDA zones were cereals (maize, rice, millet and sorghum), root crops (yam, cassava and cocoyam), vegetables (tomatoes, pepper, okra and garden eggs), legumes (beans/peas and ground nuts), plantain and fruit crops (orange, mangoes pineapples and pawpaw).

The study discovered that 75 to 90 percent of the farmers were into maize production which may be due to the starter packs which included maize seeds given to the farmers. The findings of ISSER (2012) in the SHB are consistent with the finding of Atidjah (2004) and Buadi (2008) which were all carried out the same geographical location (along the coastal belt of Central Region). The result of the survey by ISSER (2012) showed that 57% of farmers in Southern Ghana used improved seed compared to the 31% in the Afram Basin and 12% in the North.

Farm Sizes of Crops Cultivated by Farmers

Buadi (2008) found that, out of 289 farmers interviewed, majority (67.8%) had farm sizes from 2ha to 10ha whilst 31.2% had less than 2ha of farm land. ISSER (2012) recorded an average farm size of 1.2ha in the SHB of the MiDA project zones. The study also revealed that the average household land holding over all the zones was between 1.3ha and 4.1ha. However, result in the SHB showed less household land holding of 1.2ha. It may be deduced that majority of the farmers in the Southern Horticultural Belt are smallholders farmers farming on smaller land holdings.

Yield of Crops

According to ISSER (2012), the crop yield of the selected crops; maize 1.4mt/ha and chili pepper 1.6mt/ha were recorded by farmers in the SHB of the MiDA project during their studies. These yield figures were the same as reported in the baseline survey carried out at the beginning of the MiDA project. The statistics implies that the MiDA project did not have any impact on the crop yield of the farmers since the data from the baseline and the follow up studies were the same. The finding of ISSER (2012) was not consistent with the national yield figures for maize (1.7mt/ha) and pepper (8.3mt/ha) reported by Statistics, Research and Information Directorate (2013).

Income Received from the Sale of Crops by Farmers

ISSER (2012) reported that the key indicator required for assessing the overall programme objective of the MiDA project was the income from crops. However, the results of their study showed a negative impact of the project on the income of farmers. The implication is that the beneficiaries lost income as

a result of the project, however, at the household level, the researchers observed an increase in the average total income over the baseline and follow up surveys in percentage terms. The study further revealed that, data from the baseline survey indicated mangoes as the highest crop income/profit followed by pineapple and pepper which may be due to reasons that the three crops are very important non-traditional export crops. The mean income revealed by the survey was; maize GH¢ 678.73 and chili pepper GH¢ 759.75.

Sources of Agricultural Information of Farmers

Accrding to Iwuchukwu, Udoye and Onwubuya (2013), information is important in today's work environment, where workers are required to perform complex tasks in an efficient, cost effective and safer manner. In a similar way, for agriculture to be sustainable there is the need for more coherent, skilled, active, proactive and visionary farmers that will address key issues that affect the sector. This is often linked to farmers' access and use of agricultural information for enhancing agricultural production (Fawole, 2008). Asiedu-Darko (2013) added that, the development and dissemination of the right information at the appropriate time among farmers is key to providing change in agriculture. The dissemination of information in forms easily understood by farmers to improve production is important because farmers adopt new farming technologies. According to Fawole (2008), farmers adopt these technologies if information on such technologies is at their disposal. The information must be useful and in practical forms to enable the farmers accept and adopt the relevant change. Iwuchukwu et al. (2013) revealed that farmers adopt and use information on technologies when they have been properly trained on how to apply the technologies.

The result of the study by Fawole (2008) revealed that farmers receive agricultural information from different sources which included radio, television, neighbours, newspapers, farming associations and extension agents. However, the study showed that farmers contact with extension agents was occasionally or always through attendance in agricultural development project meetings, visit by extension agents, participation in women in agriculture campaigns, group visit by block extension agents and participation with contact farmers. The study by Iwuchukwu et al. (2013) confirms farmers' source of agricultural information as from television, radio, extension agents and neighbour. However, majority of the farmers did not have contact extension agents which could probably be due to low numbers of extension agents and/or logistical problems. It can be deduced that when farmers do not have access to formal extension services, they use other sources of information from other farmers, input suppliers, development projects and NGOs in agriculture. Iwuchukwu et al. (2013) also found that farmers usually gain knowledge and skills from government institutions, NGOs, research institutions and community based organization through formal training, demonstrations, workshops, interpersonal contacts and the mass media.

Sources of Agricultural Credit of Farmers

Musiime and Atuha (2011) explained that credit is about taking money in cash from a financial institution, a group or any individual, with the commitment that the cash will be paid back at a defined time in the future. Duflo, Crepon, Pariente and Devoto (2008) revealed that farmers use credit from commercial banks, micro-credit institutions, cooperatives, shopkeepers, relatives, friends, village money lenders and suppliers. Nonetheless, Musiime

and Atuha (2011) said that having access to formal credit is significantly determined by the capacity to provide collateralized assets mainly land, that farmers cannot provide. Farmers are also faced with the enormous difficulty in obtaining credit for agricultural activities because of lack of financial services in rural areas (IFAD, 2012).

Having access to credit is important to sustaining and growing farm operations to enable farmers pay back the loan and generate enough profit for savings. Musiime and Atuha (2011) revealed that farmers access credit for the following reasons;

1. To hire labourers or tractors for land preparation
2. To acquire improved inputs for planting as seeds, fertilizers etc.
3. To increase production to grow the farming business
4. To solve any cash flow problems
5. To purchase machinery and equipment as tractors
6. To fulfill other personal and family needs as paying children's school fees
7. To deal with emergencies as medical or deaths of loved ones (p. 7).

It can be seen without hesitation that, the ability to access credit can provide significant improvement in the business operations of smallholder farmers. Musiime and Atuha (2011) noted that, to successfully quality for credit from financial institutions, smallholders must have the following key attributes; demonstrate at least two years of experience in agriculture, show capabilities of savings or provide other source of income that can contribute to repaying the loans, show the capability to work hard, smallholder farmers must join or be part of a group (FBOs) which can provide the farmers with

securities or guarantee; collective bargaining power for accessing market and accessing valuable training from development agencies, ensure that the full amount is used for the purpose for which the loan was borrowed and individual borrowers will be required to present collateral in the form of securities with land titles in addition to at least two guarantors (p. 8).

Sources of Agricultural Inputs of Farmers

According to the Smallholder Market and Agricultural Resilience Transformation (SMART project, 2012), poor access and unreliable sources of high quality agricultural inputs coupled with high cost and unavailability of such inputs as improved seeds, fertilizers and farm equipment, inadequate use of modern technologies are some of the major factors limiting productivity of smallholders. Seini, Jones, Tambi and Odularu (2011) added that, the absence of a conducive policy framework is also a limiting factor of productivity of smallholder farmers. According to the Citizens Network for Foreign Affairs (2012), access to inputs services results in higher quality and quantity production which in turn yields higher profit and promotes increased on-farm investment. The author added that providing access to agricultural input services such as improved seed, high value crops, chemical fertilizers and farm equipment will increase agricultural productivity. This will result in improved food security of farm households and provide sufficient crops to generate income. Seini et al. (2011) concluded that, farmers generally patronized inputs from local retail outlets, wholesale shops, Government Agricultural Agencies and NGOs.

Point of Sales/Markets Outlets of Farmers

Amrouk, Poole, Mudungwe and Muzvondiwa (2013) referred to markets as both input markets for exchange of factors of production and output markets for exchange of agricultural products. AGRA (2010) stated that for many years, African countries have pushed for increased agricultural productivity without making an equal push for improved well-functioning markets that provide reliable outlets for farm produce. AGRA added that, improve markets serve as a dependable source of affordable food resulting in localized gluts of staple foods that drive down prices and cause farmers to abandon new technologies that seem not to add much value to their income.

Amrouk et al. (2013) stated that improved market outlets increases production of high-value food commodities which is capital and information intensive. Birthal and Joshi (2007) also revealed that, high-value food products are perishable and prone to higher market and price risk. AGRA (2010) noted that lack of credit, improved technologies, lack of high quality inputs, information services and risk mitigating mechanisms, poor rural infrastructure, persistently low farm gate prices, smallholders rarely leveraging on their numbers to secure better markets and access to poor market information are some of the constraints that influence smallholders' access to markets.

Birthal and Joshi (2007) suggested that improving smallholders' access to market requires a closed linkage between farmers, processors, traders and retailers to coordinate demand and supply. The authors further stated that usual point of sale of farm products by farmers are farm gates, local markets and aggregators however, institutions as processors, exporters and contract farming are important means of linking smallholders to with markets.

Conceptual Framework of the Study

From the literature reviewed it can be deduced that development project or interventions begins when there are development challenges or problems. The problems may be as a result of natural occurrence or human activities. The problems may be addressed through a planned development interventions or projects which are activities carried out by defined people with a defined endpoint in mind at a defined cost and over a defined period of time (Allan, 2012).

The project is implemented in a cycle or stages of activities to bring about the desired outcome or result which brings a change in the development problem. During the project implementation cycle, the focal point has to be the achievement of results that can be attributed to the project intervention. The achievement should result in the change in the development problem which may be viewed as development effectiveness. From the literature, project development effectiveness can be determined in terms of relevance, effectiveness, efficiency, impact and sustainability. Relevance is the extent to which the project immediate objectives remain pertinent with the goals and aspiration of the individual beneficiaries. Every project has objectives to achieve; the objectives should be relevant to the needs of the beneficiaries.

Effectiveness is the extent to which a project achieved its objectives or produced the desired outcome, independent of the costs that were needed for it. Efficiency involves the use of resources effectively to achieve project objectives. Efficiency can also be viewed as the extent to which financial, material and human resources cost was minimized to produce projected outputs and include a combination of human and material resources during

management of the project. The impact involves the effect of the project intervention on the beneficiaries including impact on the environment and gender as a result of the interventions. Sustainability is the durability of the outcomes of the intervention which can be seen as economic, environmental, political and social sustainability.

The achievement of development effectiveness of the MiDA intervention may be due to factors as the extent of farmer participation in project activities and the background and farm related characteristics of the farmers. The background characteristics such as years of farming experience, level of education, position held in the FBO may influence farmer participation in the intervention which seek to improve the knowledge and skills, improved access to information, credit facilities, input and market opportunities. The improved knowledge and skills of the farmers in turn will improve the farm sizes of farmers, yield of crops and ultimately the income received from the sale of the crops. Increased income may initiate poverty reduction, food security, improved nutritional intake and health of farm households and general improved livelihood of the beneficiaries. These factors may explain the variations in the development effectiveness of the MiDA project in the Effutu Municipality of Ghana. The conceptual framework of the study is shown in figure (1).

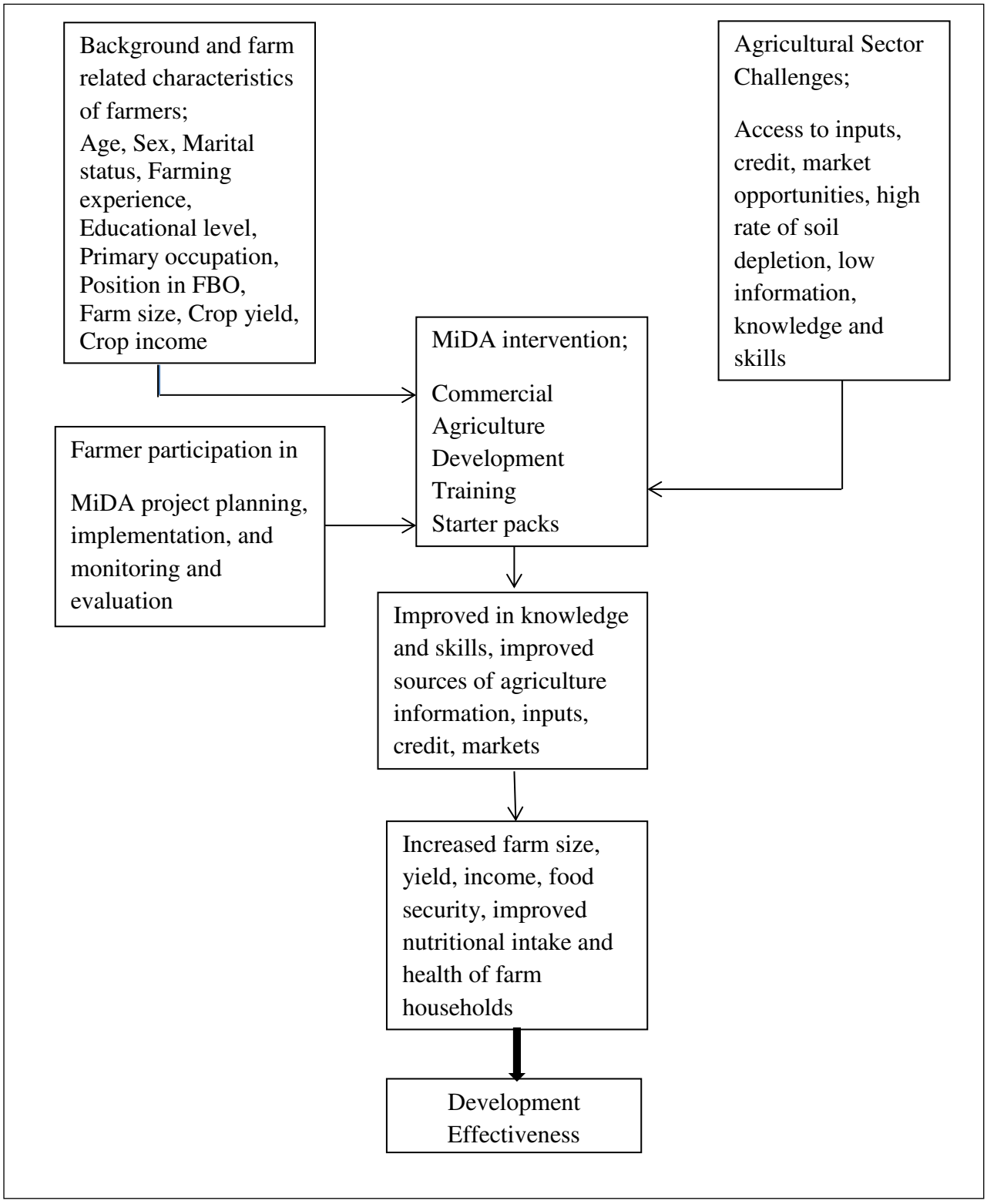

Figure 1: Conceptual Framework of the Study

Source: Author's Construct, 2014.

CHAPTER THREE

METHODOLOGY

Introduction

This section presents the research methodology and procedures that were used to generate data to explain the determinants of development effectiveness of the MiDA commercial agricultural project in the Effutu Municipality of the Central Region of Ghana. It begins with a brief description of the study area, research designs, study population, sample and sampling techniques that was used in the study. This is followed by instrumentation, data collection and processing and analysis procedure.

The Study Area

The area of the study is the Effutu Municipal Assembly of the Central Region of Ghana (Figure 2). The Effutu Municipal is situated between latitudes 5020 North and longitudes 0025, West and 0037, on the Eastern part of the Central Region Ghana (Ghana Districts, 2013). The Municipality is sandwiched by the Agona, Awutu Senya and Gomoa East and West Districts in the Central Region. Effutu Municipality covers an area of 417.3 square kilometers with 68 settlements and Winneba as its capital town (Ghana Districts, 2013). The Ghana Statistical Service, 2010 Population and Housing Census revealed that the municipality had a population of 68,597 people with fishing and related enterprises, trading and farming as the main occupation of the people with an average household size of eight members.

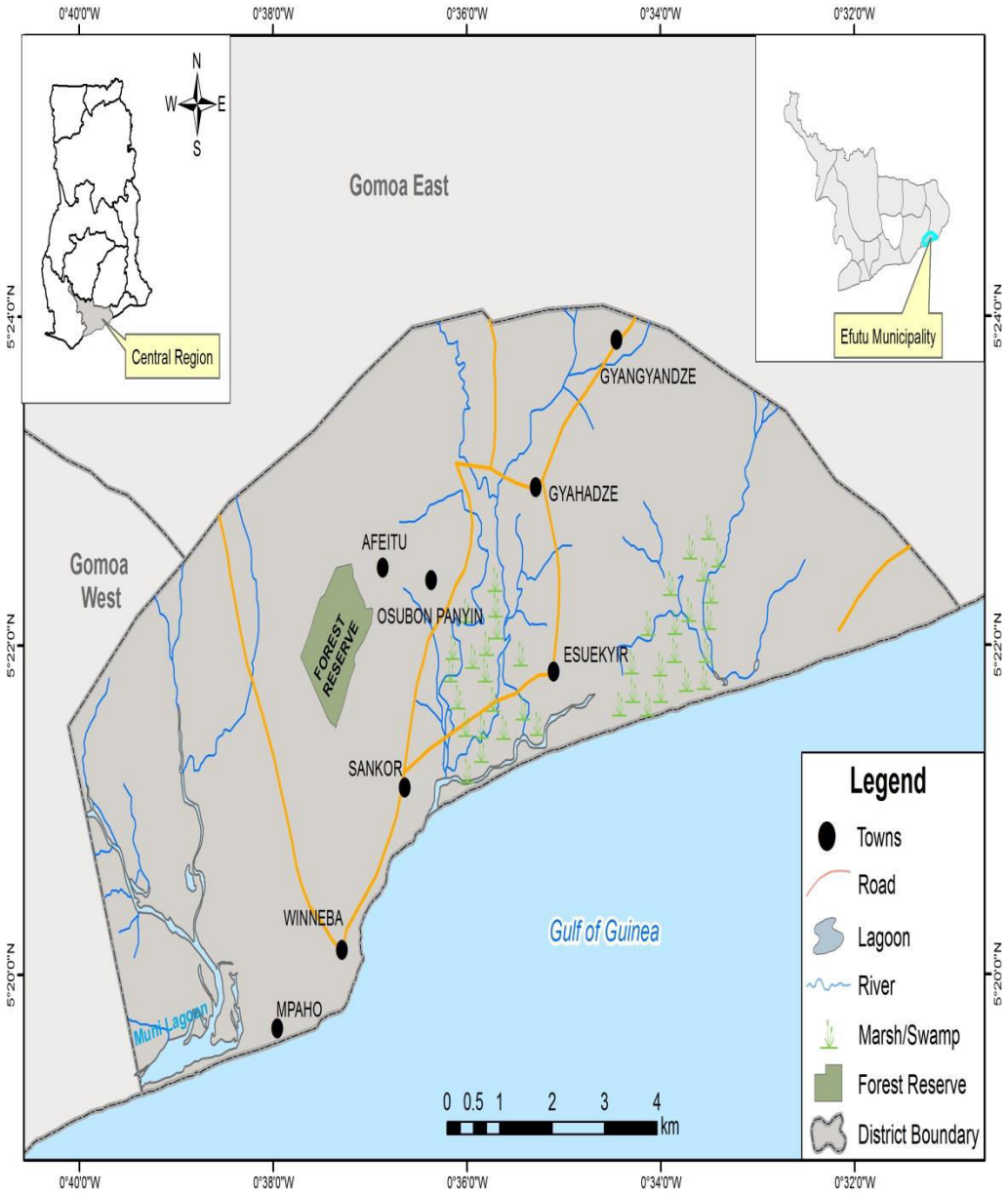

Figure 2: Effutu Municipal: Study Area

There are about eight (8) Non-Governmental Organisation (NGOs) and Community Based Organisation (CBOs) that operate in the Municipality. The areas of operation of these organizations cover education, environment, economic empowerment of women, youth development and income generation and good governance. The Effutu Municipality was chosen as a study area because the farmers in the FBOs did not receive the loan package of the MiDA project which is not the focus of this study.

Research Design

The study adopted the descriptive survey research design. Descriptive survey was used to describe the attitudes and behaviours of MiDA project beneficiary farmers by observing and collecting data in the natural and real-life setting of the farmer during the study (Vanderstoep & Johnston, 2009). The survey design was also used because it helped to compare the achievements, objectives, perceptions and opinions of the beneficiaries about the activities and outcomes of the MiDA project (Bennette, 1979). Surveys are flexible and simple to use, and comparatively less expensive in terms of the number of persons or participants included in the study.

The Population of the Study

The population of the study was all the three hundred smallholder farmers in the Effutu Municipality of Ghana who were trained and received the starter pack under the MiDA commercial agricultural development project.

Sampling Procedures

Simple random sampling procedure was used to select the respondents of the study from the sampling frame of the three hundred MiDA project farmers. The participants were selected using the replacement balloting method to give each member of the sampling frame an equal chance of being included in the sample (Duflo & Kremer, 2005; Vanderstoep & Johnston, 2009). Randomized sampling of targeted individuals in local communities in development evaluation is essential for validating results (Duflo & Kremer, 2005).

The compiled list of FBO members with the names and locations of the famers were cut into pieces of papers, folded and put into a box. The folded papers were shuffled very well and picked up randomly to represent the sample. The names of the famers and their respective FBOs and location were indicated on another list for counting the number of respondents selected for the sample. The picked papers were replaced into the box and procedure repeated. The simple random sampling with replacement method was used to help improve the accuracy of the sample by reducing sampling error until the sample size was achieved (Alumode, 2011; Vanderstoep & Johnston, 2009).

Sample Size

One hundred and seventy smallholder farmers were randomly selected from the three hundred MiDA project beneficiaries using the Krejcie and Morgan (1970) table for determining the appropriate and representative sample size from a population for a study (Appendix A). The table provides the list of the population and number of respondents that can be selected from the population as the appropriate sample size to be used for a study. For a

population of three hundred farmers, the corresponding sample size was one hundred and sixty nine and thus round up to one hundred and seventy respondents. For social science research an appropriate sample size is essential, hence Stevens (1996) concluded that about fifteen subjects or respondents are needed for a reliable equation in regression analysis.

Tabachnick and Fidell (2001) also provides a formula for calculating sample size requirement in regression analysis taking into account the number of independent/predictor variables: $n > 5 + 8m$ (where n = sample size, m = number of independent/predictor variables). Therefore, for eleven independent variables, 170 sample size was appropriate.

Table 2: Population and Sample Size Selected for the Study

Location of FBO	Number of farmers	Sample size selected
Ntakrofa	50	21
Sankor	50	36
Nsukyire Wunsom No 1	50	29
Nsukyire Wunsom No 2	50	26
Gyaahadze	50	23
Gyangyanadze	50	35
Total	300	170

Source: MoFA, 2014.

Instrumentation

A structured and validated interview schedule was developed as the instrument for the study (Appendix C). The face validity was ensured by the researcher while content validity was checked by the supervisors and lecturers

in the Department of Agricultural Economics and Extension University of Cape Coast. The Management Information Systems Officer of the Effutu Municipal Directorate of Agriculture also provided input to ensure the questions were framed in relation to the local context of the respondents. The questions on the instrument were made up of close and open-ended questions separated into four (4) main parts. Part one (1) measured the background and farm related characteristic of the farmers who participated in the MiDA project.

The second part of the structured interview schedule measured the extent of farmers' participation in project planning, implementation, monitoring and evaluation. A five point Likert-type scale to rate the percieved extent of participation in the MiDA project was developed. The respondents were asked to indicate 1 = 'very low participation', 2 = 'low participation', 3 = 'moderately high participation', 4 = 'high participation' and 5 = 'very high participation' to in the MiDA project planning, implementation, monitoring and evaluation.

Part three (3) of the structured interview schedule measured development effectiveness in terms of relevance, effectiveness, efficiency, impact and sustainability of the MiDA project. A five point Likert-type scale was developed to measure the respondent's view on the development effectiveness of the MiDA project. The respondents were asked to indicate 1 = 'not relevant' to 5 = 'very highly relevant', 1 = 'very ineffective' to 5 = 'very effective', 1 = 'very inefficient' to 5 = 'very efficient', 1 = 'very low impact' to 5 = 'very high impact' and 1 = 'very unsustainable' to 5 = 'very sustainable'. Development effectiveness was determined by describing the

composite means of the respondent's responses on the relevance, effectiveness, efficiency, impact and sustainability of the project. According to Simon and Goes (2013), Likert-type scale items of five or more categories can be used in interval procedures in social science research, hence, five point Likert-type scales were employed as interval scale for the study. The final part of the structured interview schedule considered the challenges that affected the MiDA project implementation.

Pre-Testing

The instrument was pre-tested on thirty selected farmers of the MiDA project from Gomoa East District of the Central region which was within the Southern horticultural belt of the MiDA project. This was to ensure that respondents selected had the same characteristics as the respondents of the study. The purpose of the pre-test was also to detect ambiguities, deficiencies and weakness in the instrument for correction and modification so as to improve the internal consistency of the instrument (Alumode, 2011; Vanderstoep & Johnston, 2009).

The pre-testing revealed that some of the farmers cultivated maize and chili pepper as a major or minor crop. Therefore, modification was done to accommodate responses from farmers who cultivate both crops as major or minor crop. The unit of measurement for the yield for both crops was also modified into number of bags of maize and number of boxes of chili pepper to enhance easy data collection. This was later estimated into metric tons. The pre-test also helped to modify the different subscales of the Likert-type scales for the study. The respondents revealed that some of the items in the Likert-type scales had the same meaning and understanding hence the affected items

were merged or removed from the subscales. The project relevance scale items were from twenty to eleven items, whiles effectiveness items were reduced from ten items to seven items and the impact items were also reduced from ten items to seven items.

The data on the subscales were entered into Statistical Product and Service Solutions (SPSS) version 21.0 to compute Cronbach's Alpha co-efficient to determine the internal consistency of sub-scales (Pallant, 2005). The result from the Cronbach's Alpha co-efficient of the main sub-scales was between 0.82 for sustainability, 0.99 for participation in project implementation. Result in Table 3 show reliability co-efficients of the eight main sub-scales was reliable. This is because scales with Cronbach's alpha co-efficient of 0.70 or more are considered to be reliable (Pallant, 2005). The pre-testing was conducted in March 2014.

Table 3: Reliability Co-efficient of the Subscales of the Instrument

Subscales	Number of items	Cronbach's Alpha
Participation in project implementation	10	0.99
Participation in project monitoring and evaluation	10	0.99
Participation in project planning	7	0.96
Relevance	11	0.93
Efficiency	5	0.89
Effectiveness	7	0.87
Impact	7	0.87
Sustainability	6	0.82

n = 30. Source: Field Survey Data, 2014

Data Collection

To facilitate data collection, a letter from the Department of Agricultural Economics and Extension of the University of Cape Coast introducing the researcher was sent to the various FBOs selected for the study and the Municipal Directorate of the Ministry of Agriculture. Contacts were made to explain the nature of the research and to seek support for data collection. Field data collection was carried out by the researcher and three trained assistants.

The purpose of the study was explained to the respondents, they were also assured of the confidentiality of the responses they would give. The validated and pre-tested instrument was administered to the randomly selected respondents due to the technical nature of the study.

Data Analysis

The data collected was ordered and cleaned by removing responses especially the open ended questions that were reworded or modified to mean what it was meant. The data was then coded into the Statistical Product and Service Solutions (SPSS version 21.0) template created based on the instrument. Descriptive such as frequencies, percentages, means and standard deviation was ran to check errors in data entry. The following Statistic based on the objectives were generated.

For objective one which considered the background and farm related characteristic of the farmers who participated in the MiDA project, frequencies, percentages, means, standard deviations and chi-square were generated to describe the variables.

Objective two identified the extent of farmer participation in project planning, implementation, monitoring and evaluation of the MiDA commercial agricultural development project in the Effutu Municipality. Frequencies, percentages, means and standard deviation were used to analyze the extent of farmer participation in the MiDA project.

Furthermore frequencies and percentages were generated to analyze the challenges which affected the MiDA project implementation as in objective three. Also, frequencies, percentages, means and standard deviations were generated to determine the various attributes of development effectiveness. Finally, the Pearson Product Moment Correlation Co-efficient (r) and stepwise multiple linear regression analysis were used to respectively identify relationships among the variables (Gravetter & Wallnau, 2005) and the best predictors of development effectiveness from the background characteristics of the farmers and the extent their participation in the MiDA project. The Pearson correlation was used because the variables were observed naturally in their environment without attempt to control or manipulate the relationships that were observed. Moreover no causality was anticipated at this stage. The basis was to determine the magnitude and the direction of the relationships (Vanderstoep & Johnston, 2009). Moreover variables were continuous (Muijs, 2004).

The Davis (1971) correlation coefficient conversion and interpretation standard was used to explain the relationships (Appendix B). According to Davis (1971), a relationship is negligible if correlation coefficient r is between 0.01 to 0.09; Low if r is between 0.10 to 0.29; Moderate if r is between 0.30 to

0.49; Substantial if r is between 0.50 to 0.69 and very strong association if r is above 0.70.

Gravetter and Wallnau (2005) revealed that regression statistical technique is used for finding the best-fitting straight line for a set of data. The regression analysis helped determine the best-fitting straight line (regression line) for the various attributes of development effectiveness. The regression line results from a linear equation can be seen as follows; $Y = a + \beta X$

Where 'β' was the beta coefficient, 'a' was the Y intercept (constant), 'X' was the independent variables (background characteristics and extent of farmer participation) and Y is the dependent variable (various attributes of development effectiveness). When there are more than one predictor variables, the equation becomes; $Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots \beta_n X_n$. The study sought to determine the specific line that provides the best fit line that explains the variations in the attributes of development effectiveness of the MiDA project in the study area.

Collinearity Diagnostic Test

The collinearity diagnostic test was performed to examine the variance inflation factors (VIFs) and tolerance of the independent variables of the study. According to Pallant (2005), collinearity exist when the independent variables in the regression analysis of a study are highly correlated (r = 0.9 and above) and VIFs show how much the variance of the coefficient estimate is being inflated by multicollinearity. A VIF above ten is a cause for concern (Bosompem, Annor-Frempong & Achiaa, 2013). Pallant (2005) indicated that Tolerance values less than 1 (very low) indicates that the independent variables in the model has high correlation with each other, a suggestion of the

presence of multicollinearity, hence the need to remove one of the highly inter-correlating variables. The VIF and Tolerance values indicated in Table 4 shows that the study was not affected by multicollinearity.

Table 4: Collinearity Diagnostic Test

Dependent	Independent Variables	R- squared	VIF	Tolerance	p. value
Project Relevance	Participation in project implementation	0.17	0.96	1.04	0.00
	Participation in project M&E	0.30	0.94	1.07	0.00
Project Effectiveness	Yield of maize	0.08	0.95	1.05	0.00
	Participation in project M & E	0.14	0.94	1.06	0.00
	Farm size	0.17	0.96	1.04	0.02
	Participation in project implementation	0.20	0.94	1.07	0.02
	Highest education	0.24	0.93	1.08	0.00
Project Efficiency	Yield of maize	0.15	1.00	1.00	0.00
	Participation in project implementation	0.21	1.00	1.00	0.00
Project Impact	Yield of maize	0.10	1.00	1.00	0.00
	Participation in project implementation	0.13	1.00	1.00	0.02
	Income from sale of maize	0.16	1.00	1.00	0.02
Project Sustainability	Participation in project implementation	0.06	0.96	1.04	0.00
	Farming experience	0.12	1.00	1.00	0.00
	Highest education	0.14	0.96	1.04	0.02
	Position held	0.17	1.00	1.00	0.05

n = 170, Source: Data Analysis, 2014.

To test Hypothesis 1 and 2 sought to identify if the MiDA project had not significantly increased the yield of maize and chili pepper in the study area, the one sample T-test was used to compare the means score of yield values maize and chili pepper obtained in the study and the yield values of the same crops (Vanderstoep & Johnston, 2009). An alpha level of 0.05 was set to test the significance of the hypotheses and relationships among variables. Table 5 shows the summary of statistical tools used in analyzing objectives.

Table 5: Summary of Statistical Tools for Analyzing Objectives

Objective	Statistical Tools for Analysis
One	Frequencies, percentages, means, standard deviations and chi square
Two	Means and standard deviations
Three	Frequencies and percentages
Four	Means and standard deviations
Five	Pearson product moment correlation coefficient and Stepwise multiple regressions

Source: Data Analysis, 2014.

Ethical Issues

The ethical issues that were considered in the fieldwork experience were: informed consent, confidentiality and respecting the privacy of respondents. The respondents were informed of the purpose of the study and assured of confidentiality through the non-solicitation of their names on the questionnaire. The respondents also assured of their consent by providing adequate information to fulfil the objectives of the study. All data and information sources were also duly acknowledged.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents and discusses the results of the study according to the specific objectives.

Background and Farm-related Characteristics of Farmers

This section discusses the results from the analysis of data on the background and farm-related characteristics of farmers. Variables discussed are sex, age, years of farming experience and marital status, position of respondents in the farmer based organization and educational level. The type of farming enterprise, farm size, crop yield, income accrued from the sale of farm produce and primary occupation of the farmers were also included in this section.

Sex and Age of Farmers

The sex and age distribution of the farmers are presented in Table 6. More than two thirds (61.8%) of the respondents were males, which is indicative of high male household heads in the study area. This result confirms the findings of Atidjah (2004) who concluded that in study of the coastal districts of the Central region of Ghana that male household heads dominate females. Separate studies by MoFA (2011) and ISSER (2012) have also found that there were more male farmers than females. The finding however, differs from the case with findings of NGO beneficiary project in agriculture along

the coast where females are in the majority (Buadi, 2008). Men and women have different perceived expectations when it comes to development programmes (Bosompem, 2006). To ensure that the projects meet such expectations, more women leaders will be needed.

Table 6: Age and Sex of Farmers

	Sex of farmers						
Years	Male (Freq.)	Female (Freq.)	Total	Percent (%)	χ^2 Value	df	p. value
20 – 29	1	1	2	1.2	10.33	5	0.07
30 – 39	9	11	20	11.8			
40 – 49	53	19	72	42.4			
50 – 59	24	22	46	27.1			
60 – 69	11	10	21	12.4			
70 – 79	7	2	9	5.3			
Total	105	65	170	100			
Percent (%)	61.8	38.2	100				

$p > 0.05$. Source: Field Survey Data, 2014. n = 170, Mean age = 49.07, S.D = 10.51. Range 20 to 79 years.

The mean age is 49.07 years with majority (87%) of the farmers were between 40 and 79 years of age Table (6). However, more than half of those percentages, (42%) are between 40 to 49 years whilst few (13%) were between 20 to 39 years. The result confirms the findings of (Atidjah, 2004; Buadi, 2008 & MoFA, 2011) which revealed that averagely the age of farmers in most Ghanaian communities were between 30 and 50 years. The Chi-square value of 10.33 was not significant ($p > 0.05$).

Education and Membership of Farmer Based Organizations

Results in Table (7) indicate that few of the respondents have had no formal (6.5%) and non-formal education (2.4%) that seeks to improve on the numeracy and literacy of farmers conducted by the Department Non-Formal Education in the Municipality. However, an overwhelming (91.3%) of the respondents have had some level of formal education. These include Middle School Certificate/Junior Secondary/High School (45.3%), Senior Secondary/High School (22.4%), Primary (16.5) and Tertiary (7.1%).

Findings from similar studies by of Buadi (2008) and MoFA (2011) also reported that majority of the farmers surveyed had some form of formal education the bulk of which were JSS/JHS/ Middles School Certificate lever. ISSER (2012) had also concluded that in the Southern Horticultural Belt (19.7%) had primary education whiles (62.9%) had JHS/Middle/Secondary or better, however, (17.4%) of the farmers had no education. The statistics confirms the finding of this study which revealed that majority of farmers in the communities in the study area have had some level of formal education from primary education or better thus were better positioned to understand adopt the intervention by MiDA.

Table 7: Education and Membership of FBOs

	Position in FBOs						
Educational Level	Execu-tives	Ordinary Members	Total	Percent (%)	χ^2 Value	df	p. value
No Education	-	11	11	6.5	14.60	5	0.01*
Non Formal	-	4	4	2.4			
Primary	1	27	28	16.5			
Middle School/ JSS/ JHS	12	65	77	45.3			
SSS/SHS	10	28	38	22.4			
Tertiary	5	7	12	7.1			
Total	28	142	170	100			
Percent (%)	16.5	83.5					

*$p < 0.05$. Sources: Field Survey Data, 2014. n = 170.

The results confirms that majority (83.5%) of the respondents do not hold leadership position in the Farmer Based Organizations. Farmers who were in leadership positions constituted 16.5% (Table 6). The finding confirms the findings of a similar study of NGO activity beneficiary famers by Buadi (2008) which reported that majority (71 %) of farmers do not hold leadership position in their Farmer Based Organizations and communities.

Result in Table 7 confirms that education determines a farmer's position in an FBO. All the 28 executives of the FBOs who participated in the study have had some form of formal education from primary to tertiary level. The Chi-square value of 14.60 was significant at 5% alpha level ($p = 0.012$). This means that the proportion of educated farmers who hold leadership positions in the FBOs is significantly different from the proportion of uneducated farmers who do not hold leadership positions in the FBOs. Education is a criterion for determining whether a farmer can hold a leadership position FBOs in the study area. This discovery mirrors the finding of Bosompem (2006) who concluded that a farmer's level of education to some extent determines the type of role played in the organization.

Farming Experience and Marital Status of Farmers

Majority (80.1%) of the farmers had farmed between 4 to 30 years (Table 8). The mean farming experience of 19.3 years indicates that the farmers were experienced. Close to one-fifth (19%) had farmed between 30 to 50 years. The result mirrors the findings of (Buadi, 2008) in a similar study established that farmers in the area are experienced. The mean years of farming experience of 19.3 years contrasts the findings of MoFA (2011) which in a national study revealed that the mean years of farming experience of

farmers studied is 11 years. It is expected that with considerable number of years of farming experience the farmers in the study area should easily adopt new technologies and training information from development agencies and MoFA extension agents (Bosompem, 2006).

Table 8: Farming Experience and Marital Status of Farmers

	Marital Status of Farmers						
Years	Married	Not Married	Total	Percent (%)	χ^2 Value	df	p. value
Less than 10	16	5	21	12.4	10.82	4	0.03*
10 – 19	50	11	61	35.9			
20 – 29	40	14	54	31.8			
30 – 39	23	8	31	18.2			
40 above		3	3	1.8			
Total	129	41	170	100			
Percent (%)	75.9	24.1					

*p < .05. Source: Field Survey Data, 2014. n = 170. Mean Experience = 19.30, S.D. = 9.33. Range 4 to 50 years.

Majority (75.9%) of the farmers were married whilst the rest (24.1%) were single, widowed or divorced (Table 8). There were differences between marital status and years of farming experience. Chi-square = 10.82, was significant at 5% alpha level (p = 0.03). The married farmers were more experienced compared to farmers who were not married.

Primary Occupation and Type of Crops Grown by Farmers

Regarding the primary occupation of farmers, majority (55.9%) of the respondents indicated farming as their primary occupation (Table 9). The remaining (44.1%) percent were traders (22.4%), civil servant (14.1%), artisans (5.3%) and retired civil servants (2.4%) who farm on part-time basis. The traders, civil servants, artisans and the retired civil servants may spend

less time in the farms or the farms are been managed by care-takers which may affect the application of knowledge and skills gained through the MiDA trainings on the farms.

Out of the 170 farmers covered in the study (Table 9) majority (90.6%) cultivated maize and few (9.4%) vegetable (chili pepper) as the major crops. The study also revealed that none of the retired civil servants cultivated chilies as a major or a minor crop (Table 9 and 10). The result is due to the reason that chili pepper cultivation is very tedious hence older persons will not be able to perform the required cultural practices during the planting season which will lead to poor yields.

Table 9: Primary Occupation and Type of major crop cultivated by Farmers

	Major Crop						
Primary occupation	Maize	Vegetables (Chiles)	Total	Percent (%)	χ^2 Value	df	p. value
Farming	88	7	95	55.9	4.19	4	0.38
Trading	35	3	38	22.4			
Civil Servant	20	4	24	14.1			
Artisan	7	2	9	5.3			
Retired Civil Servants	4		4	2.4			
Total	154	16	170	100			
Percent (%)	90.6	9.4					

$p > 0.05$. Sources: Field Survey Data, 2014. n = 170.

The study revealed that there were no significant difference between primary occupation of a farmer and major crop cultivation. (The Chi-square value of 4.17 and p-value = 0.38).

Table 10: Primary Occupation and Type of Minor Crop Cultivated

	Minor Crop						
Primary occupation	Maize	Vegetables (Chiles)	Total	Percent (%)	χ^2 Value	df	p. value
Farming		30	30	46.9	15.24	4	0.00*
Trading		17	17	26.6			
Civil Servant	3	11	14	21.9			
Artisan	1	2	3	4.7			
Retired Civil Servants							
Total	4	60	64	100			
Percent (%)	6.2	93.8					

*p < 0.05. Sources: Field Survey Data, 2014. n = 64.

However, results presented in Table 10 revealed that primary occupation significantly differed from the type of minor crop cultivated. (Chi-square value of 15.24 was significant at 5% alpha level p-value = 0.004). The farmer's choice of cultivating a minor crop significantly depends on the primary occupation.

Farm Sizes Cultivated to Crop by Farmers

The study revealed the mean farm size were 1.51ha for maize and 0.41ha for chili pepper (Table 11). Majority (66.4%) of the maize farmer had farm size between 0.40ha and 2.00ha whiles 33.6 percent had farm size between 2.00ha and 4.4ha. The results also revealed that all the 76 chili pepper farmers had farm size of less than one hectare. The outcome confirms the findings of Nwanze (2011) who concluded that smallholder farmers who

constitute the larger percentage of the farm household population own or cultivate less than 2.0 hectares of land.

Table 11: Farm Sizes Cultivated to Crops by Farmers

Farm Size (ha)	Maize		Vegetables (Chilies)	
	Freq.	Percentage	Freq.	Percentage
Less than 1	53	33.5	76	100
1.0 – 1.9	52	32.9		
2.0 – 2.9	43	27.2		
3.0 – 3.9	6	3.8		
4 and above	4	2.5		
Total	158	100	76	100
Mean	1.51		0.41	
S.D	0.83		0.21	
Range	0.40 – 4.4		0.20 - 0.80	

Source: Field Survey Data, 2014. n = 170.

Yield of Maize and Vegetables Harvested by Farmers

The study revealed the mean yield harvested by farmers were 1.48mt/ha for maize and 1.60mt/ha for chili pepper (Table 12). Majority (89.5%) of the chili pepper farmers harvested yield of less than 2mt/ha and (10.5%) harvested better yield of over 2mt/ha. The study also revealed that all the 158 maize farmers harvested yield of less than 2mt/ha between 1.00mt/ha and 1.87mt/ha.

Table 12: Crop Yield of Maize and Vegetables Farmers

Yield (mt/ha)	Maize		Vegetables (Chiles)	
	Freq.	Percentage	Freq.	Percentage
1.0 – 1.9	158	100	68	89.5
2.0 – 2.9			8	10.5
Total	158	100	76	100
Mean	1.48		1.60	
S.D	0.22		0.23	
Range	1.00 – 1.87		1.20 – 2.04	

Source: Field Survey Data, 2014. n = 170.

Income received from the sale of Maize and Vegetables by Farmers

On the average, farmers received GH¢ 1,556.40/ha of maize cultivated and GH¢ 1.469.69/ha for chili pepper. Majority (96.9%) of the maize farmers and (98.7%) of the chili pepper farmers obtained an income of between GH¢ 1,000.00/ha and GH¢ 2,100.00/ha and GH¢ 1,000.00/ha and GH¢ 1,875.00/ha from the sale of farm produces respectively Table (13).

Table 13: Income received from the sale of Maize and Vegetables by Farmers

Amount (GH¢)/ha	Maize		Vegetables (Chili pepper)	
	Freq.	Percentage	Freq.	Percentage
Less than 1000	5	3.2	1	1.3
1000 – 1500	78	49.4	40	52.6
1501 - 2000	55	34.8	35	46.1
Above 2000	20	12.7		
Total	158	100	76	100
Mean	1,556.40		1,469.69	
S.D	351.45		257.09	
Range	687.50 – 2,100		126.50 – 1,875.00	

Source: Field Survey Data, 2014. n = 170.

Sources of Agricultural Information for Farmers

The sources of agricultural information used by beneficiaries of MiDA project are presented in Table 14. Majority (95.9%) used information from MoFA Agricultural Extension Agents. Farmers also used information from input dealers (52.9%), friends (50.6) and radio programmes (48.2%). The least used source was Non-Governmental Organizations (10.6%). The result of this study is similar the findings of a similar study which concluded that farmers generally access agricultural information from extension agents, other farmers, friends, farmers associations and radio and television programmes (Fawole, 2008).

Table 14: Sources of Agricultural Information for Farmers

Sources of Information	Yes	
	*Frequency	Percentage (%)
MoFA (AEAs)	163	95.9
Input Dealers	90	52.9
Friends	86	50.6
FBO Members	86	50.6
Radio programmes	82	48.2
NGOs	18	10.6

Source: Field Survey Data, 2014. n = 170. *Multiple responses.

Sources of Agricultural Credit for Farmers

Table 15 present results on sources of agricultural credit used by farmers of the MiDA project. Farmers mostly used agricultural credit from their own savings (81.2%) or sale of farm produces (75.3%). Sources such as money lenders (22.9%), micro finance institutions (1.2%) and commercial banks (1.2%) are least used. This is not surprising as Duflo, Crepon, Pariente and Devoto (2008), Musiime and Atuha (2011) reported similar findings. This

could be due enormous difficulty farmers are faced in obtaining credit for agricultural activities due to the lack of financial services in rural areas. Access to formal credit is significantly determined by the capacity to provide collateralized assets which is mainly land (Duflo et al., 2008) which the farmers in the study area do not have but are encouraged to provide as security to obtain credit from commercial banks.

Table 15: Sources of Agricultural Credit for Farmers

Sources credit	Yes	
	*Frequency	Percentage (%)
Own savings	138	81.2
Sale of farm produce	128	75.3
Friends	58	34.1
Rural Banks	53	31.2
Family members	48	28.2
Sale of assets	43	25.3
Money lenders	39	22.9
Micro finance institutions	2	1.2
Commercial Banks	2	1.2

Source: Field Survey Data, 2014. n = 170. *Multiple responses

Marketing Outlets of Agricultural Produce

More farmers are using local markets (94.1%) and farm gate (52.9%) than aggregators (37.6%) and exporters (32.4%) as point of sale for farm produce (Table 16). Few farmers used processors because there were no processing plants in Municipality hence farmer have to sell produce to aggregators who intend supplied produce to processors in other districts or regions. Birthal and Joshi (2007) observed a similar scenario when they reported that farmers used farm gates, local markets and aggregators as marketing outlets for sale of farm produce. AGRA (2010) and Amrouk, et al.

(2013) posited that improved market outlets increases the production of high-value food commodities, hence African countries which pushed for increased agricultural productivity should equally push for improved well-functioning markets that provide reliable and dependable source of affordable and localized staple foods. The marketing outlets used by the respondents may be reliable and dependable but not improved since buyers are not under obligation to pay compensations if they fail to buy produce on time which leads to post-harvest losses.

Table 16: Marketing Outlet of sale of Agricultural Produce

Marketing outlets	Yes	
	*Frequency	Percentage (%)
Local markets	160	94.1
Farm gate	90	52.9
Middle men/women	64	37.6
Exporters	55	32.4
Processors	6	3.5

n = 170, Source: Field Survey Data, 2014. *Multiple responses

Sources of Agricultural Inputs of Farmers

Table 17 shows the result on the sources of agricultural input used by the respondents. The farmers mainly purchase agricultural inputs from local retail input outlets. A few farmers also patronized inputs from MoFA (17%) and NGOs (5.9%). Seini, Jones, Tambi and Odularu (2011) reported similar sources of agricultural inputs.

Table 17: Sources of Agricultural Inputs of Farmers

Sources of input	Yes	
	*Frequency	Percentage (%)
Local retail outlets	170	100
MoFA	30	17.6
NGOs	10	5.9
Wholesale shop	4	2.4

n = 170, Source: Field Survey Data, 2014. *Multiple responses

Type of Seeds used for Cultivation by Farmers

The result of the study presented in Table 18 shows that majority (97.6%) of the respondents used certified seeds for cultivation whilst 25.3% used local seeds. This finding confirms the finding of ISSER (2012) which concluded that (57%) of farmers in southern Ghana used improved seeds.

Table 18: Types of Seeds used for cultivation by Farmers

Type of seeds used by farmers	Yes	
	*Frequency	Percentage (%)
Certified seed	166	97.6
Local seed	43	25.3

Source: Field Survey Data, 2014. n = 170. *Multiple responses

The Extent of Farmer Participation in the MiDA Project Planning, Implementation, Monitoring and Evaluation Activities

This section discusses the extent of farmer participation in the MiDA project activities.

Extent of Farmer Participation in MiDA Project Planning Activities

Seven main MiDA project planning activities were identified and used for the study (Table 19). The respondents lowly participated in the MiDA project planning activities (Mean = 1.69, S.D = 0.74). The three main

activities that farmers lowly participated in were, preparing the MiDA project performance monitoring plan (Mean = 1.84, S.D = 0.89), preparing the MiDA project performance indicators tracking table (Mean = 1.82, S.D = 0.96) and setting the MiDA project performance indicators (Mean = 1.81, S.D = 0.92). The result is similar the findings of Washihun, Kwarteng and Okorley (2014) who identified low level of farmer participation in related activities.

Table 19: Extent of Farmer Participation in MiDA Project Planning Activities

Activities	Mean	S.D
Preparing MiDA project performance monitoring plan	1.84	0.89
Preparing MiDA project performance indicators tracking table	1.82	0.96
Setting MiDA project performance indicators	1.81	0.92
Preparing MiDA project activity plan	1.73	0.84
Allocating MiDA project resources (budgeting)	1.71	0.83
Defining the MiDA project objectives	1.52	0.96
Developing the MiDA project scope (coverage)	1.44	0.81
Composite Mean	1.69	0.74

Source: Field Survey Data, 2014. n = 170. Means were calculated from a scale of 1 = Very Low participation, 2 = Low participation, 3 = Moderately High participation, 4 = High participation and 5 = Very High participation.

Early literature on participation in project planning such as Kumba (2003) concluded that indigenous farmers in resource-poor communal farming regions in Namibia were much less involved in the decision-making processes and Bass, Dalal-Clayton and Pretty (1995) assertion that donors and development agencies more often ignore local people and institutions in planning projects is confirmed by this study. According to Siraj (2005) the fundamental reason for the exclusion of local people in the planning of

developmental programmes was the bureaucratic style of planning by development agencies which involves preparing and appraising programme documents according to set formats before inputs and remarks from other relevant institutions before implementation. The case of low farmer participation in the MiDA project planning activities could be attributed to the above reasons.

Extent of Farmer Participation in MiDA Project Implementation Activities

Results presented in Table 20 shows the extent of participation respondents in the MiDA project implementation activities is very high (Composite mean = 4.47, S.D = 0.80). With the exception of training on farm management practices (Mean = 4.36, S.D = 0.95), GAPs (Mean = 4.36, S.D = 0.93) and the use of market/sales techniques (Mean = 4.42, S.D = 0.87) that farmer rated participation to be high, they perceived participation in the rest of the activities to be very high (Means ranged from 4.47 to 4.59). The result mirrors the findings of Siraj (2005) which revealed high participation level of beneficiaries in project implementation.

Bass et al. (1995) revealed in Integrated Pest Management (IPM) project in Indonesia that, farmers who participated high to very high level in implementation in IPM farmer field school, reduced pesticides application substantially and saw increase in yields and kept exercising greater control over conditions they once felt beyond their control. The deduction is that the very high level of participation of farmers in the MiDA project activities should enable them deal effectively with conditions which otherwise were beyond their control such as negotiating contracts with buyers, developing linkages with FBOs and writing business plans.

Table 20: Extent of Farmer Participation in MiDA Project Implementation Activities

Activities	Mean	S.D
Training on business plan	4.59	0.85
Training on developing linkages with FBOs	4.53	0.87
Training on negotiating contracts with buyers	4.51	0.91
Sharing of starter packs	4.49	0.91
Training on value chain concept of farming	4.49	0.93
Training on post-harvest handling	4.48	0.96
Training on farm records keeping	4.47	0.96
Training on the use of marketing/sales techniques	4.42	0.87
Training on good agronomic practices (GAPs)	4.36	0.93
Training on farm management practices	4.36	0.95
Composite Mean	4.47	0.80

n = 170, Source: Field Survey Data, 2014. Means were calculated from a scale of 1 = Very Low participation, 2 = Low participation, 3 = Moderately High participation, 4 = High participation and 5 = Very High participation.

Extent of Farmer Participation in MiDA Project Monitoring and Evaluation Activities

Ten main monitoring and evaluation activities were identified with MiDA project (Table 21). Generally, the respondents lowly participated in the MiDA project monitoring and evaluation activities (Composite mean = 2.20, S.D = 0.97). Monitoring and evaluation activities that farmers lowly participated include, providing feedback for project improvement (Mean = 2.35, S.D = 1.16), support during questionnaires preparation for data collection (Mean = 2.32, S.D = 1.09) and ensuring project was carried out according to specification (Mean = 2.29, S.D 1.20).

The results of the study reflects the finding of Wasihun et al. (2014) which revealed farmer level of participation in monitoring and evaluation of

agricultural extension programmes to be between very low and low. The result of this study that level of participation of farmers in MiDA project monitoring and evaluation activities as project managers' site visits and ensuring project was carried out on time and based on specification must be improved. Siraj (2005) asserts that participation which is very low and low in nature yield no benefits and reduces the chances of success of the project, hence development agencies need to advance higher levels of participation by overcoming bureaucratic resistance to the concept of participation and institutionalizing participatory approaches in formulation, implementation, monitoring and evaluation of development programmes and projects.

Table 21: Extent of Farmer Participation in MiDA Project Monitoring and Evaluation Activities

Activities	Mean	S.D
Providing feedback for project improvement	2.35	1.16
Preparing questionnaires for data collection	2.32	1.09
Ensuring project was carried out according to specification	2.29	1.20
Project data collection	2.25	1.13
Ensuring project was carried out according to plan	2.17	1.08
Disseminating project report findings	2.15	1.07
Project data analysis	2.12	1.18
Writing project reports	2.12	1.21
Project managers site visits	2.09	1.08
Ensuring project was carried out on time	2.09	1.23
Composite Mean	2.20	0.97

n = 170, Source: Field Survey Data, 2014. Means were calculated from a scale of 1 = Very Low participation, 2 = Low participation, 3 = Moderately High participation, 4 = High participation and 5 = Very High participation.

Challenges that Affected the MiDA Project Implementation Activities

The responses from farmers on challenges affecting the implementation of MiDA project are presented in Table 22. More than half of the respondents (50% and more) felt the training was done too close to the end of the project and their inability to access credit with the business plan posed as a challenge to the project. Less than a third (30%) felt political interference and lack of commitment on the part of the farmers affected the implementation of the MiDA project. The issue of farmer commitment is becoming a major problem as Cummings and Worley (2009) had also found that programmes or intervention fail based on the beneficiaries' readiness and commitment for the change and the timing of the intervention.

22: Challenges that affected the MiDA Project Implementation Activities

Challenges	*Frequency	Percentage (%)
Training done too close to the end of project	92	54.1
Inability of farmers to access credit with business plan	86	50.6
FBO membership too large to manage during training	57	33.5
Lack of farmer commitment	48	28.2
Political interference	49	28.8

n = 170, Sources: Field Survey Data, 2014. *Multiple responses

World Bank (2005) rather identified lack of political support as one of the impediments to the implementation of the voucher scheme in health care delivery in Africa. Lipson and Wixson (2012) recommend that some critical matters that can undo a good intervention as individuals selected for intervention, the agencies providing instruction in the intervention(s), the professional tools that will be required to ensure that high quality intervention

is provided and the systems that must be put place for enacting intervention, monitoring progress, and collaborating for success must be addressed by development agencies to ensure an intervention does not fail.

Development Effectiveness of MiDA Project

The section describes the farmers perceived development effectiveness of the MiDA project in terms of relevance, effectiveness, efficiency, impact and sustainability in the Effutu Municipality.

MiDA Project Relevance

The result presented Table (23) shows that the respondents perceived of the MiDA project training interventions to be very relevant (Composite mean = 4.11, S.D = 0.49). The five main training respondents viewed to be very relevant were keeping farm records (Mean = 4.25, S.D = 0.82), EUREPGAP standards/certification (Mean = 4.22, S.D = 0.86), market specification (Mean = 4.17, S.D = 0.75), developing strong FBOs (Mean = 4.17, S.D = 0.87) and post-harvest handling (Mean = 4.15, S.D = 0.73). The result of this study is similar to the finding of Buadi (2008) which revealed that farmers rated services received from the Non-Governmental Organizations in the coastal towns of the Central region to be between relevant and very relevant. Picciotto (2013) concluded that project relevance is about implementing the right things, because the priorities of target beneficiaries are vital for determining the relevance of a project since achieving the wrong goals efficiently is counterproductive).

Table 23: MiDA Project Relevance

MiDA Project Relevance	Mean	S.D
Training on keeping farm records	4.27	0.66
Training on EUREPGAP standards/certification	4.22	0.86
Training on market specifications	4.17	0.75
Training on developing Farmer Based Organizations	4.16	0.87
Training on post-harvest handling	4.15	0.73
Training on starter pack knowledge	4.13	0.78
Training on value chain	4.11	0.82
Training on preparation of business plan	4.09	0.69
Training on negotiating contracts with buyers	4.05	0.72
Training of farm management practices	3.96	0.64
Training on good agronomic practices (GAPs)	3.85	0.58
Composite Mean	4.11	0.49

n = 170, Source: Field Survey Data, 2014. Means were calculated from a scale of 1 = Not Relevant, 2 = Fairly Relevant, 3 = Relevant, 4 = Very Relevant and 5 = Very Highly Relevant.

MiDA Project Effectiveness

The respondents perceived the MiDA project to be effective (Composite mean = 3.68, S.D = 0.49). With the exception of addressing the needs of the farmers (Mean = 3.43, S.D = 0.62) which respondent rated to be moderately effective, they largely perceived the MiDA project to be effective. (Mean ranged from 3.60 to 3.90). The result of the study presented in Table (24) is in line with findings of IFAD (2011) which reported that the Rural Enterprise Project II implemented in Ghana made substantial contribution to the overall national objectives, and was effective in reaching project objectives and in building the medium scale enterprise sector at national and district levels.

Table 24: MiDA Project Effectiveness

MiDA activities	Mean	S.D
Implementing project activities	3.90	0.75
Allocating production (starter pack) resource to farmers	3.80	0.76
Monitoring project activities	3.77	0.79
Evaluating project activities	3.76	0.83
Comply with project regulations	3.74	0.79
Planning project activities	3.60	0.72
Addressing the needs of the farmers	3.43	0.62
Composite Mean	3.68	0.49

n = 170, Source: Field Survey Data, 2014. Means were calculated from a scale of 1 = Very Ineffective, 2 = Ineffective, 3 = Moderately Effective, 4 = Effective and 5 = Very Effective.

MiDA Project Efficiency

Respondents perceived the MiDA project to be efficient (Composite mean = 3.61, S.D = 0.45) as shown in Table 25. With exception of utilizing fixed assert as vehicles which respondent perceived to be moderately efficient (Mean = 3.45, S.D = 1.12), they perceived the use of MiDA resources to be efficient in area as, utilizing variable assets as training handouts (Mean = 3.53, S.D = 0.96), utilizing the period for training (Mean = 3.63, S.D = 0.64), allocating resources to project activities (Mean = 3.66, S.D = 0.87) and procuring starter packs (Mean = 3.80, S.D = 0.77).

Table 25: MiDA Project Efficiency

MiDA activities	Mean	S.D
Procuring starter packs	3.80	0.77
Allocating resources to project activities	3.66	0.87
Utilizing the period for training	3.63	0.64
Utilizing variable assets as training handouts	3.53	0.96
Utilizing fixed assets as vehicles	3.45	1.12
Composite Mean	3.61	0.45

n = 170, Source: Field Survey Data, 2014. Means were calculated from a scale of 1 = Very Inefficient, 2 = Inefficient, 3 = Moderately Efficient, 4 = Efficient and 5 = Very Efficient.

The findings of this study contradict the findings of IFAD, (2011) which revealed that overall, the Rural Enterprise Project II performed moderately in terms of efficiency. Simula et al. (2013) also revealed that bureaucratic delays in fund transfer, changes in government policy and institutional responsibilities and exceptional weather conditions are some factors that affect the efficiency of programmes. It can be observed that above reasons did influence the MiDA project, hence, the high efficiency rating by respondents.

MiDA Project Impact

The result of the study in Table 26 indicates that the respondents perceived the impact of the MiDA project in the Effutu municipality to be high (Composite mean = 3.79, S.D = 0.42). Even though the respondents perceived the impact of MiDA project to be moderate in identifying the needs of the farmers (Mean = 3.49, S.D = 0.73), they generally rated the impact of the project in the study area to be high. (Mean ranged from 3.70 to 4.10). The finding of this study is in line with the findings of Simula et al. (2013) which concluded that beneficiaries rated the impact of projects to be high in

strengthening capacity, information and knowledge level of the beneficiaries but report a low impact on gender.

Table 26: MiDA Project Impact

MiDA project activities	Mean	S.D
Improving the capacity of farmers to do business	4.10	0.62
Improving the capacity of farmers to access credit	3.87	0.77
Strengthening the capacity of farmers to solve problems	3.81	0.69
Improve market opportunities of farmers	3.80	0.63
Improving the knowledge of farmers in agricultural production practices	3.78	0.70
Encouraging gender balance into project activities	3.70	0.81
Identifying the needs of the farmers	3.49	0.73
Composite Mean	3.79	0.42

n = 170, Source: Field Survey Data, 2014. Means were calculated from a scale of 1 = Very Low Impact, 2 = Low Impact, 3 = Moderate Impact, 4 = High Impact and 5 = Very High Impact.

MiDA Project Sustainability

The respondent perceived the MiDA project interventions as sustainable (Mean = 3.74, S.D = 0.39) as indicated in Table 27. Whilst project activities to empower farmers to build strong FBOs (Mean = 3.90, S.D = 0.74), resolve conflict among farmers (Mean = 3.88, S.D = 0.68), develop saving culture among farmers (Mean = 3.88, S.D 1.01) and adequate exit strategy (Mean = 3.87, S.D = 0.68) were rated to be sustainable, proper disposal of agrochemical containers (Mean = 3.44, S.D = 1.56) and facilitating follow up projects (Mean = 3.43, S.D = 1.25) were rated to be moderately sustainable.

The result of this study is in line with the findings of IFAD (2011) which concluded that the Rural Enterprise projects II ranked high in areas as sustainability of business services, technical services and rural finance services

however institutional mechanisms and individual medium scale enterprises were rated low in sustainability. The assertion of White (2003) that project sustainability should reflect the resilience of the project to risk, and the likelihood that the project benefits will be maintained over its intended useful life is confirmed by this study. In other words project sustainability should be seen economically, socially, environmentally and financially because project define when the intervention should be completed but often activities continue to ensure sustained impact on the beneficiaries (Picciotto, 2013 & Simula et al., 2013).

Table 27: MiDA Project Sustainability

MiDA activities	Mean	S.D
Empowering farmers to build strong FBOs	3.90	0.74
Encouraging conflict resolution among farmers	3.88	0.68
Encouraging savings culture among farmers	3.88	1.01
Providing adequate exit strategy	3.87	0.68
Encouraging proper disposal of agrochemical containers	3.44	1.56
Facilitating follow up projects	3.43	1.25
Composite Mean	3.74	0.39

n = 170, Source: Field Survey Data, 2014. Means were calculated from a scale of 1 = Very Unsustainable, 2 = Unsustainable, 3 = Moderately Sustainable, 4 = Sustainable and 5 = Very Sustainable.

Development Effectiveness of the MiDA Project in the Effutu Municipality

Overall, the respondents perceived the development effectiveness of the MiDA project training interventions and starter pack to be very relevant, had high impact on the activities of the beneficiaries Effutu Municipality. They also perceived the project as sustainable, effective and efficient. The results as presented in Table 28 indicated that project relevance contributed more to the development effectiveness of the project whilst project efficiency contributed the least.

Table 28: Development Effectiveness of the MiDA Project

Variable	Composite Mean	S.D
Project Relevance	4.11	0.47
Project Impact	3.79	0.42
Project Sustainability	3.74	0.39
Project Effectiveness	3.68	0.49
Project Efficiency	3.61	0.45

n = 170, Source: Field Survey Data, 2014

Prediction of Development effectiveness from background and farm related characteristics of participants and extent of participation in the MiDA Project

The concept of "development effectiveness" has been measured in terms of project relevance, effectiveness, efficiency, impact and sustainability. Hence this section looks at how the background and farm related characteristics and extent of participation of respondents influenced each attribute of development effectiveness. First, the relationships among the variables are established before the Stepwise regression analysis was performed to obtain the best predictors.

Relationship between MiDA Project Relevance and other related variables

The results presented in Table 29 shows that there was moderate, positive and significant relationship between project relevance and extent of farmer participation in implementation ($r = 0.35$, $p = 0.00$) and income from the sale of maize ($r = 0.30$, $p = 0.00$). There was also low, positive and significant relationships between relevance and extent of farmer participation in project planning ($r = 0.20$, $p = 0.00$), farm size of maize ($r = 0.19$, $p = 0.02$) and level of education ($r = 0.08$, $p = 0.02$) at 0.05 alpha level. In other words project relevance improves with increasing participation of participants, farm

size, income from the sale of maize and their level of education. On the other hand there is a low, negative and significant relationship between project relevance and extent of farmer participation in project monitoring and evaluation activities (r = -0.17, p = 0.03) at 0.05 alpha level. This shows clearly that participation in project monitoring and evaluation decreases when participants feel project is relevant.

Table 29: Relationship between MiDA Project Relevance and Related Variables

Independent variables	Correlation Coefficient (r)	p. values	Type of correlation	Strength of relationship
Planning	0.20	0.00*	Pearson	Low
Implementation	0.35	0.00*	Pearson	Moderate
M & E	-0.17	0.03*	Pearson	Low
Farm size	0.19	0.02*	Pearson	Low
Yield of maize	0.11	0.17	Pearson	Low
Income of maize	0.30	0.00*	Pearson	Moderate
Age	-0.08	0.32	Pearson	Negligible
Experience	0.08	0.33	Pearson	Negligible
Education	0.18	0.02*	Spearman	Low
Position in FBO	-0.07	0.34	Biserial	Negligible
Sex	0.02	0.79	Point biserial	Negligible

*p < 0.05. n = 170, Source: Field Survey Data, 2014.

Table 30 shows the results of Stepwise regression of perceived MiDA project relevance and other related variables. The adjusted R-square value for the MiDA project relevance in the study area is 0.30 indicating that 30% of the variations of the MiDA project relevance is explained by extent of farmer participation in project implementation (16%) and monitoring and evaluation (14%). The negative beta coefficient of X_2 indicate that, for every unit standard increase in the value of monitoring and evaluation is expected to result in a -0.37 standard change in project relevance in the study area. The

ANOVA test of the regression model was significant at alpha level 0.05 which indicates that the variables in the model significantly explained the composite effect of the MiDA project relevance in the Effutu Municipality of the Central region of Ghana.

Table 30: Stepwise Regression of Perceived MiDA Project Relevance and Related Variables

Predictors	Step of Entry	Beta (Standar-dized)	R^2	Adj. R^2	R^2 Chan ge	S.E.E	F Reg.	p. value *
Participat ion in implemen tation (X_1).	1	0.42	0.17	0.16	0.16	0.45	33.44	0.00*
Participat ion in M&E (X_2)	2	-0.37	0.30	0.29	0.14	0.42	35.95	0.00*

*p < 0.05. n =170, Source: Field Survey Data, 2014.

The equation for the multiple linear regression model (from standardized Beta) for Y (as in Project Relevance) is described as

Y= $a + \beta_1 X_1 + \beta_2 X_2$

Y = constant (a) if $\beta_1 = \beta_2 = 0$

Project relevance = $3.37 + (0.42X_1) + (-0.37X_2)$

Where; Dependent variable Y = MiDA Project Relevance

a = constant

β= standardized Beta

X_1 = Extent of farmer participation in MiDA project implementation activities

X_2 = Extent of farmer participation in MiDA project monitoring and evaluation activities

Relationship between MiDA Project Effectiveness and related variables

The results as shown in Table 31, revealed that there is a low, positive and significant relationship between project effectiveness and extent of farmer participation in project implementation (r = 0.21, p = 0.00) at 0.05 alpha level. This implies that as participation in project implementation increases, their perception of project effectiveness increases. Contrary, there is low, negative and significant relationship between project effectiveness and extent of farmers participation in project planning (r = -0.17, p = 0.03), monitoring and evaluation (r = -0.22, p = 0.00), farm size (r = -0.24, p = 0.00), yield of maize (r = -0.29, p = 0.00), income from the sale of maize (r = -0.19, p = 0.02), level of education (r = 0.23, p = 0.00) and position held (r = 0.20, p = 0.00) at 0.05 alpha level.

Table 31: Relationship between MiDA Project Effectiveness and Related Variables

Independent variables	Correlation Coefficient (r)	p. values	Type of correlation	Strength of relationship
Planning	-0.17	0.03*	Pearson	Low
Implementation	0.28	0.00*	Pearson	Low
M & E	-0.22	0.00*	Pearson	Low
Farm size	-0.24	0.00*	Pearson	Low
Yield of maize	-0.29	0.00*	Pearson	Low
Income of maize	-0.19	0.02*	Pearson	Low
Age	0.10	0.21	Pearson	Negligible
Experience	0.09	0.23	Pearson	Negligible
Education	-0.23	0.00*	Spearman	Low
Position in FBO	-0.11	0.00*	Biserial	Low
Sex	0.01	0.91	Point biserial	Negligible

*p < 0.05. n = 170, Source: Field Survey Data, 2014.

The result implies that as extent of farmer participation in project planning, monitoring and evaluation, participants' perception on project effectiveness decreases. Also, project effectiveness increases with decreasing farm size, yield of maize, income from the sale of maize and lower level of education.

Stepwise regression result of perceived MiDA Project Effectiveness and related variables presented in Table 32 showed an adjusted R-square value for the MiDA project effectiveness in the Effutu Municipality is 0.24. This infers 24% of the variation in the MiDA project effectiveness in the study area is explained by yield of maize (8.0%), extant of farmers participation in project monitoring and evaluation (6%) farm size (3%), extent of farmer participation in project implementation (3%) and level of education (3%).

Table 32: Stepwise Regression of Perceived MiDA Project Effectiveness and Related Variables

Predictors	Step of Entry	Beta (Standar-dized)	R^2	Adj. R^2	R^2 Chan ge	S.E.E	F Reg.	p. value *
Yield of maize (X_1)	1	-0.25	0.08	0.08	0.08	0.47	14.36	0.00*
Participati on in M&E (X_2)	2	-0.28	0.14	0.13	0.06	0.46	12.6	0.00*
Farm size (X_3)	3	-0.19	0.17	0.16	0.03	0.45	10.68	0.02*
Participati on in implement ation. (X_4)	4	0.20	0.20	0.18	0.03	0.44	9.52	0.02*
Level of education (X_5)	5	-0.10	0.24	0.21	0.04	0.43	9.37	0.00*

*p < 0.05. n =170, Source: Field Survey Data, 2014.

The negative beta coefficient values of X_1, X_2, X_3 and X_5 means that, for a unit increase in the yield of maize, monitoring and evaluation, farm size

and level of education will result in the standard decrease in project effectiveness by -0.25, -0.28, -0.19 and -0.10 respectively. The ANOVA test for the regression model was significant at alpha level 0.05 which indicates the variable in the model have composite effect in explaining the MiDA project effectiveness in the study area significantly.

The equation for the multiple linear regression model (from standardized Beta) for Y (as in Project Effectiveness) is described as;

$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$

Y = constant (a) if $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$

Project effectiveness = $4.63 + (-0.25X_1) + (-0.28X_2) + (-0.19X_4) + (0.20X_4) + (-0.10X_5)$

Where; Dependent variable Y = MiDA Project Effectiveness

a = constant

β = standardized Beta

X_1 = yield of maize

X_2 = extent of farmer participation in MiDA project monitoring and evaluation activities

X_3 = farm size

X_4 = extent of farmer participation in MiDA project implementation activities

X_5 = level of education attained by farmers

Relationship between MiDA Project Efficiency and related variables

The result of the study as indicated in Table 33 revealed that there is a low, positive and significant relationship between project efficiency and extent of farmer participation in project implementation ($r = 0.16$, $p = 0.04$) and years of farming experience ($r = 0.17$, $p = 0.03$) at 0.05 alpha level. In other words, farmer perception of project efficiency increases with increasing participation in project implementation and years of farming experience. However, there is

a moderate, negative and significant relationship between project efficiency and yield of maize (r = -0.39, p = 0.00). The result implies that, project efficiency decreases with increase yield of maize.

Table 33: Relationship between MiDA Project Efficiency and Related Variables

Independent variables	Correlation Coefficient (r)	p. values	Type of correlation	Strength of relationship
Planning	-0.02	0.85*	Pearson	Negligible
Implementation	0.16	0.04*	Pearson	Low
M & E	-0.02	0.79	Pearson	Negligible
Farm size	-0.09	0.26	Pearson	Negligible
Yield of maize	-0.39	0.00*	Pearson	Moderate
Income of maize	-0.07	0.36	Pearson	Negligible
Age	0.03	0.69	Pearson	Negligible
Experience	0.17	0.04*	Pearson	Low
Education	-0.06	0.32	Spearman	Negligible
Position in FBO	-0.08	0.30	Biserial	Negligible
Sex	0.06	0.48	Point biserial	Negligible

$p < 0.05$. n = 170, Source: Field Survey Data, 2014.

Table 34 shows the results of Stepwise regression of perceived MiDA project efficiency and related variables. The adjusted R-square value of the MiDA project efficiency is 0.21. Indicating 21% of the variation in the MiDA project efficiency in the Effutu Municipality is explained by yield of maize (15%) and extent of farmer participation in project implementation (6%). The negative coefficient of X_1 in the equation means that, a unit standard increase in the value of the yield of maize is expected to result in the standard decrease of MiDA project efficiency by -0.37. The ANOVA test of the model was significant at alpha level 0.05 which indicates that the variable in the model

significantly explained the composite effect of the MiDA project efficiency in the study area.

Table 34: Stepwise Regression of Perceived MiDA Project Efficiency and Related Variables

Predictors	Step of Entry	Beta (Standardized)	R^2	Adj. R^2	R^2 Change	S.E.E	F Reg.	p. values *
Yield of maize (X_1)	1	-0.37	0.15	0.15	0.15	0.42	27.54	0.00*
Participation in implementation (X_2)	2	0.25	0.21	0.21	0.06	0.41	20.88	0.00*

*p < 0.05. n =170, Source: Field Survey Data, 2014.

The equation for the multiple linear regression model (from standardized Beta) for Y (as in Project Efficiency) is described as;

$Y = a + \beta_1 X_1 + \beta_2 X_2$

Y = constant (a) if $\beta_1 = 0$

Project efficiency = $4.19 + (-0.37X_1) + (0.25X_2)$

Where; Dependent variable Y = MiDA Project Efficiency

a = constant

β= standardized Beta

X_1 = yield of maize

X_2 = extent of farmer participation in MiDA project implementation activities

Relationship between MiDA Project Impact and related variables

Table 35 presents the results of the study which indicates that there is low, positive and significant relationship between project impact and extent of farmer participation in project implementation (r = 0.25, p = 0.00) at 0.05 alpha level. The result means that project impact increases with increasing

participation in project implementation activities. However, there is moderate, negative and significant relationship between project impact and yield of maize (r = -0.31, p = 0.00). There is also low, negative significant relationship between project impact and income from the sale of maize (r = -0.28, p = 0.00) and extent of farmer participation in project monitoring and evaluation (r = -0.16, p = 0.04) at 0.05 alpha level. The result clearly shows that decreasing yield of maize and income from the sale of maize increases project impact. Also decrease in participation in project monitoring and evaluation indicate an increase in project impact.

Table 35: Relationship between MiDA Project Impact and Related Variables

Independent variables	Correlation Coefficient (r)	p. values	Type of correlation	Strength of relationship
Planning	0.09	0.24	Pearson	Negligible
Implementation	0.25	0.00*	Pearson	Low
M & E	-0.16	0.04*	Pearson	Negligible
Farm size	0.04	0.63	Pearson	Negligible
Yield of maize	-0.31	0.00*	Pearson	Moderate
Income of maize	-0.28	0.00*	Pearson	Low
Age	0.12	0.69	Pearson	Low
Experience	0.03	0.68	Pearson	Negligible
Education	-0.11	0.14	Spearman	Low
Position in FBO	-0.07	0.34	Biserial	Negligible
Sex	0.02	0.75	Point biserial	Negligible

*p < 0.05. n = 170, Source: Field Survey Data, 2014.

The Stepwise regression results of perceived MiDA project impact and related variables presented in Table 36 showed an adjusted R-square value for the MiDA project impact in the study area was 0.16. This infers 16% of the

variations of the MiDA project impact is explained by yield of maize (10%), extent of farmer participation in project implementation (3%) and income from the sale of maize (3%). The negative beta coefficient of X_1 and X_3 indicates that for every unit increase in the yield of maize and the income received from sale of maize will result in the decrease in the perceived impact of the MiDA project by -0.31 and -0.37 respectively. The variables in the model have significant composite effect in explaining the MiDA project impact in the study area as shown by the ANOVA test that the regression model was significant at 0.05 alpha level.

Table 36: Stepwise Regression of Perceived MiDA Project Impact and Related Variables

Predictors	Step of Entry	Beta (Standardized)	R^2	Adj. R^2	R^2 Change	S.E.E	F Reg.	p. value *
Yield of maize (X_1)	1	-0.31	0.10	0.09	0.10	0.40	16.98	0.00*
Participation in implementation (X_2)	2	0.29	0.13	0.12	0.03	0.40	11.70	0.02*
Income of maize (X_3)	3	-0.37	0.16	0.15	0.03	0.39	9.93	0.02*

*p < 0.05. n =170, Source: Field Survey Data, 2014.

The equation for the multiple linear regression model (from standardized Beta) for Y (as in Project Impact) is described as;

$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$

Y = constant (a) if $\beta_1 = 0$

Project Impact = $4.04 + (-0.31X_1) + (0.29X_2) + (-0.37X_3)$

Where; Dependent variable Y = MiDA Project Impact

a = constant

β= standardized Beta

X_1 = yield of maize

X_2 = extent of farmer participation in MiDA project implementation activities

X_3 = income from the sale of maize

Relationship between MiDA Project Sustainability and related variables

The result presented in Table 37 shows that there is low, positive and significant relationship between project sustainability and extent of farmer participation in project implementation (r = 0.17, p = 0.02), age of farmers (r = 0.19, p = 0.01) and years of farming experience (r = 0.19, p = 0.01) at 0.05 alpha level. In other word, project sustainability increases with increasing participation in project implementation. Also, project sustainability increases as farmers grow older and gain more farming experience. On the contrary, there is a low, negative and significant relationship between project sustainability and yield of maize (r = -0.21, p = 0.00), extent of farmer participation in project planning (r = -0.19, p = 0.01), level of education (r = -0.18, p = 0.02) and position held in FBO (r = -0.17, p = 0.03) at 0.05 alpha level.

Table 37: Relationship between MiDA Project Sustainability and Related Variables

Independent variables	Correlation Coefficient (r)	p. values	Type of correlation	Strength of relationship
Planning	-0.19	0.01*	Pearson	Negligible
Implementation	0.17	0.02*	Pearson	Low
M & E	-0.07	0.38	Pearson	Negligible
Farm size	-0.04	0.59	Pearson	Negligible
Yield of maize	-0.21	0.00*	Pearson	Low
Income of maize	-0.10	0.21	Pearson	Negligible
Age	0.19	0.01*	Pearson	Low
Experience	0.19	0.01*	Pearson	Low
Education	-0.18	0.02*	Spearman	Low
Position in FBO	-0.07	0.03*	Biserial	Negligible
Sex	-0.06	0.46	Point biserial	Negligible

*p < 0.05. n = 170, Source: Field Survey Data, 2014.

The result means that decreasing yield of maize and extent of farmer participation in project planning activities with lower levels of education and not holding positions increases project sustainability.

Table 38 shows the result of Stepwise regression of perceived MiDA project sustainability and related variables. The adjusted R-square value of the MiDA project sustainability is 0.17. Inferring that 17% of the variation in the MiDA project sustainability is explained by the extent farmer participation in project implementation (6%), years of farming experience (5%), level of education (4%) and position held in the Farmer Based Organizations (2%). The negative coefficient of X3 and X4 means that, for every unit increase in the level of education and the number of farmers not holding positions in the FBOs will result in a decrease in the MiDA project sustainability by -0.16 and -0.14 respectively.

Table 38: Stepwise Regression of Perceived MiDA Project Sustainability and Related Variables

Predictors	Step of Entry	Beta (Standardized)	R^2	Adj. R^2	R^2 Change	S.E.E	F Reg.	p. value *
Participation in implementation (X_1)	1	0.27	0.06	0.06	0.06	0.38	11.19	0.00*
Years of experience (X_2)	2	0.21	0.12	0.10	0.05	0.37	8.15	0.00*
Level of education (X_3)	3	-0.16	0.14	0.12	0.04	0.37	5.46	0.02*
Position held in FBOs (X_4)	4	-0.14	0.17	0.13	0.02	0.37	3.92	0.04*

*p < 0.05. n =170, Source: Field Survey Data, 2014.

The ANOVA test of the regression model was significant at alpha level 0.05 which indicates that the variables in the model significantly explained the composite effect of the MiDA project sustainability in the Effutu Municipality of the Central region of Ghana.

The equation for the multiple linear regression model (from standardized Beta) for Y (as in Project Sustainability) is described as;

$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$

Y = constant (a) if $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$

Project sustainability = + ($0.27X_1$) + ($0.21X_2$) + ($-0.16X_3$) + ($-0.14X_4$)

Where; Dependent variable Y = MiDA Project Sustainability

a = constant

β= standardized Beta

X_1 = extent of farmer participation in MiDA project implementation activities

X_2 = Years of farming experience

X_3 = highest education attained by farmers

X_4 = position held FBO

Hypotheses Testing

The study sought to test three hypotheses

Increase in the Yield of Maize by MiDA Project using One-Sample T-test Results of the increase in yield of maize attributed to the MiDA project is presented in Table 39. The mean yield of maize of farmers in this study was (M = 1.48mt/ha, S.D = 0.22). The mean maize yield value of farmers revealed by ISSER (2012) was (1.40mt/ha). The one-sample t-test of statistical different, t = (5.05), df = 157, p = 0.00 (two-tailed), mean difference = 0.09 shows that the farmers in the study area have higher mean maize yield than the ISSER reported yield and the different significant at alpha level 0.05. The

result of this study mirrors the findings of (Yorobe & Quicoy, 2006 & Yorobe & Smale, 2012) who concluded that the maize yield of famers in the Philippines positively improved due to a project to introduce new maize varieties to farmers. Therefore the null hypothesis 1 which stated that "the MiDA project has not significantly increased the yield of maize in the study area" is rejected and the alternate hypothesis accepted.

Table 39: One-Sample T-test of Increased Yield of Maize by the MiDA Project

Test Value = 1.4 (Mt/Ha)							
Outcome	N	Mean	S.D	Mean Diff.	t-ratio	df	p. value
Yield of Maize	158	1.48	0.22	0.09	5.05	157	0.00*

*p < 0.05. n = 170, Source: Field Survey Data, 2014.

Increase in the Yield of Chili Pepper by MiDA Project using One-Sample T-test. Results of the study presented in Table 40 shows the increase in the yield of chili pepper attributed to the MiDA project. The mean chili pepper yield value of farmers revealed by ISSER (2012) was (1.60mt/ha). The mean the value of chili pepper yield for farmers in this study also was (M = 1.60mt/ha, S.D = 0.23). The one-sample T-test of statistical difference, t = 0.17, df = 75, p = 0.86 (two-tailed), and mean difference = 0.00 shows that the farmers in this study have the same mean chili pepper yield as the yield reported by ISSER (2012) at 0.05 alpha level. Therefore null hypothesis 2 which stated that "the MiDA project has not significantly increased the yield of chili pepper in the study area" is accepted and the alternate rejected.

Table 40: One Sample T-test of Increased Yield of Chili Pepper by the MiDA Project

Test Value = 1.60 (mt/ha)							
Outcome	N	Mean	S.D	Mean Diff.	t-ratio	df	p. value
Yield of Chili pepper	76	1.60	0.23	0.00	0.17	75	0.86

$p > 0.05$. n = 170, Source: Field Survey Data, 2014.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents the summary of findings, conclusions and recommendations of the study. Areas for further studies are also presented in this chapter.

Summary

Smallholder farmers in Ghana face many challenges due to poor access to agricultural inputs, credit facilities and market opportunities, high rate of soil depletion, and low information, knowledge and skills to manage the farming enterprise. These challenges often result in the low yields of agricultural products which in turn leads to low domestic food availability, low income of farm households, low nutritional intake and consequently poor health condition of farmers. To address these challenges, the United States Government through the Millennium Development Authority (MiDA) Ghana project supported smallholder farmers to increase agricultural productivity. The support sought to promote high-value commercial, basic food crop production and private sector investment in agriculture. The MiDA project in the Effutu Municipality of Ghana was also set out to boost farmers' incomes and improve community wellbeing. Hitherto, projects that are meant to improve the socio-economic status of farmers lacked the assessment of development effectiveness and factors that contribute to

it. The study therefore examined the determinants of development effectiveness of the MiDA project in the Effutu Municipality in the Central Region of Ghana.

The study used a descriptive survey design and simple random sampling technique to collect data from one hundred and seventy (170) smallholder farmers from the population of three hundred who were trained by MiDA. Frequencies, percentages, means, standard deviations, chi-square, correlation and multiple linear regression statistical tools were used to analyze the data. The summaries of major findings relating to the objectives of the study are presented in the following paragraphs.

There were more male MiDA trained farmers than females. Two thirds of the farmers were between the ages of 40 and 70 years. Minority (8.7%) of the respondents had no education. However, an overwhelming majority (91.3%) of the respondents were educated from primary to tertiary level. Majority of the farmers did not hold any leadership position in the FBOs. There was a significant relationship between the level of education and position held by farmers in FBOs.

Majority of the farmers were married and had mean years of farming experience of 19.30 years. The years of farming experience had a significant relationship with marital status of farmers. The primary occupation of respondents was farming. Maize is the major crop cultivated by farmers although few cultivated chili pepper. On the average, farmers planted 1.51ha of maize and 0.41ha of chili pepper but harvested 1.48mt/ha of maize and 1.60mt/ha of chili pepper. Farmers realized on average GH¢1,556.40 from the sale of maize and GH¢1.469.69 from sale of chili pepper from every hectare. The farmers had

different sources of agricultural information, credit, point of sale of farm produce and agricultural inputs. Majority (97.6%) of the respondents use certified seeds.

The respondents rated the extent of participation in the MiDA project implementation activities to be high however, planning as well as monitoring and evaluation activities were low.

The major challenges that affected the MiDA project implementation were lateness in training of participants, inability of farmers to access credit with business plans and large number of FBO members during trainings. Political interference and lack of commitment on the part of the farmers also posed as a challenge.

The respondents perceived the development effectiveness of the MiDA project training interventions and starter pack to be very relevant and had high impact on the activities of the beneficiaries in Effutu Municipality. They also perceived the project as sustainable, effective and efficient. There was a positive and significant relationship between project relevance and extent of farmer participation in implementation, planning and level of education. On the other hand, there was a negative significant relationship between project relevance and extent of farmer participation in project monitoring and evaluation.

The project effectiveness had positive significant relationship with extent of farmer participation in project implementation. However, there was an inversely significant relationship between project effectiveness and extent of farmer participation in project planning, monitoring and evaluation, level of

education, and not holding of position in the FBOs, farm size, yield of maize and income received from the sale of maize. Also, the level of education, farm size, yield of maize, income from the sale of maize and number of farmers and not holding position in the FBOs increases, project effectiveness decreases.

Furthermore, there was positive and significant relationship between project efficiency and extent of farmer participation in project implementation and years of farming experience.

On the other hand, project efficiency had negative relationship with extent of farmer participation in project planning and the yield of maize. There was positive and significant relationship between project impact and extent of farmer participation in project implementation. As farmer participation in project implementation increases, project impact increases. However, there was an inversely significant relationship between project impact and extent of farmer participation in project monitoring and evaluation, yield of maize and income received from the sale of maize. As farmer participation in project monitoring and evaluation, yield of maize and income from the sale of maize increases, project impact decreases. Finally, findings of the study showed that project sustainability had positive and significant relationship with extent of farmer participation in project implementation, age of farmers and years of farming experience. However, the relationship with extent of farmer participation in project planning, level of education and not holding position in FBOs was negative and significant.

The extent of farmer participation in project implementation, monitoring and evaluation explained (30%) of the variance of the MiDA project relevance in the Effutu Municipality. The yield of maize, extent of farmer participation in project monitoring and evaluation, farm size, extent of farmer participation in project implementation and level of education contributed 24% of the variation in the MiDA project effectiveness. Yield of maize and extent of farmer participation in project implementation activities determined 21% of the variance in project efficiency. Yield of maize and farmer participation in project implementation are the best predictors of project efficiency. Three variables namely, yield of maize, extent of farmer participation in project implementation and income from the sale of maize explained 16% of the variation of the impact of the MiDA project in the study area. The extent of farmer participation in project implementation activities, years of farming experience, level of education and number of farmers not holding position in the FBOs contributed 17% of the variance of project sustainability.

Conclusions

Based on the summary of the findings of the study, the following conclusions and lessons were drawn;

1. MiDA trained farmers were highly educated with varied ages with two thirds of them between 40 and 70 years. More males participated in the MiDA project than females.

2. More of the farmers were married and had varied farming experience between 4 and 30 years.
3. Farmers' participation in the project implementation activities was high however their participation in the planning, monitoring and evaluation activities was low.
4. Farmers with high level of education participate in project implementation and planning when they perceive the project to be relevant. Participation in project implementation, monitoring and evaluation activities also influences perception of farmers on project relevance.
5. Farmer perception on project effectiveness increases with farmer participation in project implementation but decreased with farmer participation in project planning, monitoring and evaluation.
6. The yield of maize, farm size, farmer participation in project implementation activities and level of education influenced farmer perception on project effectiveness.
7. Farmer perception on project efficiency increased with increasing farmer participation in project implementation activities and their years of farming experience but decreased with increasing farmer participation in project planning activities.
8. The yield of maize, farmer participation in project implementation activities was identified as the best predictors of project efficiency.

9. Project impact increased with increasing farmer participation in project implementation activities but decreased with increasing farmer participation in project monitoring and evaluation activities.
10. The yield of maize, farmer participation in project implementation activities and the income received from the sale of maize by the farmers influenced their perceived impact of the MiDA project.
11. Project sustainability increased as farmer participation in project implementation activities, age and years of farming experience increased.
12. Farmer participation in project implementation, years of farming experience, level of education and the number of farmers not holding position in the FBOs are best predictors of project sustainability.
13. Lateness in training of participants, the inability of the farmers to access credit with business plans, large membership of FBOs, political interference and lack of commitment on the part of some of the farmers were the major challenges that affected the MiDA project implementation in the study area.

Recommendations

Based on the conclusions of the study, the following recommendations were made for similar agricultural development project in the future:

1. To ensure that more young people enter into farming, MoFA should revamp its Youth in Agriculture programme to attract more young farmers into agriculture. Women in Agricultural Development (WIAD) under

MoFA should encourage more women to participate in similar agricultural development projects.

2. MoFA should also ensure that more attention is given to unmarried and less experienced farmers who will participate in similar agricultural development projects.
3. MoFA and development agencies should put in place policies that will encourage farmer participation in project planning, monitoring and evaluation activities.
4. MoFA and development agencies should put in place measures to ensure farmer participation in project implementation, monitoring and evaluation activities in order to improve the relevance of similar agricultural development projects.
5. MoFA and development agencies should develop strategies to improve the yield of maize, farmer participation in project implementation activities and educated farmers in project activities to improve project effectiveness.
6. To optimize project efficiency of agricultural development projects, MoFA and development agencies should develop plans to improve the yield of maize and farmer participation in project implementation activities.
7. MoFA and development agencies should pay more attention on improving the yield of maize, farmer participation in project implementation activities and income of farmers in order to improve the impact of similar agricultural development projects on the activities of farmers.

8. To enhance sustainability of agricultural development project, MoFA and development agencies should fashion policies that encourage farmer participation in project implementation activities, educated and experience farmers during project activities.
9. In order to minimize the challenges that affect agricultural development projects, MoFA and development agencies should ensure that major projects activities are implemented early and very close to project completion.
10. MoFA should liaise with the Rural Banks and the farmers to ensure that farmers groups with good business plans are supported with credit facilities from the bank to improve production.
11. MoFA should develop policies , which will ensure that, government, and government agencies do not interfere in agricultural development projects in the study area.

Suggestion for Further Study

The following are suggested for further research:

1. The study should be replicated in the adjourning Districts in the Southern Horticultural Belt and the other MiDA project zones to help validate the findings of this study
2. Due to resource and time constraints, this study limited its scope to farmers. Thus the survey primarily focused on their perception of the development effectiveness of the MiDA project. Further studies should be conducted to include other stakeholders as MoFA AEAs, Agricultural

Input Dealers and project implementing partners to obtain a complete stakeholder assessment of the effectiveness as well as the efficiency of project implementation.

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APPENDICES

Appendix A: Table for Determining Sample Size from a Given Population

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Source: Krejcie, R. V. & Morgan, D. W. (1970). Determining sample size for research activities. ***Educational and Psychological Measurement***, ***30***, 607-610.

Appendix B: Davis Convention for Describing Magnitude of Correlation Coefficients

	Magnitude of Correlation Coefficients (r)	Description
1	1.0	Perfect
2	0.70 - 0.99	Very High
3	0.50 - 0.69	Substantial
4	0.30 - 0.49	Moderate
5	0.10-0.29	Low
6	0.01 - 0.09	Negligible

Source: Davis. J. A (1971). ***Elementary Survey Analysis***. Englewood. NJ: Prentice-Hall. 175

Appendix C: Structured Interview Schedule for MiDA Beneficiaries in the Effutu Municipality of Ghana

The purpose of this study is to examine the determinants of development effectiveness of the MiDA commercial agricultural development project in the Effutu Municipality of the Central Region, Ghana in order to make recommendations to improve the implementation of agricultural development programmes. This is part of requirement for the award of MPhil degree in NGO Studies and Community Development at the University of Cape Coast.

Please Note:

The information given would be used for the purpose provided only. Please take time to express your opinions and suggestions freely. The confidentiality of your responses is assured.

Thank you.

Structured Interview Schedule for MiDA Trained Farmers

Date of interview: ……..

PART ONE (1) Background and farm related characteristics of the beneficiaries

What is the demographic and farm related characteristics of the beneficiaries (farmers) of the MiDA project?

1. Sex of farmer: Male [ ] Female [ ]
2. Age at last birthday:……(years)
3. Years of farming experience: …….(years)
4. Marital Status: Married [ ] Single [ ] Widowed [ ]
   Divorced [ ]
5. Position held in FBO: FBO Executive [ ] FBO member [ ]
6. Name of FBO …… Location of FBO:…….....
7. Indicate your highest level of education by ticking[√] the appropriate box:

Primary [ ] JSS/JHS [ ] SSS/SHS [ ]

Tertiary [ ] Non formal education [ ] NO Education [ ]

8. Agricultural Enterprise under cultivation:

	Farm Enterprise	Farm Size (ha)	Yield/ha (Bags/Boxes)	Income (GH¢)/ha
Major crop	Maize [ ], Vegetables(Chiles)[ ]			
Minor crop	Maize[ ], Vegetables(Chiles)[ ]			

9. Primary occupation of farmer: Farming [ ], Trading [ ], Civil servant [ ], Artisan [ ], Retired Civil Servant [ ],

other [ ] Specify ……

10. Sources of agricultural information

Where did you access agricultural information		**Responses**	
i	MoFA	YES	NO
ii	NGOs	YES	NO
iii	Projects	YES	NO
iv	Friends	YES	NO

v	Input dealers	YES	NO
vi	FBO Members	YES	NO
vii	Radio Stations	YES	NO
viii	Others specify		

11. Sources of agricultural credit

What are your sources of credit		**Responses**	
i	Commercial Banks	YES	NO
ii	Rural Banks	YES	NO
iii	Micro finance	YES	NO
iv	Friends	YES	NO
v	Sale of assets	YES	NO
vi	Sale of farm produce	YES	NO
vii	Own savings	YES	NO
viii	Money lenders	YES	NO
ix	Family members	YES	NO
x	Others specify		

12. Point of sale of farm produce

Where did you sell your produce		**Responses**	
i	Farm gate	YES	NO
ii	Local markets	YES	NO
iii	Middle men/women	YES	NO
iv	Processors	YES	NO
v	Exporters	YES	NO
vi	No Market	YES	NO
	Others specify		

13. Sources of agricultural inputs

Where did you get access to agricultural inputs		**Responses**	
i	Wholesale shops	YES	NO
ii	Local retail	YES	NO

iii	MoFA	YES	NO
iv	NGOs	YES	NO
v	Don't Know	YES	NO
	Others specify		

14. What type of seed do you use to cultivate your crops?

Certified seeds: YES [ ] NO [ ] Local seeds: YES [ ] NO [ ]

Don't know [ ]

PART TWO (2): Extent of famer participation in the MiDA project activities.

15. Rate your level of Participation using the following scale: 1 = Very low, 2 = low, 3 = Moderately high, 4 = High and 5 = Very high

What was your extent of participation in the following MiDA project planning						
i	Defining the MiDA project objectives	**1**	**2**	**3**	**4**	**5**
ii	Developing the MiDA project scope (coverage)					
iii	Preparing MiDA project activity plan					
iv	Allocating MiDA project resources (budgeting)					
v	Setting MiDA project performance indicators					
vi	Preparing MiDA project performance indicators tracking table					
vii	Preparing MiDA project performance monitoring plan					
What was your extent of participation in the following MiDA project implementation activities						
i	Training on Good Agronomic Practices (GAPs)	**1**	**2**	**3**	**4**	**5**
ii	Training on farm management practices					
iii	Sharing of Starter packs					
iv	Training on Business plan					
v	Training on value chain concept of farming					
vi	Training on negotiating contracts with buyers					

vii	Training on farm records keeping					
viii	Training on post-harvest handling and storage					
ix	Training on the use of marketing and sales techniques					
x	Training on developing linkages with FBOs					
What was your extent of particiapation in the following MiDA project monitoring and evaluation activities						
i	Ensuring project was carried out on time	**1**	**2**	**3**	**4**	**5**
ii	Ensuring project was carried out according to plan					
iii	Ensuring project was carried out according to specification					
iv	Preparing questionnaires for data collection					
v	Project data collection					
vi	Project data analysis					
vii	Writing project report					
viii	Disseminating project report findings					
ix	Project managers site visits					
x	Providing feedback for project improvement					

PART THREE (3): The development effectiveness of the MiDA project (relevance, effectiveness, efficiency, impact and sustainability.

19. How did the MiDA project measure up to development effectiveness in terms of relevance, effectiveness, efficiency, impact and sustainability?

Rate the relevance of MiDA interventions using the following scale: 1 = Not Relevant, 2 = Fairly Relevant, 3 = Relevant, 4 = Very Relevant and 5 = Very Highly Relevant						
How relevant was the following MiDA project?		**1**	**2**	**3**	**4**	**5**
i	Training on Good Agronomic Practices (GAPs) to improve productivity					
ii	Training of farm management practices to improve farming enterprise					
iii	Starter pack for piloting knowledge gained during the training					
iv	Business plan to help access credit					

v	Value chain concept of farming to improve farming enterprise					
vi	Training on negotiating contracts with buyers					
vii	Training on farm records keeping to improve farming enterprise					
viii	Training on post-harvest handling to improve marketability of crops					
ix	Training on understanding market specification to improve marketability					
x	Training on developing strong FBOs (Group Dynamics Training)					
xi	EUREPGAP standards/certification to open farmers to export market					
Rate the effectiveness of MiDA using the following scale: 1 = Very Ineffective, 2 = Ineffective, 3 = Moderately Effective, 4 = Effective and 5 = Very Effective						
How effective was the MiDA project		**1**	**2**	**3**	**4**	**5**
i	Implementing project activities					
ii	Allocating production (starter pack) resource to farmers					
iii	Monitoring project activities					
iv	Evaluating project activities					
v	Comply with project regulations					
vi	Planning project activities					
vii	Addressing the needs of the farmers					
Rate the efficiency of MiDA using the following scale: 1 = Very Inefficient, 2 = Inefficient, 3 = Moderately Efficient, 4 = Efficient and 5 = Very Efficient						
How efficient was the MiDA project		**1**	**2**	**3**	**4**	**5**
i	Utilizing fixed assets as vehicles					
ii	Utilizing variable assets as training handouts					
iii	Utilizing the period for training					
iv	Allocating resources to project activities					
v	Procuring starter packs					

Rate the impact of MiDA using the following scale: 1 = Very Low Impact, 2 = Low Impact, 3 = Moderate Impact, 4 = High Impact and 5 = Very High Impact						
What was the impact of the MiDA project		**1**	**2**	**3**	**4**	**5**
i	Improving the capacity of farmers to do business					
ii	Improving the capacity of farmers to access credit					
iii	Strengthening the capacity of farmers to solve problems					
iv	Improve market opportunities of farmers					
v	Improving the knowledge of farmers in agricultural production practices					
vi	Encouraging gender balance into project activities					
vii	Identifying the needs of the farmers					
Rate the impact of MiDA using the following scale: 1 = Very Unsustainable, 2 = Unsustainable, 3 = Moderately Sustainable, 4 = Sustainable and 5 = Very Sustainable						
How sustainable was the MiDA project		**1**	**2**	**3**	**4**	**5**
i	Empowering farmers to build strong FBOs					
ii	Encouraging conflict resolution among farmers					
iii	Encouraging savings culture among farmers					
iv	Providing adequate exit strategy					
v	Facilitating follow up projects					
vi	Encouraging proper disposal of agrochemical containers					

PART FOUR (4): **The challenges that affected the MiDA project implementation activities.**

24. List five challenges that affected MiDA project implementation activities

i. ……

ii. ……

iii. ……

iv. ……

v. ……

THANK YOU