

DECLARATION

I hereby declare that this is my own work towards the MSc and that, to the best of my knowledge; it contains no material previously published by another person or material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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ABSTRACT

The majority of agricultural producers in Ghana still use the traditional approach in crop production with technological change very slow and minimal. In view of this, Agricultural Extension Services have been adopted by the government as a major agricultural transformation strategy. Nevertheless, the expected impact from the intervention has not been realized due to inadequate funding, lack of logistics, insufficient Field Staffs and non-participatory modes of technology transfer. This is the problem which the study investigated taking Ashanti Region as a case study.

The study was guided by the following objectives; the examination of the nature of the extension services provided and the assessment of the institutional and logistical arrangements put in place for the extension services delivery. The study further sought to assess the modes of agricultural technology dissemination, examine the feedback mechanisms and, based on the findings, recommendations were made towards effective extension services delivery.

A case study method was adopted in which Ashanti Region was chosen to facilitate the ease of data collection. Respondents were selected through a simple random sampling technique to gather data from the farmers using structured questionnaires from three purposively sampled Districts of Ahafo-Ano South, Atwima-Nwabiagya and Ejisu-Juaben Districts. Institutional survey involving the Directorates of Agriculture in the selected Districts was also embarked upon.

The study identified that 100 percent of the farmers received agricultural technology whilst an average of 53.3 percent of them received non agricultural technology. The study also identified a deficiency in logistical supply, inadequate and irregular government funding. It was also revealed that 89 Agricultural Extension Agents were required in the Districts but 47 of them were available, creating a huge deficit of 42.

Recommendations were made to help provide solutions to the challenges of extension services provision in the country. Some of these include disseminating technology to farmers in manageable groups of a maximum of twenty, increasing logistical and EFS capacity, motivating Field Staffs, institutionalizing provision of credit in kind and establishing a National Extension Services Provision Fund to help make extension services delivery sustainable.

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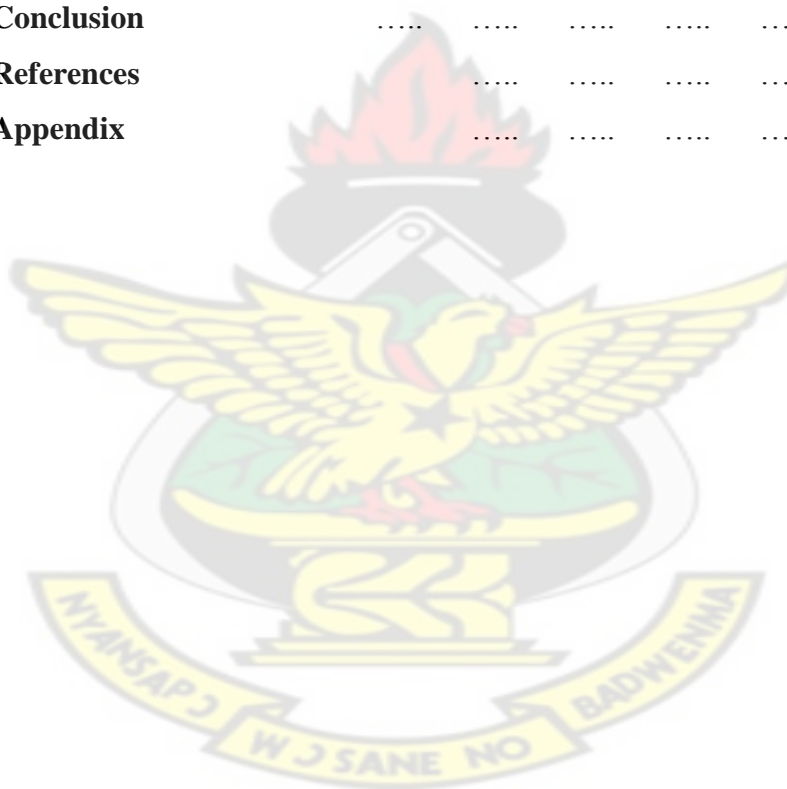
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LIST OF ACRONYMS

AEAs -	Agricultural Extension Agents
AGSSIP-	Agricultural Services Sub-sector Investment Programme
AKAP-	Awareness, Knowledge, Adoption and Productivity
ASDF-	Agricultural Sector Development Fund
CBOs-	Community Based Organizations
CFs-	Contact Farmers
CSIR-	Council for Scientific and Industrial Research
CSOs-	Civil Society Organizations
DAES-	Directorate of Agricultural Extension Services
DAO-	District Agricultural Officer
DDA-	District Director of Agriculture
DPCU-	District Planning Coordinating Unit
EFS-	Extension Field Staff
FBOs-	Farmer Based Organizations
FAO-	Food and Agriculture Organization
FFC-	Fauji Fertilizer Company
FFS-	Farmer Field School
GDP-	Gross Domestic Product
GTZ-	German Technical Co-operation
ISSER-	Institute of Statistics, Social and Economic Research
IPM-	Integrated Pests Management
IGF-	Internally Generated Fund
MOAP-	Market-Oriented Agriculture Programme
MoFA-	Ministry of Food and Agriculture
MoFEP-	Ministry of Finance and Economic Planning
NAEP-	National Agricultural Extension Programme
NDPC-	National Development Planning Commission
NGOs-	Non-Governmental Organizations
PEA-	Participatory Extension Approach
PTD&E-	Participatory Technology Development & Extension
RAED-	Regional Agricultural Extension Director
RAO-	Regional Agricultural Officer
RDA-	Regional Director of Agriculture

R&D-	Research and Development
SAFGRAD-	Agricultural Research and Development in Semi-Arid Areas of Africa
T&V-	Training & Visits
TOT-	Transfer of Technology
USAID-	United States Agency for International Development
UN-	United Nations
WIAD-	Women in Agriculture Development

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CHAPTER ONE

RURAL LIVELIHOODS IMPROVEMENT: CHALLENGES AND KEY ISSUES

1.1 Introduction

Agriculture is the main source of income for around 2.5 billion people in the developing world. It remains the backbone of many African economies, accounting for 57 percent of total employment, 17 percent of GDP and 11 percent of export earnings on the continent (World Bank, 2008). In Ghana, the sector contributed 34.5 percent to GDP and US\$2,197 million foreign exchange earnings mainly from cocoa, timber and non-traditional agricultural exports in 2009 (ISSER, 2010). According to the MoFA (2010), 50.6 percent of the total labour force in the country is engaged in farming, forestry, fishing and hunting, with women accounting for 51.8 percent in 2009.

In spite of the key role agriculture plays in the growth of the economy of Ghana, the sector has recorded a decline in its contribution to GDP, employment, government revenue and foreign exchange earnings in recent years. MoFEP (2010) has stated that whereas the agricultural sector grew in 2010 by 4.8 percent and contributed 32.4 percent to GDP, the services sector grew by 6.1 percent and contributed 32.8 percent as its share to GDP, displacing the Agricultural sector as the highest contributor to GDP.

The decline in growth of agriculture is caused by lack of access to markets and credits, low level of technology especially mechanization, inadequate post-harvest infrastructure (storage, processing, transport), low uptake of research findings by stakeholders and limited availability of improved technological packages especially planting materials and certified seeds (MoFA, 2007). Given these challenges, for agriculture to assume its leading role as the greatest provider of employment and reduction in poverty of the majority of the rural people, agricultural development is imperative. Agricultural extension services are now a major activity and basic element in programmes and projects formulated to bring about agricultural development and improvement in the quality of lives of the rural poor farmers (NDPC, 2011).

Through provision of extension services, the field extension staffs are mandated to transfer proven and accepted farming practices to farmers in a participatory manner and to assist them to secure microloans to help them get started on their own farms or expand them. The field extension staffs are also expected to teach rural farmers post-harvest processing and storage of the foodstuffs. They also provide credit and market-access assistance to the farmers to secure capital for their activities and to sell their surplus crops to generate income for their families (MoFA, 2007).

With the inception of agricultural extension services in the country some decades ago, agricultural modernization has not been achieved. The Ahafo-Ano South District (2010) has stated that most of the beneficiary farmers of extension services intervention in the district still produce foodstuffs meant for home consumption, do not have access to market for their produce and rely on natural rain for the cultivation of their crops, hence the failure of the rains sometimes lead to poor yield thereby perpetuating their poverty. It is in this regard that the study is undertaken to unearth the problems of extension services delivery in the region.

1.2 Problem Statement

Despite the positive growth experienced by the agricultural sector since the mid 1980s, bottlenecks that inhibit agricultural productivity remain. A study conducted by Asuming et al (2008) indicated that average yields in agriculture have remained stagnant. They noted that generally, increases in agricultural production have been achieved primarily by farmers using extensive methods such as increased land area and manual labour. Agriculture is predominantly practiced on a smallholder basis on family-operated farms. The majority of agricultural producers in Ghana still use the “cutlass and hoe” approach in crop production with technological change very slow and minimal (Asuming et al, 2008).

Agricultural extension services provision is underpinned by ‘productivity gap theory’ (Waddington, 2010). This theory states that, extension services can be organized and delivered in a variety of forms, but their ultimate aim is to increase farmers' productivity and income. Productivity improvements are only possible when there is a gap between actual and potential productivity. He suggests two types of ‘gaps’ contribute to the productivity differential - the technology gap and the management

gap. He concludes that provision of extension services can contribute to the reduction of the productivity differential by increasing the speed of technology transfer and by increasing farmers' knowledge and assisting them in improving farm management practices.

The productivity gap theory, however, is flawed in that it cannot solely contribute to reduction of the productivity differential without making allusion to any assumptions. It must be noted that agriculture in Ghana is rain-fed. In the face of provision of extension services, variations in weather conditions, particularly unfavourable weather, could decrease farm productivity and income to even widen the productivity gap and exacerbate the spate of the rural poverty.

The theory itself is limited in its assertion because it poses certain pertinent questions. What is the nature of the extension services provided to the farmers? This is true, in that, ordinary provision of extension services might not trigger agricultural transformation and reduction in rural poverty of the farmers unless the extension services are timely, relevant and responsive to the farmers' critical needs. Again, what is the commitment of key stakeholders involved in the delivery of the extension services to the farmers? Agricultural transformation through extension services is possible if MoFA supplies the required AEAs and logistics and release enough funds timely to the Districts. Furthermore, is extension services provision a top priority of the government? If there is no legal and effective policy framework guiding the operations of extension services in the country, it is not likely to be sustainable.

It must be emphasized that agricultural extension services have been officially organized in the country since 1987 but agricultural transformation and reduction in rural poverty have not been achieved. It is therefore envisaged that effective provision of agricultural extension services can only bridge the productivity gap. It is in this light that the study is conducted to investigate the actual problems hampering the effective extension services provision to rural farmers in Ghana taking the agricultural extension services delivery in the Ashanti Region of Ghana as a Situational Study.

1.3 Research Questions

The discussion raises a number of questions which require answers. As a result, the study aims at providing answers to the following questions:

- ❖ What is the nature of the agricultural extension services provided to the farmers in the Ashanti Region?
- ❖ What are the institutional and logistical arrangements put in place for effective agricultural extension services delivery in the study area?
- ❖ What are the techniques used to disseminate the agricultural technology to the farmers in the region?
- ❖ What are the feedback mechanisms for the extension services delivery in the region?
- ❖ What should be the national policy intervention and direction for effective provision of agricultural extension services and agricultural development in the region?

1.4 Statement of Objectives

The broad objective of the study is to examine the problems of agricultural extension services delivery and their effects on agricultural development in the Ashanti Region of Ghana. The study therefore seeks to achieve the following specific objectives; To

- ❖ examine the nature of the agricultural extension services provided to the farmers in the Ashanti Region
- ❖ assess the institutional and logistical arrangements put in place for effective agricultural extension services delivery in the region
- ❖ assess the modes of agricultural technology dissemination to the farmers in the region
- ❖ examine the feedback mechanisms for the extension services delivery in the region
- ❖ based on the above, make recommendations towards the national policy interventions and directions for the provision of agricultural extension services and agricultural development.

1.5 Scope of the Study

The research was conducted in the Ashanti Region of Ghana. Three districts of the region were selected to form part of the study based on purposive sampling. They are Ahafo-Ano South, Atwima Nwabiagya and Ejisu-Juaben Districts. These districts were selected to form part of the study because majority of the inhabitants are engaged in traditional agriculture and live in poverty.

The study is focused on the provision of agricultural and non- agricultural technology extension services. They include farmer training comprising field visits, group meetings, field days, on-farm trials and demonstrations and provision of technical services comprising facilitating farmers' group formation, linking farmers to credit institutions, assisting farmers to get access to market and teaching farmers of post-harvest processing and storage, farm record keeping and disease prevention such as HIV/AIDS and malaria. The study is concentrated on food crops and livestock farmers who are beneficiaries of agricultural extension services in the study area. District Agricultural Extension Officers and Agricultural Extension Agents served as secondary units of study.

1.6 Justification of the Study

Majority of Ghana's population lives in rural areas with agriculture as their main economic activity. With the rural sector producing the bulk of the nation's output of food, the standard of living of the rural people needs to be improved. One way of achieving this is a carefully planned and implemented agricultural transformation strategy necessary to accelerate the pace of agricultural modernization for increased yield and income. Among the objectives of the provision of extension services is to transfer improved agricultural technology to the farmers and assist them to secure micro loans and get access to market to enable them increase farm productivity to create wealth for improved living standards.

As a result of this, provision of extension services has been high on the agenda of the government of Ghana for some time, but little success has been achieved. This has been blamed on several challenges including inadequate funding of extension services programmes, lack of extension logistics and inadequate and ill-motivated extension field staffs. These challenges invariably underpin the conditions under which the

AEAs disseminate the agricultural information to the farmers. Therefore, there is the need for objective examination of the problems affecting effective agricultural extension delivery in the Ashanti Region of Ghana so that recommendations could be made from the study to reverse the situation.

The research also sought to provide an entry point for revising the strategies of the National Extension Services Policy and restructuring the extension services delivery with the view of making it more efficient and effective in transforming traditional agriculture into a modern one for rural poverty reduction in the study area. Another significance of the study is that the findings of the research will be useful to the agricultural extension services providers management team since the sustainability of their services depends on the patronage and level of commitment of their clients, as well as the performance of their services.

The significance of this study also lies in the fact that the successful conduct and documentation of the findings into manuscript would not only add to the body of literature as data base but also serve as a guide for further research into other social, cultural and economic dimensions of the lives of the people in the region. The findings of the research will also serve as inputs and lessons to the government and those agencies championing the campaign for rural development.

1.7 Limitations of the Study

The researcher encountered some difficulties during the data collection stage. Some of the District Directors of Agriculture were not reluctant to provide information to the researcher with the reason that similar studies conducted in their area had not led to any impact on their services. However, as a result of constant dialoguing and persuasions, this limitation was overcome.

At the level of the farmers, poor record keeping by majority of the rural folks posed as a major limitation in quantitative data collection. The researcher therefore had to employ various skills and knowledge acquired to be able to generate data as accurate as possible.

1.8 Organization of the Report

The research has been organized into five chapters. The first chapter introduces the research, identifies the key problem under investigation and asks the relevant questions. It further states the specific objectives of the research, defines its scope, gives a justification for the topic and outlines the limitations of the research. This chapter is relevant to the study because it puts the research into perspective and helps to check digressions.

The second chapter presents a review of relevant literature on agricultural extension services system in developing countries in terms of extension services models and their approaches and methods of agricultural technology dissemination, funding, constraints of extension services provision and the impacts of extension services on poverty reduction. This chapter provides the theoretical and analytical background needed to design a methodology for the research. The third chapter contains the research design adopted, the data requirement and the sources of the data, the data collection tools employed, the sampling technique, the key data variables and the framework for data analysis and reporting. This chapter provides a guide as to the conduct of the field survey.

The fourth chapter gives a brief background of the location, topography and the structure of agriculture in the selected Districts. Again, data collected from the field were analyzed in terms of the socio-economic characteristics of the farmers, nature of the extension services provided, logistical and institutional capacity, mode of technology transfer and feedback mechanism. This chapter provides answers to the research questions and forms the basis for the recommendations made for effective extension services delivery. The fifth chapter constitutes the key findings of the study, a set of recommendations and a general conclusion. This chapter is relevant to the study because it discloses information that was however unknown and hence adds to the existing knowledge.

CHAPTER TWO

AGRICULTURAL EXTENSION SERVICES SYSTEM IN DEVELOPING COUNTRIES

2.1 Introduction

This chapter presents a relevant examination of the development and organizational structure of agricultural extension services delivery in Ghana. There is also a careful review of the models of extension services with their approaches and methods of dissemination of technology and their impacts on agricultural transformation in developing countries. In addition, impacts of agricultural extension services on agricultural modernization for rural poverty reduction, sustainability and challenges of agricultural extension services provision in Africa is reviewed.

2.2 Development of Agricultural Extension Services Delivery in Ghana

Agricultural Extension Services delivery in the country has gone through transformation over time. According to Ekepi (2009), a historical perspective of agricultural extension activities in Ghana indicates that agricultural extension services delivery was initiated in the nineteenth century by the early missionaries and foreign-owned companies involved in the production of export crops such as coffee, cocoa and rubber. Ghana tried various extension approaches including extension under the farmers' cooperative movement and several donor-assisted projects after independence (MoFA 2002). They were provided through donor funded projects such as the USAID funded project called Focus and Concentrate. These organizations provided both advice and inputs to the beneficiaries.

In the 1970s and 1980s, the departments of the Ministry of Food and Agriculture such as Crops, Animals and Fisheries undertook separate extension services for their farmers. During the period independent commodity boards and organizations including Cocoa Services Division of Cocoa Board (COCOBOD) provided extension services in the form of technology transfer and technical services provision to farmers (MoFA, 2002). Agricultural extension services were therefore fragmented among the various departments within the same Ministry. In 1987 however, MoFA established

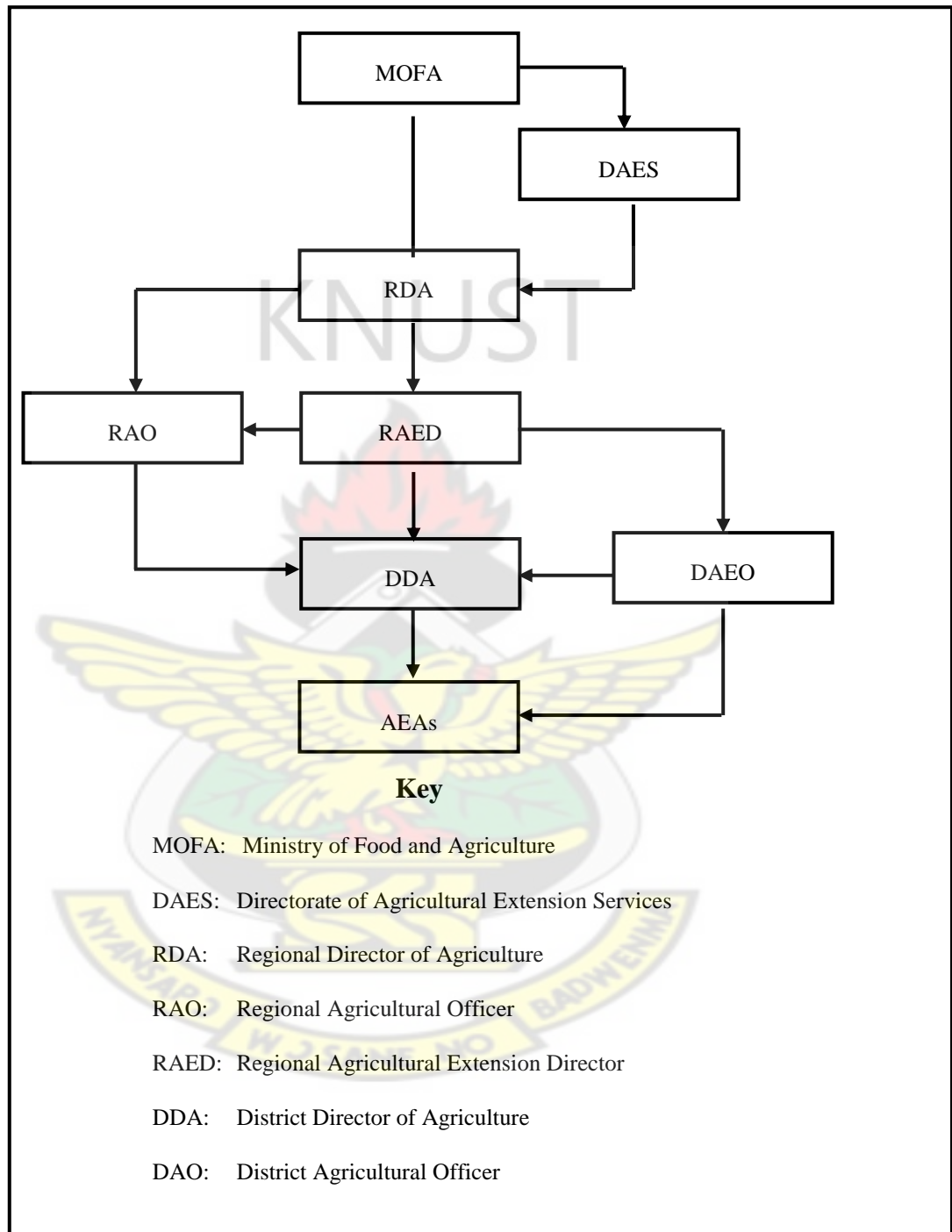
the Directorate of Agricultural Extension services (DAEs) to bring all splinter MoFA extension services under one umbrella. Since the beginning of the 1990s, the DAES adopted the Training and Visit (T&V) extension system nationwide. This extension initiative was supported with World Bank funding through the National Agricultural Extension Project (NAEP), which was implemented between 1992 and 1999. This project was set up and implemented to help improve the efficiency in the management and delivery of extension services, improve the relevance of technologies available to farmers and strengthen the technical departments of MoFA.

The Ministry of Food and Agriculture has also been experimenting with various alternative extension approaches such as Participatory Technology Development and Extension (PTD&E), Farmer Field Schools (FFS) and Market-Oriented Agriculture Programme (MOAP) among others, in collaboration with development agencies like the German Technical Co-operation (GTZ) and the Food and Agriculture Organization (FAO) of the United Nations (UN). These approaches were meant to enhance technology transfer and absorption by farmers and strengthen research-extension-farmer linkages. Currently, the agricultural extension services operating in the country are under Regional and District Agricultural Extension Directorates which function directly with the Agricultural Extension Agents (AEAs) who transfer the technology to farmers. For effective provision of extension services in the country, MoFA has laid down an organizational structure.

2.3 Organizational Structure of Extension Services Delivery in Ghana

The Ministry of Food and Agriculture, through the Directorate of Agricultural Extension Services (DAES) at the national level provides extension services in Ghana (Ekepi 2009). In each administrative district, between 20 and 30 Agricultural Extension Agents (AEAs) provide the community-level extension service. AEAs report to a District Agricultural Officer (DAO) who then reports to the District Director of Agriculture (DDA) who is responsible for the overall agricultural programmes in the district and plays a coordinating role. The DDA reports to the Regional Director of Agriculture (RDA) through a Regional Agricultural Extension Director (Ekepi, 2009). The Organizational Structure of Extension Services Delivery in Ghana is depicted in Figure 2.1.

Figure 2.1 Organizational Structure of Extension Services Delivery in Ghana



Source: Author's Construct Based on Discussion with the Regional Directorate of Agriculture, March 2011

2.4 Agricultural Extension Services Models and their Approaches and Methods of Technology Dissemination

A model is a schematic description of a system or phenomenon that accounts for its known or inferred properties and may be used for further study of its characteristics (Ponniah et al, 2008).

The approach and method of extension services delivery is the philosophy of the system; it is like the beat of a drummer which sets the pace for all the activities of the system. It is more like a doctrine for the system which informs, stimulates and guides such aspects of the system as its structure, programme, resources and linkages (Mahmood, 2005). In this section, literature is reviewed on the description of the various models and their approaches and methods adopted for technology transfer in Africa.

2.4.1 Technology of Transfer (TOT) Model

Ponniah et al (2008) have argued that in many developing countries, the TOT model has been the prevalent practice for developing and spreading innovations to farmers. It is based on the assumption that transfer of technology and knowledge from scientists to farmers will trigger development. Applied to agriculture, this model assumes that farmers' problems can be solved by people and institutions that have this 'modern' knowledge. The stakeholders and agencies involved in the agricultural technology transfer model include International Development Agencies and Transnational Companies, International Agricultural Research Institutions and Advanced Research, National Agricultural Extension Agencies and Input Marketing and Farms.

Farmer Field Schools (FFS) approach is used by this model. FFS are schools without walls where groups of farmers meet periodically with facilitators during the crop or animal cycle (Waddington, 2010). According to him, it is a participatory method of technology development and dissemination, based on adult learning principles and experimental learning. It reflects the four elements of experiential learning cycle, namely: concrete experience, observation and reflection, generalization and abstract conceptualization and active experimentation. It has now been established in several

African, Asian and South American countries, with millions of farmers participating. For example, over 900 FFSs are being successfully implemented in Kenya (Ponniah et al, 2008).

A farmer group method is usually used by this model. Membership of a group varies, and it is advantageous to have a small number of people forming it. A group size of between 20 and 30 is ideal and manageable in order to provide a face-to-face interaction, better communication and the free flow of information. The direct target group may be a women's group, a church organization, a cooperative society or the community in general. Extension work can be carried out at meetings, either organized specifically for the selected purpose or by making use of meetings that were already organized for some other purpose (Madukwe, 2006).

The benefits of Group Extension Method are that extension workers are able to reach many farmers at the same time at minimal cost. It also strengthens farmers' bargaining power with traders and facilitates savings and access to credit. Again, this strategy enhances the dissemination of agro-information either by public or private interventions to a wider spectrum of users, including women and youth, unlike the formal extension systems (Madukwe, 2006).

2.4.2 The Public Extension Model

This model involves the organization of agricultural extension work under the wing of the Ministry of Agriculture. Ponniah et al (2008) have pointed out that this model was inherited from the colonial powers in most colonies and then dramatically increased in size following independence in the 1960s and 1970s. These systems are now characterized by large sized systems constrained by lack of basic operating funds. All options for reaching large numbers of clients and serving their needs in terms of quality information and assistance appeared to be open. Decision-making and management are highly centralized and formalized. Extension fieldwork, on the other hand, demands location-specific, flexible and often quick decisions and actions. What has been lacking is organized feedback from clientele (Ponniah et al, 2008).

General Extension Approach is mostly used where the Research and Development (R&D) product is extended to individual farmers (Ponniah et al, 2008). According to them, it disseminates objective and scientific information and encourages its

application by individual farmers and farming communities. They indicated that decisions are generally made by the people at the top and implemented through Extension Field Staffs (EFS). The planning is centrally controlled and the priorities are determined by the government functionaries; local people are very rarely involved in this process. All the farmers in the community are assumed to be approached; however, the EFS tend to limit their contacts to the progressive and influential farmers (Ponniah et al, 2008).

The general extension approach had certain inherent weaknesses, which hindered its effective functioning. They include the concentration of agricultural production and distribution under the control of a few large corporations, over-capitalization, contamination of surface and groundwater with the excessive use of chemicals, and the rapid depletion of non-renewable natural resources (Ponniah et al, 2008).

Mass Extension Method is mainly used by this model. According to Mahmood, (2005), this method involves the use of the mass media such as radio, posters, drama, television, newspapers and films to inform the public. Mass media are mainly used to create awareness about the technology available to the farmers. The major advantage of mass extension method is that it can increase the impact of extension staff through rapid spread of information and many people can be reached within a community.

2.4.3 Commodity Extension Model

This model was pioneered among smallholders producing cotton in Mali and other Francophone countries 50 years ago (Ponniah et al, 2008). The original rationale was the generation of revenue as well as the assured supply of tropical products for the colonial powers. All aspects of producing and marketing a particular crop are vertically integrated, spanning the whole range from research, advice and material support given to farmers, to organizing marketing and even exports.

The main approach used by this model is Commodity Specialized Extension Approach. In this approach the focus is generally on a single crop or only one aspect of farming. The purpose of this approach is generally to increase production of a particular commodity by giving more emphasis on it. In some cases the specific objective or purpose may be to enhance the use of a particular input as in case of Fauji

Fertilizer Company (FFC), which advocates their fertilizers for its increased use by the farmers (Mahmood, 2005).

The Individual Extension Method is mostly used by this model. It is most effective for activities undertaken by or within the full control of the individual farmer or household. In this regard, discussion with the whole family highlights more problems, and more experience is brought to the discussion (Ponniah et al, 2008). According to them unclear messages that have not been fully understood can easily be clarified and the extension officer is able to secure cooperation and inspire confidence in the family through personal contact. It facilitates immediate feedback on the effectiveness of the measures discussed and it may be the best way to ensure that everyone in the family participates in decision-making.

The disadvantages of the individual method are that it is expensive in terms of time and transport and only a few farmers may be visited, and sometimes they may be mainly the extension worker's friends. The area covered is small since all the effort is concentrated on a few farmers

2.4.4 Training and Visit (T&V) Extension Model

Ponniah et al (2008) have stated that T&V model was launched in Turkey in the early 1970s and then spread to India and throughout Africa under World Bank sponsorship programme in the late 1970s and early 1980s. When first introduced, T&V seemed to be strikingly original and promising because it combined a set of rather convincing simple elements in a plausible way. Rather than trying to reach all farmers directly and thus pre-programming constant failure, the system concentrates on contact farmers expected to pass information on to fellow farmers with similar problems.

Ponniah et al (2008) have indicated that in practice, T&V has been a top-down approach leaving little possibility for participation and initiative, both for farmers and village extension workers. Too little emphasis has been put on critical feedback based on self-evaluation. As a result, rigidity rather than flexibility characterizes local fieldwork.

The major approach used by this model is Training and Visit (T&V) Extension Approach. Ponniah et al (2008) have asserted that the T&V extension approach was implemented in areas where a number of farmers are cultivating small farms using low level technology and traditional methods. It also initially concentrated its efforts on major crops and on those aspects of farming, which offer the greatest scope for increased income. It involved a fixed schedule of visits to farmers, which helped farmers to have contact with EFS. The contact farmers (CFs) were visited and meaningful messages were disseminated at each fortnight, thus improving the efficiency of the extension workers (Mahmood 2005).

According to him, the strengths of this approach include regular training of the staff which helped to develop technical competence and effective delivery techniques which could be helpful in effective technology transfer among the farmers. The approach had also provided logistic support in terms of providing mobility which was another plus and helped in increasing the effectiveness of this system.

2.4.5 Private Sector Extension Model

Under this model, the farmer is expected to pay some of the cost of extension with the hope that public outlays on extension could be reduced. But there is little evidence to date that those small-scale farms can buy their way out of poverty by paying for extension advice. Several researchers are documenting the privatization of extension in Uganda but the jury is still out on the financial sustainability of private extension (Ponniah et al, 2008).

The main approach used by this model is Cost Sharing Approach. Ponniah et al (2008) have argued that cost sharing approach is a participatory approach in which the people or farmers are organized into associations and community organizations. These community organizations interact with the development workers and extension personnel for the identification of their problems. The identified problems are prioritized and alternative solutions are formulated with mutual consultation by the community groups and development specialists. The most appropriate solutions of the problems are implemented and cost involved is shared by the community or farmers' organization and the development agencies or governments.

Mahmood contends that there is local control of programme planning which increases the relevance of the programme contents and methods to the needs and interests of clientele. The local people have influence on the recruitment and selection of extension staff which make them responsible to the farmers. There is lower cost to central government as the cost is shared by lower levels of governments and often by the farmers or community organizations. The major demerit is that financial management and other aspects of administration tend to be complex and difficult and it is difficult to control programme planning and personnel.

2.4.6 Farmer Field School (FFS) Extension Model

According to Ponniah et al (2008), this model started in the rice mono cropping farms in the Philippines and Indonesia in the late 1980s, as a way of diffusing knowledge-intensive Integrated Pest Management (IPM) practices for rice. FFS have since been adapted to work with other crops and diseases and have spread rapidly across Asia, Africa and Latin America. It represents a paradigm shift in agricultural extension because the training programme uses participatory methods 'to help farmers develop their analytical skills, critical thinking, and creativity, and help them learn to make better decisions' (Ponniah et al, 2008).

The widespread approach used by this model is Farmer Fields School Approach. Mahmood has emphasized that this approach involves meetings with small, large, specialized and general community groups and demonstrations are typical features. The farmers' associations and community organizations visit each other's farms, plan tours to distant places to see the recommendations being practiced successfully. Extension agents' tasks are to stimulate farmers to organize groups and help them to work effectively for their own benefit.

Mahmood has stressed that the good points with Farmer Fields School approach include greater extension coverage, which is impossible through individual contact methods and the extension delivery is cost effective as a major portion of the resources required are shared by the local organizations. Again, groups of farmers can become important mechanisms in imparting technical knowledge and skills to farmers who participate in various group activities and adoption rates may be many times greater when decisions are made collectively.

2.5 Impacts of the Extension Services Models in Agricultural Modernization and Poverty Reduction

The Ministry of Agriculture-Kenya (2007) has argued that in the Agricultural sector, extension services approaches and methods play a vital role in sharing knowledge, technologies, agricultural information and also linking the farmer to other actors in the economy. The extension services approaches and methods are, therefore, one of the critical change agencies required for transformation of subsistence farming to modern and commercial agriculture. According to the Ministry, this is critically important in promoting household food security, wealth and employment creation and poverty reduction.

According to Mahmood (2005), extension services have developed theories, approaches and methods which have assisted many farms and ranches in adopting management system frameworks such as dairy herd improvement programme, irrigation, water management, feed management and integrated pest management. These existing frameworks have facilitated the transformation of rudimentary agricultural practices into modern one for increased farm yields.

The FFS approach draws on the participatory approach in terms of its focus on farmer experimentation and problem solving. Waddington (2010) has emphasized that most studies he carried out on the operations of FFS focused on rice and its immediate impact on productivity and farm yields. He reported that there had been considerable reductions in pesticide use with some studies also showing an increase in yields.

Based on the evaluation of FFS and pest management, Ponniah et al, (2008) have argued that FFSs have had additional benefits to that of IPM including facilitating collective action, leadership, organization and improved problem-solving skills. According to them, the evidence gathered in the review suggests that FFSs can be cost-effective way of increasing farmers' skills and thus contributing towards escaping poverty.

2.6 Impact of Agricultural Extension Services Provision on Poverty Reduction

The concept and practice of agricultural extension and its impacts on poverty reduction are the central theme of this section. Agricultural extension is now a major activity and basic element in programmes and projects formulated to bring about rural development and improvement in the quality of lives of the rural poor farmers (NDPC, 2010).

Based on the studies conducted in seven African countries (Burkina Faso, Cote d'Ivoire, Botswana, Nigeria, Ethiopia, Kenya and Malawi), Evenson (2005) reported that it is convenient to visualize extension as achieving its ultimate economic impact by providing information and educational or training services to induce the AKAP sequence made up of:

A: Farmer awareness

K: Farmer knowledge, through testing and experimenting

A: Farmer adoption of technology or practices

P: Changes in farmers' productivity

The AKAP sequence follows this logic:

A-Farmer awareness implies that the rural farmers are ignorant about the agricultural technology and its availability. Thus, through extension services, the improved technology is made known to the beneficiaries.

K-Farmer knowledge, through testing and experimenting implies that beneficiary farmers acquire knowledge about the basic and modern agricultural practices disseminated to them through testing and experimentation.

A-Farmer adoption of technology or practices implies that beneficiary farmers having acquired the agricultural knowledge they put into practice the advanced technology they have learnt with the supervision of their AEAs.

P-Changes in farmers' productivity imply the resultant increase in farm yields from the adoption of the improved technology and farm practices.

According to Evenson, changes in farmer behaviour will be reflected in quantities of goods produced, the quantities of inputs used and in their prices. These, in turn, can be measured as "economic surplus," which is the added value of goods produced from a given set of inputs made possible by the extension activities. He alluded that studies of extension impacts have measured farmer awareness (and sources of awareness), knowledge (and testing of practices), adoption and productivity in a sequence. Most have shown a statistical relationship between the quantity of extension services made available to farmers and increases in awareness, knowledge, adoption and productivity (Evenson, 2005).

Evenson concluded that extension services affect each part of the AKAP sequence. They can be seen as both substitutes for and complements to the acquired skills of their clientele farmers. Empirical evidence indicates that they are, on balance, net substitutes for farmers' skills as reflected in farmers' schooling (Evenson, 2005). He stressed that extension services are typically not the only sources of information or awareness. Skilled farmers can seek information on their own. Farmers with few skills may not do so. Extension information then may have a higher impact on farmers with less schooling.

It appears, however, that the awareness-knowledge part of the sequence is where extension services are strong substitutes for farmer schooling. Through organized frequent contact, extension field workers "teach" farmers and this is more than simply informing farmers.

Berdegue and Escobar (2001) have pointed out that effective provision and utilization of agricultural extension have direct and indirect effects on rural poverty reduction. They argued that the direct effects of technological innovation on poverty reduction are those benefits that are captured by the farmers who actually implemented the changes. The main form of direct effects is higher profits from agricultural production. New technologies can improve a farmers' income when they reduce the marginal cost of producing one unit of output. Since for a time output prices will still be driven by the prevalent or old technology, profits will increase for those farmers who adopt the new technology.

They also noted that the indirect effects of technological innovation on poverty reduction are those benefits that are captured by individuals different from those farmers who actually implemented the changes. These indirect contributions can take the forms of lower food prices due to higher agricultural productivity and output, employment generation in agriculture and broad-based economic growth through production and consumption linkages with the non- farm economy.

The literature reviewed thus far has made it apparent that provision of effective agricultural extension services is needed for agricultural transformation for rural poverty reduction. The impact of agricultural extension services on rural poverty reduction is depicted in Figure 2.2.

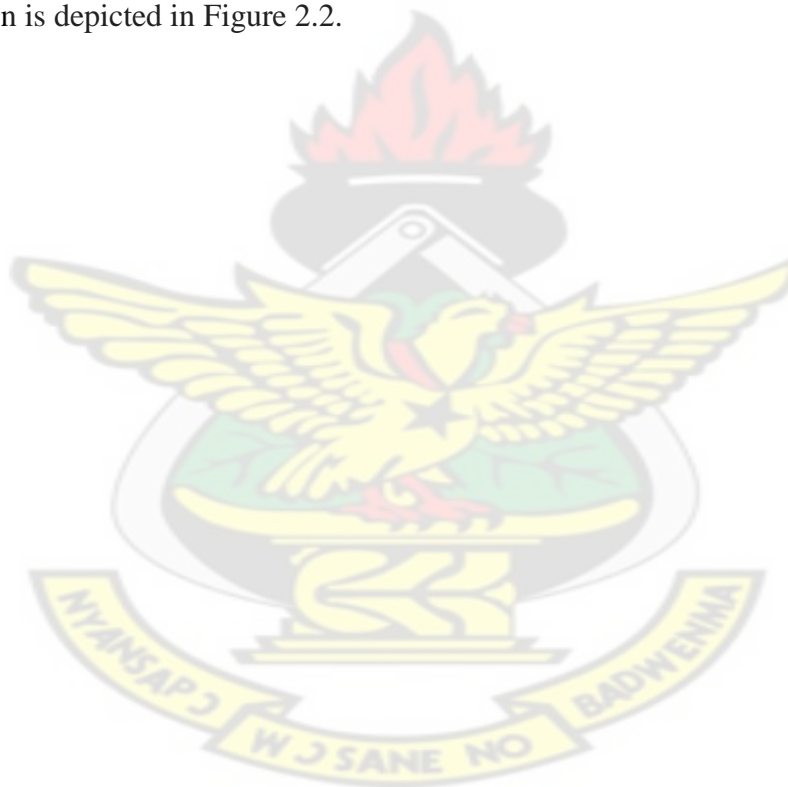
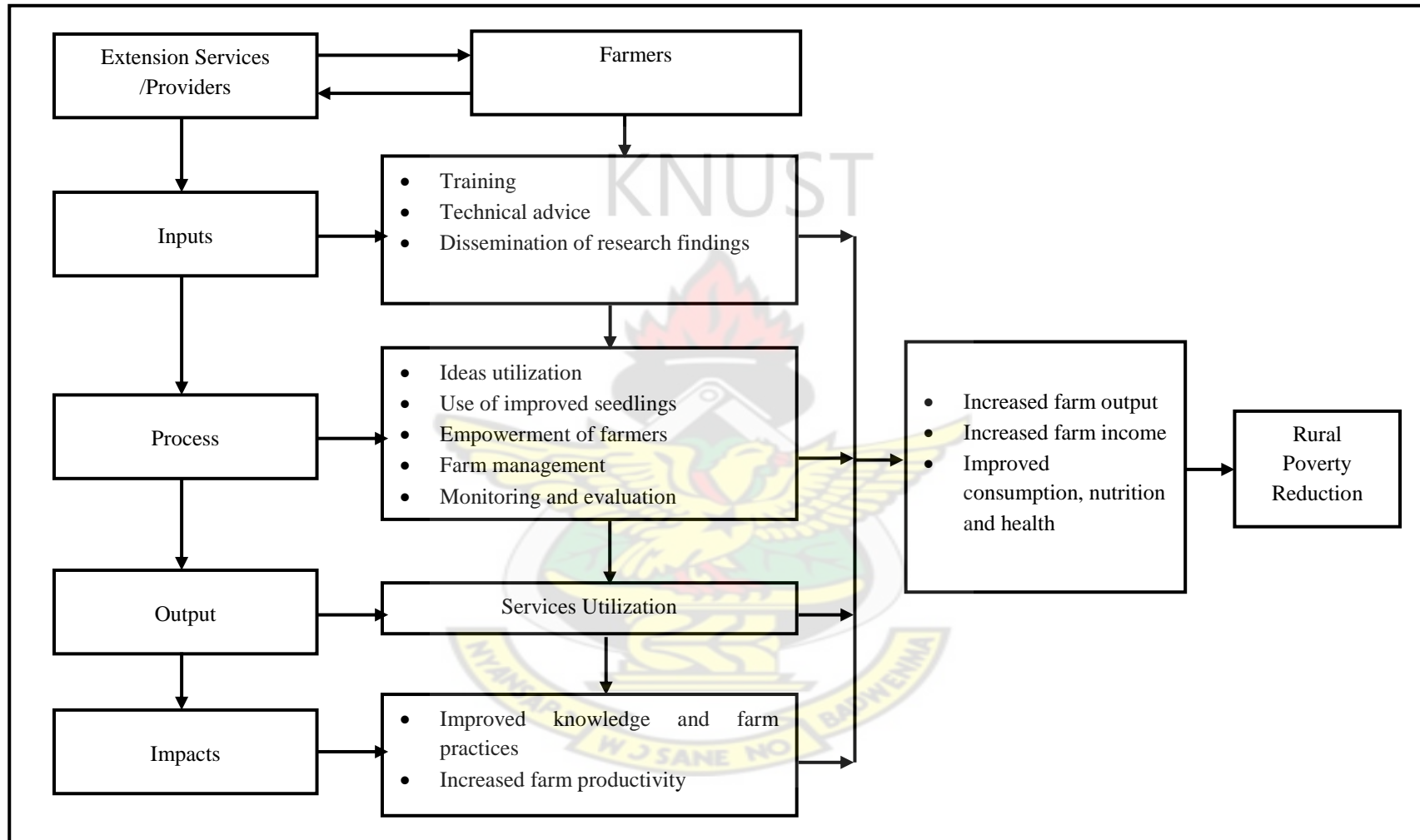


Figure 2.2 Impact of Extension Services on Rural Poverty Reduction - a Conceptual Framework



Source: Author's Construct, March 2011

Figure 2.2 presents the conceptual basis from the literature reviewed thus far. The figure indicates a relationship between extension services provision and agricultural transformation as a central issue in rural poverty reduction.

From the figure, there is a linear relationship between Extension Services Providers and Farmers at the top, where the former transfers technology to and receive feedback from the latter. This is followed by provision of agricultural and non-agricultural technology (research findings, farmer training and technical advice) as inputs to the farmers through the models of extension services and their approaches and methods. The figure also shows that through the process of the provision of the extension services involving Extension Field Staffs, logistics and funding, the beneficiary farmers are empowered, able to improve upon their farm management, use improved seedlings and utilize the technology. These are translated into output in the form of extension services utilization by the farmers.

The figure further shows that the outcome or impact of the services utilization by the farmers is measured by the farmers' awareness of the technology, the acquisition of the knowledge (technology and technical services) and their adoption or practice which highly leads to increase in farm productivity.

The increased farm productivity leads to increased farm output which is translated into increased income of farmers for them to have improved consumption, nutrition and health. Thus, improved consumption, nutrition and health leads to increased living standards of the rural farmers and hence poverty reduction.

2.7 The Sustainability of Extension Services Provision in Developing Countries

This section presents a relevant literature on the mode of funding of extension services and legal and policy framework underlying agricultural extension services provision in developing countries as well as the role of the private sector in Extension services delivery.

2.7.1 Funding of Extension Services

Commercialization of Extension Services

According to the Ministry of Agriculture-Kenya (2007), Commercialization of Extension Services means that the cost of the service provision by Extension Services Providers will be recovered from the clients in full. The service itself could be delivered by either the public or the private sector.

The provision of extension services in Kenya is currently dominated by the public sector. Over the past few years, a pluralistic situation has emerged, with different types of extension service providers delivering a range of services to different categories of clientele (Ministry of Agriculture-Kenya, 2007). It pointed out that these extension services providers include private commercial companies in the horticulture and tobacco sub-sectors, parastatals providing services to producers of specific commodities, NGOs, CBOs, FBOs, civil society organizations (CSOs) offering extension as part of their support for rural livelihoods, and producer associations providing services to their members.

The Ministry indicated that there has been a trend world over to commercialize extension services through direct charging of services for market-oriented enterprises. This is currently happening in Kenya in the case of market-oriented enterprises such as dairy, sugarcane, tea, coffee and pyrethrum. The same applies to a public servant delivering extension services on demand by the client as in the case of farm management extension.

Privatization of Extension Services

According to the Ministry of Agriculture-Kenya (2007), Privatization of extension services is the process of reducing the role of government and increasing the role of the private sector in extension service delivery. This implies the public sector withdrawing from delivering extension services and allowing the private sector to take over. However, the public sector can contract the private sector to deliver the services on her behalf. This is intended to supplement and complement government efforts with the view to enhancing efficiency and competitiveness in provision of extension services.

The Ministry noted that Privatization involves contracting out extension service delivery to the private sector where the public sector cannot perform efficiently or competently. To qualify as a contractor the provider must meet the technical and professional staffing criteria, be registered by the appropriate authority and have the relevant tools and equipment, among others. The government has developed appropriate monitoring and evaluation tools to ensure that the services are provided to the satisfaction of the clientele. It has also established an Agricultural Sector Development Fund (ASDF) from which Extension Services Providers can access funding for extension service delivery.

The Ministry of Agriculture in Kenya has provided the following Policy Direction towards the Commercialization and Privatization of extension Services. It placed emphasis on creation of a favourable environment for the private sector to take a greater role in extension service provision by:

- ❖ Instituting measures to encourage the private sector to take over the delivery of extension services for commodity enterprises where established commercial farming is in place.
- ❖ Commercialization of public sector extension provision, starting with cost sharing, cost recovery and gradually moving to full cost recovery in all areas based on clientele's ability to pay for the services.
- ❖ Working out modalities for contracting of services between the public and private sector service providers.
- ❖ Decentralization by empowering and strengthening clientele or community organizations to provide extension services at different levels of stakeholders, starting at the village or beach level all through to the district and national levels.

The advocates of commercialization and privatization of extension services believe that farmers should pay for the extension advice. However, there is genuine fear that the zeal for privatization would deprive small farmers from benefiting from the services. The small farmers either do not believe that the extension advice is worth paying for, or they simply cannot afford to pay. The common wisdom would dictate that in developing countries, commercial farmers and large cooperatives should pay for extension advice, while the government should continue providing free-of-charge

extension services to small producers. Measures are also needed to protect the farmers from exploitation by the private sector (Qamar, 2005)

2.7.2 Legal and Policy Framework

A major problem of organizing agricultural extension in developing countries is the absence of a legal and policy framework for providing the service (Qamar, 2005). What exist now as extension in many African countries are programmes from colonial masters, which have over the years been refurbished and tinkered with. They have no legal, policy or philosophical bases and are out of touch with cultural realities. In terms of extension services system of Ghana, there is no legal policy guiding its operation and that extension services strategies are largely exotic and not demand driven.

Legal frameworks, preferably an act of parliament, should not only create extension services as an important activity in pursuance of national development, but it should also state the structure for extension in the country, indicate the sources, levels and methods of funding, identify sources and types of programme, determine functions that constitute extension, provide the quality of manpower needed and identify which agencies can participate and how. Qamar (2005) has noted that putting in place a legal and policy framework is one basic new and indispensable way of conducting extension in developing countries. It will help streamline the confusion currently existing in the effort to transfer agricultural knowledge to farmers, particularly in the areas of service provision, programme development and funding.

2.7.3 The Role of the Private Sector in Extension Services Delivery

The last decade has seen an upsurge in the private sector's involvement in the provision of agricultural extension services in the country (Ekepi 2009). Producer organizations, buyers, processing and export companies provide extension services for specific agriculture commodities on cost recovery basis, where costs are recovered through service charges deducted from payments to farmers at the time of sale. This extension system however, tends to focus on high value crops like cocoa, cotton, oil palm, cashew, pineapple and vegetables.

There has also been an increase in the involvement of Non-Governmental Organizations in the funding and delivery of extension services in Ghana. Their services generally address the needs of specific client groups and are often commodity focused in most cases. NGOs complement the activities of the public extension services and work in partnership with the publicly funded extension agents.

2.8 Challenges of Extension Services Provision in Africa

This section reviews literature on the challenges of extension services delivery in developing countries.

2.8.1 Inadequate Transport Facilities

The transport arrangements are not sufficient for agricultural and livestock extension services in Kenya (Speranza et al, 2009). As a result agriculture extension services use group extension approaches like Chief's Barazas (public meetings) and farmer field days. They asserted that the recently acquired vehicles were expected to alleviate the transportation constraints of the extension services. Earlier the extension officers had to either go by foot or borrowed motor bikes and bicycles from the divisional level.

2.8.2 Lack of Extension Field Staffs

The level of staffing was inadequate to meet the Agricultural Extension Services requirements and demands. There had been no hiring of frontline extension staff and those present did not have adequate transport. Speranza et al (2009) reported that during the last 15 years, the staffing and facilitation of public sector extension had declined mainly as a result of public employment freeze and reduced funding for operations and maintenance. In the public sector, for example, the ratio of frontline extension worker to farmers is about 1:1000 compared to the desired level of 1:400 (Speranza et al, 2009). In the absence of effective private sector operations to fill the vacuum, the situation has led to reduced spatial coverage, targeting and effectiveness of service delivery reflected by clientele complaints.

2.8.3 Inadequate Financial Resources

Funding levels of extension activities in Kenya have been generally low although in the past but have increased progressively, but are still inadequate. Although funding

for livestock in the district has been low compared to agricultural extension, agricultural extension staff receives more requests than they can address. Major sources of funding are government and donors in addition to NGOs and local communities. The government funds the general extension; give grants to groups, construction of water pans, relief seeds, farmer education, demonstrations, field days and mobility of staff.

As a result of shortage of funding and reforms, extension services are no longer free as extension officers demand lunch and fuel from the farmers. While some farmers pay for these services with the understanding that the services are at least available, other farmers contend that extension services should be free of charge. Due to groups being enlightened on many issues, they are able to go as groups to seek for these services, and when you get to the officers in the office, they actually help (Speranza et al, 2009).

2.8.4 Improper Policy Focus

Policies limit poorer farmers' access to extension services. The idea of charges on Agricultural Extension Services has affected farmers' access to and adoption of technologies in a number of ways. Any farmer who is able gets the service while those unable end up missing hence non or low adoption. On the other hand, agriculture reported positive outcomes as services not charged are not valued by farmers since it is free. Farmers' willingness to pay for extension services is confined to commercial enterprises farmers, such as fruit growers in agriculture. There is a higher willingness in livestock provided there is confidence in the service provider (Speranza et al, 2009).

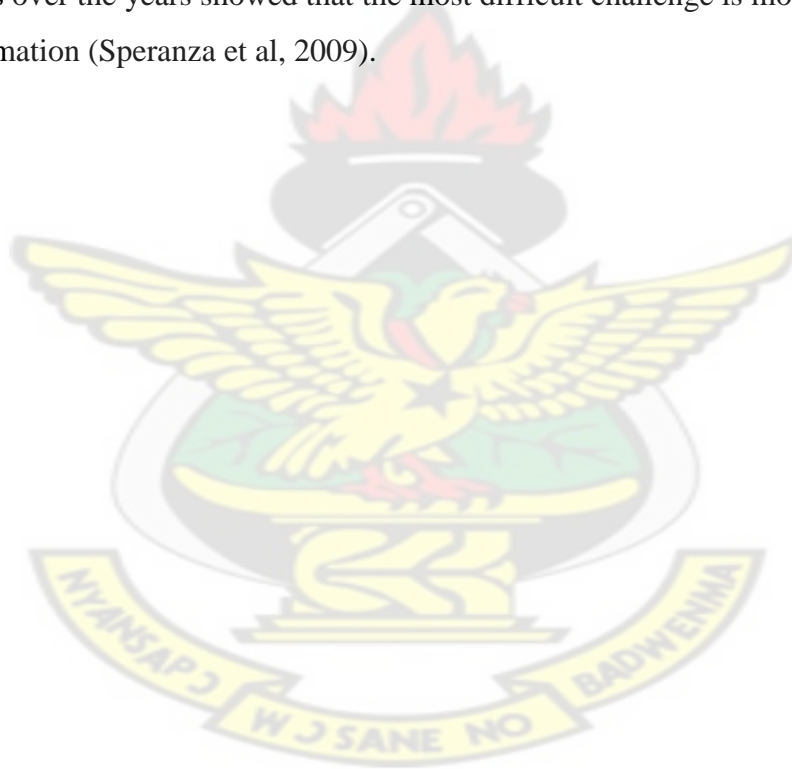
2.8.5 Weak Legislation on Agricultural Extension Services

Legislative instruments in agriculture do not encourage farmers to grow traditional crops like cassava, sorghum as they do for scheduled crops like maize (Speranza et al, 2009). This locks out farmers' diversification initiatives to cope with climate change as most crop enterprises involved are not classified as essential crops by law. In this respect, the guaranteed minimum returns that would act as motivator to adaptation is not feasible to the small holder farmers. There is also an emphasis on large scale

farms with no consideration for small holder farmers who are the majority and who would also require guaranteed minimum returns and advances (Speranza et al, 2009).

2.8.6 Weak Institutions and Inadequate Logistics

The capacity of the institutions or structures to follow up on knowledge-skill- action-behaviour change or adaptation is limited. There is no ability to respond to all farmers needs adequately due to poor transport facilities, poor road infrastructure, large areas to cover, few or inadequate staff, lack of enough facilitation and congested schedule. There is low staff-farmer ratio which affects the staff to overwork. Experiences of district extension administration respondents in managing Agricultural Extension Services over the years showed that the most difficult challenge is mobility and access to information (Speranza et al, 2009).



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the techniques and procedures employed to conduct the study. The choice of research design, data collection sources and instruments, the sampling techniques, key data variables and their measurement and the data processing, analysis and reporting framework have been explained in this chapter.

3.2 Research Design

The main Research Approach adopted for the study is Qualitative Research Design. This research design is a non-experimental approach concerned with the understanding of social phenomenon from the actor's perspective through participation and qualitative analysis (Cohen et al, 2007). The research approach was adopted because it enabled the investigator to employ ethnographic description of the process and allowed him to be immersed in the investigation.

However, a case study research method was used. This method was adopted because it guided the investigator to observe a group of farmers at a single point in time, subsequent to the intervention of agricultural extension services that produced change in farm yields and living standards. Nachmias (1992) has pointed out that a case study permits in-depth investigation of the object using a variety of data gathering techniques to produce evidence that leads to understanding of the "case" and answers the research questions.

According to Kumekpor (2002), the case study brings the investigator and the case being investigated into direct contact. This leads to a better conversance with the circumstances of a case and helps to assess the reactions of a group to questions and issues raised in the course of the investigation. The case study is an explanatory method that enabled the investigator to ask and seek answers to the "how" and "why" questions associated with the research. It also allowed the investigator to pose questions, record intuitive hunches, testimonies, stories and illustrations from clients which can be used in later reports.

Moreover, the case study method posed some challenges to the investigator including the possibility of biases and poor judgment of issues. However, the investigator relied on respect for the general principles of procedures, justice, fairness, objectivity in observation and recording, and weighing of evidence to overcome the challenges.

3.3 Data Categories and Sources

Secondary data was collected for the study through the review of existing information about the issues under investigation from articles, journals, books and the profiles of the Districts.

Primary data gathered for the study include the socio-economic characteristics of the farmers and the nature of the agricultural extension services provided. These data were elicited from the sample of farmers who are beneficiaries of extension services in the selected operational zones in the Districts. Others are the logistical and institutional arrangements, comprising extension field staffs recruitment, retraining, motivation, funding and National Extension Services Policy. These data were elicited from the District Directorates of Agricultural Extension Services. Data was also collected on the methods and approaches used to transfer agricultural technology and the feedback mechanisms. These data were elicited from the AEAs. Table 3.1 captures the key primary data sources of the study.

Table 3.1: Key Data Sources

Level	Data Source	Data Collected	Method of data Collection
Community	Farmers	Socio-economic and nature of extension services	Interview Guide
District	AEAs	Feedback mechanism, methods and approaches of technology transfer	Questionnaire Administration
District	DDA	Logistical and institutional arrangements	Questionnaire Administration

Source: Author's Construct, March 2011

3.4 Data Collection Tools / Instruments

The data collection tools that were employed to conduct the research include interview guide, structured questionnaire, telephone interviews, a pen drive and a pocket notebook.

3.4.1 Interview Guide

Interview guide was used for the collection of data from the farmers. A pre-determined set of close-ended questions on the farmers' socio-economic characteristics and the nature of the extension services using the same wordings and sequence of questions were used. This was done to make sure that any variations in responses can be attributed to the actual differences between the respondents and not to variations in the interview processes.

3.4.2 Structured Questionnaires

Structured questionnaires were used for the collection of data on strategies used by the AEAs to disseminate agricultural information and the feedback mechanisms used by the AEAs. A set of close and open ended questions were set and administered to the AEA. Again, structured questionnaires were used for the collection of data on the logistical and institutional arrangements including extension field staffs recruitment, retraining, motivation, funding and National Extension Services Policy. Under this, a set of close and open ended questions were set and administered to the District Directors of Agriculture.

The main challenge encountered during the collection of the data in the field was the unwillingness of some of the respondents to provide the information for fear of the outcome of the research. However, the researcher spent time to explain the purpose of the research to such respondents.

3.4.3 A Pen Drive and Telephone Interviews

A pen drive was used to copy certain already recorded secondary information during the institutional survey to facilitate easy acquisition of information. In addition, the researcher made telephone calls to some respondents when he needed to get further clarification of the information provided.

3.5 Key Data Variables for the Study and their Measurement

Variables are empirical property that takes two or more values. In order to move from the conceptual to the empirical level, concepts are converted into variables. It is at the variables that our concepts will eventually appear in hypothesis and be tested. The key data variables for the research are farm sizes of the farmers, types of inputs adopted, sources of labour, sources of finance, post-harvest processing of farm produce and level of output. Other key variables for the study are the nature of the extension services, logistical capacity, institutional arrangement, approaches and methods of dissemination of agricultural information and feedback mechanism.

Two measurement scales were employed to measure these variables. They are nominal and interval scales. The nominal scale was used to measure the socio-economic characteristics of the sampled farmers such as level of education, sex, types of inputs adopted, farm preparation techniques and systems, fertilizer usage and access to credits and markets. The properties of the objects of the variables measured were designated as identical to each other with each category assigned with a small bracket.

The interval scale was used to measure the variables related to the farmers' land holdings, experience with the extension services and farm output. This scale gave the researcher the opportunity to use common and constant units to categorize these variables to make it easier for the farmers to respond.

3.6 Sampling Techniques

A purposive sampling technique was used to select Ahafo-Ano South, Ejisu-Juaben and Atwima-Nwabiagya districts in the Ashanti Region because these districts are rich with information in extension services due to the fact that all of them have long benefited from interventions of agricultural extension services. Again, District Agricultural Extension Directorates and AEAs were purposely selected because they are directly involved in the provision of extension services in the study area and are therefore related to the study.

Stratified sampling technique was used to divide each district into operational zones (which already existed) before purposive sampling was used to select 4 operational

zones in each district based on the accessibility of roads and intensity of the extension services activities in the zones. The total number of farmers from the 12 selected operational zones (4 in each of the 3 districts) is 18,872 farmers. This figure therefore represents the sample frame. Appendix I captures the number of farmers in each of the operational zones benefiting from the extension services intervention in the districts.

The sample size was determined by a mathematical formula given by Miller and Brewer (2003) as;

$$n = \frac{N}{1 + N(\alpha)^2}$$

Where **N** is the sample frame, **n** is the sample size and **α** is the margin of error (fixed at 8%).

The sample size, **n** becomes;

$$n = \frac{18,872}{1 + 18,872(0.08)^2} = 155$$

A simple proportion formula was then used to calculate for the number of farmers who were interviewed in each selected operational zone as follows;

$$\text{Ejisu-Juaben District (1,549)} = \frac{155}{18,872} \times 1,549 = 12 \text{ farmers in each zone.}$$

$$\text{Ahafo-Ano South District (1,611)} = \frac{155}{18,872} \times 1,611 = 14 \text{ farmers in each zone.}$$

$$\text{Atwima-Nwabiagya District (1,558)} = \frac{155}{18,872} \times 1,558 = 13 \text{ farmers in each zone.}$$

Table 3.3 captures the details of the sample frame and the sample size for the selected operational zones in the study area.

Table 3.2 Sample Frame and Sample Size

District	Operational zone	Sample frame	Sample size
Ejisu- Juaben	Amoam-Achiase	1,549	12
	Ejisu	1,549	12
	Tikrom	1,549	12
	Onwe	1,549	12
Ahafo-Ano South	Mankranso	1,611	14
	Adugyama	1,611	14
	Kunso	1,611	14
	Bienso 1	1,611	14
Atwima- Nwabiagya	Nkawie	1,558	13
	Koforidua	1,558	13
	Akropong	1,558	13
	Mfensi	1,558	13
Total		18,872	156

Source: Author's Construct, March 2011

The simple random sampling method was used to interview the sample of the farmers in each operational zone. The extension officers organized the beneficiary farmers to assemble at their usual meeting place in the operational zones and the researcher interviewed them accidentally up to the total number of the sample.

3.7 Data Processing, Analysis and Reporting Framework

Data were processed and analyzed based on the understanding of the key concepts of the study, namely; farmers' socio-economic characteristics, nature of the extension services, institutional and logistical arrangements, mode of extension services dissemination and feedback mechanism for the extension services provision.

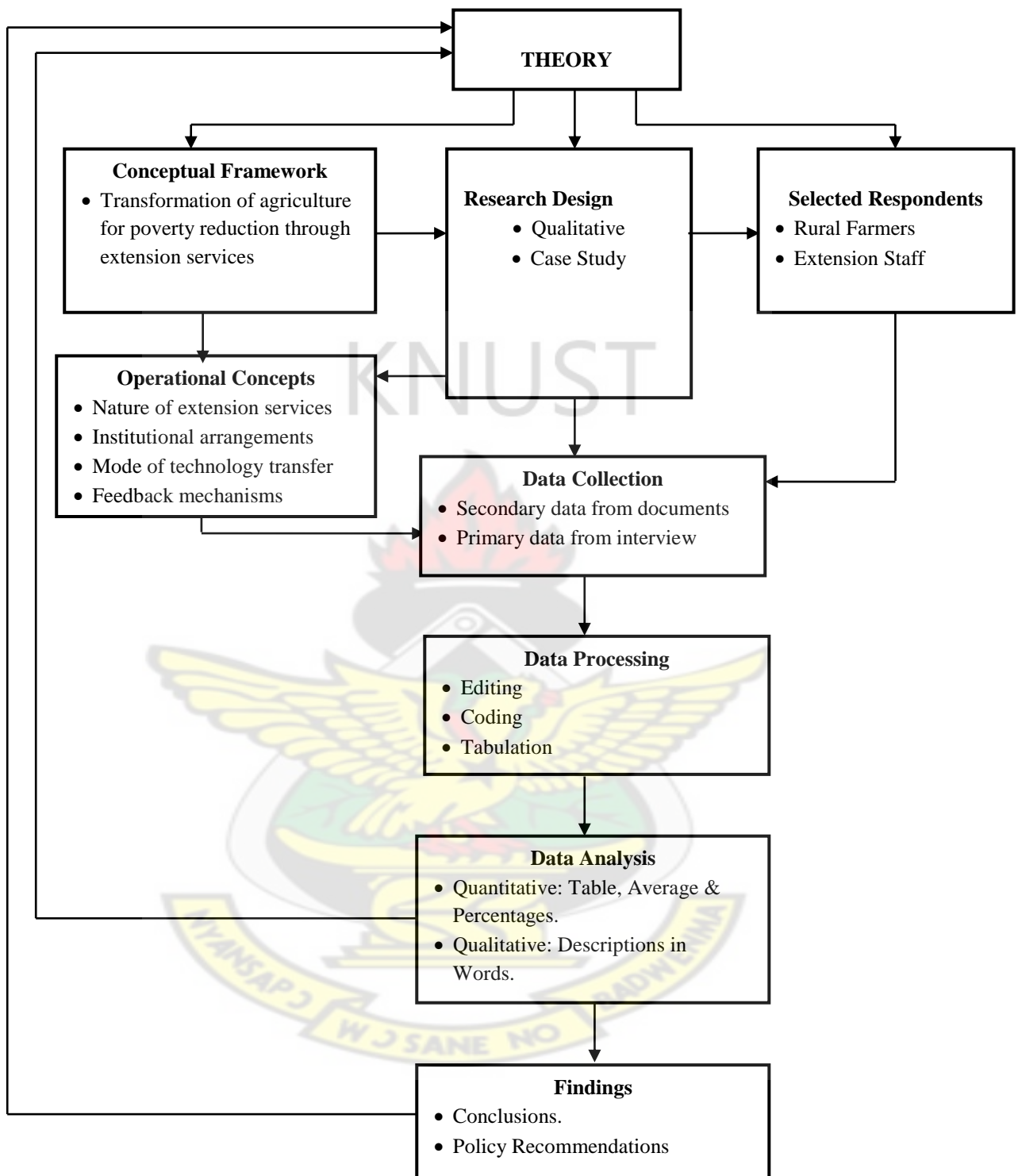
The data collected were processed through editing, coding and tabulation. In the editing, the researcher checked the data collected for their completeness, accuracy and uniformity. Deductive and inductive coding was used. With the deductive coding, the researcher classified the responses into pre-established categories, as in the case with close-ended questions. With the inductive coding, the responses mentioned most frequently are included in a coding scheme to analyze the data (Nachmias, 1992). By way of tabulation, the data processed through editing and coding was transformed into tables which were further summarized into frequencies, means and percentages.

Analysis of the data was done using both quantitative and qualitative analytical techniques. Tables, charts, percentages and graphs were used in the case of the quantitative technique, while description of tables and graphs were used in the case of the qualitative analysis. Also, comparative analysis was employed to describe the implications of the findings among the districts.

The findings from the analysis helped the researcher to make conclusions based on which policy recommendations were suggested. Figure 3.4 therefore gives a summary of the research process and analytical techniques adapted from Babbie (2007) for the study.



Figure 3.1: The Research Process- a Conceptual Framework



Source: Adapted from Babbie (2007), the Basics of Social Research. P 108

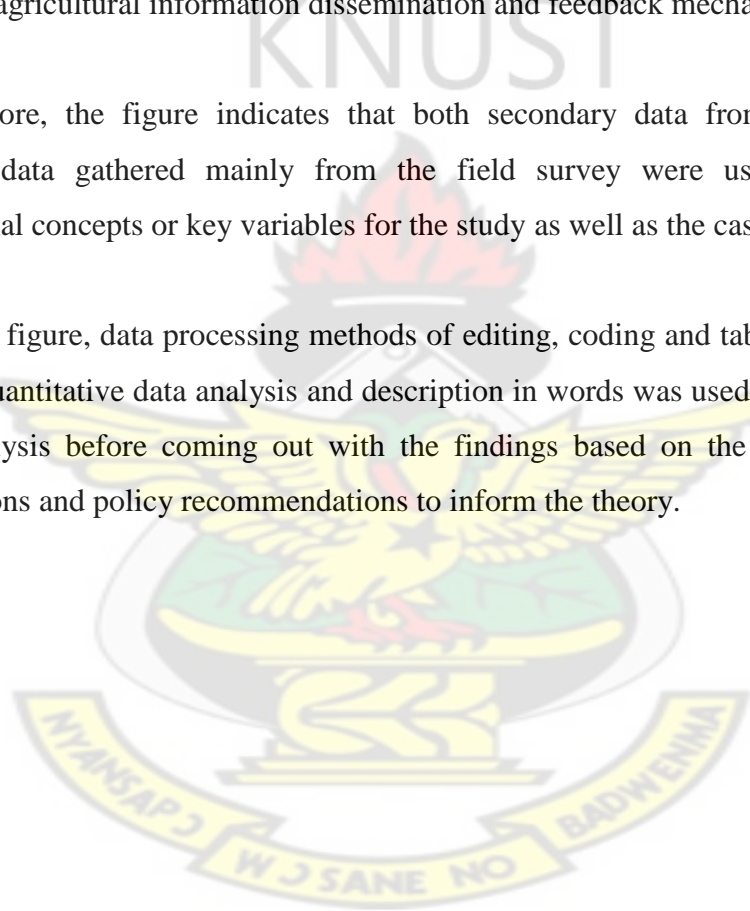
From figure 3.4, the theory behind the objective of the study, the role of agricultural extension services in agricultural transformation for poverty reduction informed the choice of Qualitative research design and a case study method. Again, the theory

behind the objective of the study influenced the conceptual framework; transformation of agriculture for poverty reduction through provision of extension services.

The figure also shows that the theory or objectives of the study and the case study method informed the selection of the main respondents made up of farmers and extension staffs to take part in the investigation. Also, the conceptual framework and the case study method determined the operational concepts or key variables for the study, including nature of extension services, institutional and logistical arrangements, mode of agricultural information dissemination and feedback mechanisms.

Furthermore, the figure indicates that both secondary data from documents and primary data gathered mainly from the field survey were used based on the operational concepts or key variables for the study as well as the case study adopted.

From the figure, data processing methods of editing, coding and tabulation were used for the quantitative data analysis and description in words was used for the qualitative data analysis before coming out with the findings based on the analysis to make conclusions and policy recommendations to inform the theory.



CHAPTER FOUR

STRUCTURE OF AGRICULTURAL EXTENSION SERVICES IN THE ASHANTI REGION

4.1 Introduction

This chapter presents an analysis of the role of agricultural extension services in agricultural transformation in the Ashanti Region. The analysis discusses the characteristics of the selected districts and the socio-economic characteristics of the farmers. Again, the analysis discusses the nature of the agricultural extension services, the institutional and logistical arrangements, how the agricultural technology is disseminated and the feedback mechanisms as captured in the farmers' and institutional survey and analyzed.

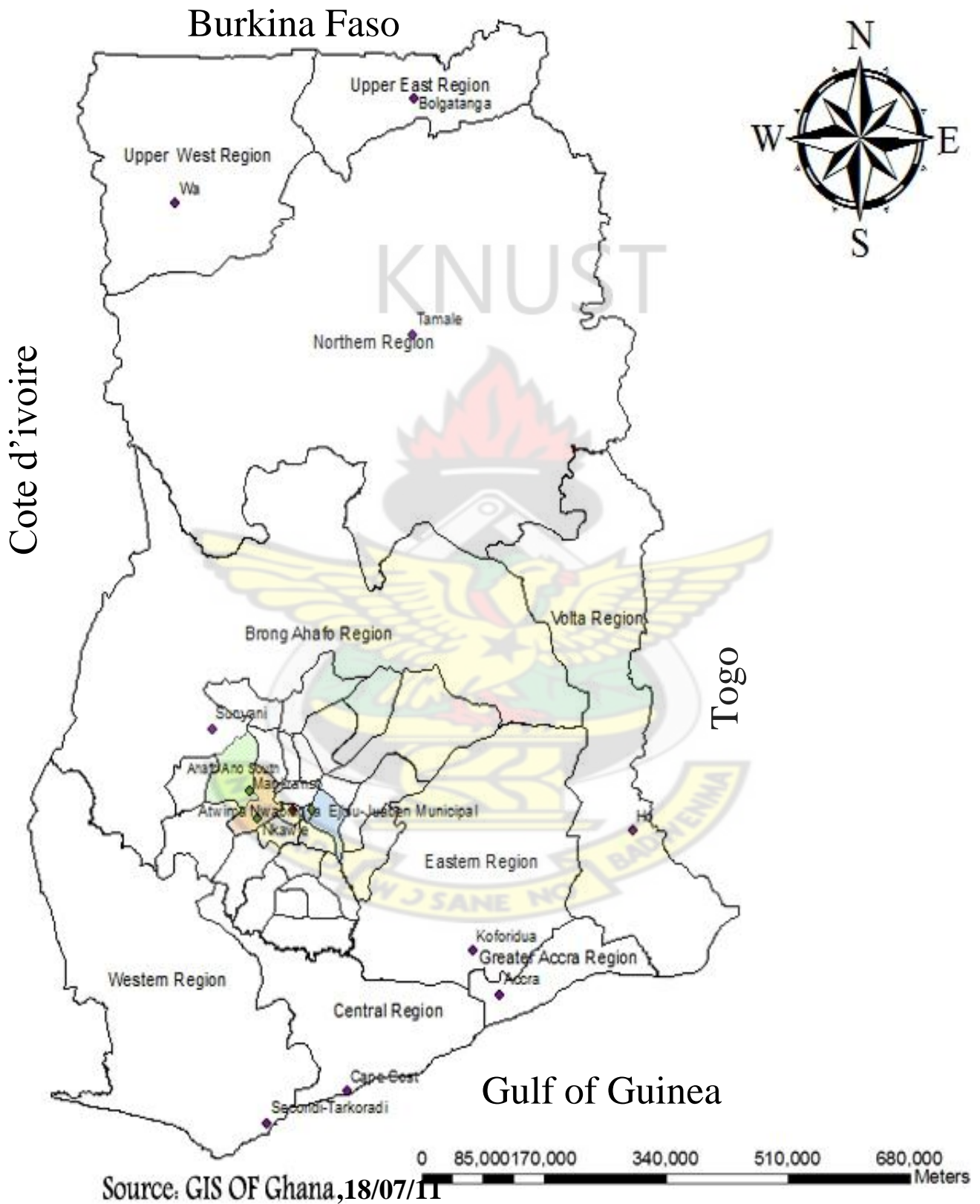
4.2 Characteristics of the Selected Districts

This section discusses the locations, the structure of the agricultural sector, available infrastructure and the institutional framework for agricultural management in the Districts.

4.2.1 Location

The Ahafo-Ano South District is located on latitude $6^{\circ} 42' N$ and longitude $2^{\circ} 29' W$ and situated in the north-western part of the region (Ahafo-Ano South District Assembly, 2010). The Atwima Nwabiagya District lies approximately on latitude $6^{\circ} 75' N$ and between longitude $1^{\circ} 45'$ and $2^{\circ} 00'$ West and is situated in the western part of the region (Atwima-Nwabiagya District Assembly, 2010) while the Ejisu-Juaben Municipality lies within latitude $1^{\circ} 15' N$ and $1^{\circ} 45' N$ and longitude $6^{\circ} 15' W$ and $7^{\circ} 00' W$ and situated in the central part of the region (Ejisu-Juaben Municipal Assembly, 2010). The district capital of Ahafo-Ano South is Mankranso, located 34 km North-West of Kumasi. The capital of Atwima Nwabiagya District is Nkawie located along the Kumasi-Bibiiani highway and that of Ejisu-Juaben Municipality is Ejisu, located along the Accra-Kumasi highway. Figure 4.1 presents a National map showing the three Selected Districts in Regional and National contexts.

Fig.4.1 National Map Showing the Selected Districts in Regional and National Context



Source: GIS OF Ghana, 18/07/11

4.2.2 Structure of Agriculture

The local economies of the Districts are agrarian. According to the Ahafo-Ano South District Assembly (2010), it is estimated that 70 percent of the working population are into agriculture while 75 percent of the internally generated funds (IGFs) also come from agriculture. Atwima-Nwabiagya District Assembly (2010) has noted that agriculture employs 51 percent of the labour force in the District while Ejisu-Juaben District also employs 56.6 percent of its labour force in that sector (Ejisu-Juaben Municipal Assembly, 2010).

Crop farming is dominant in the Districts. The profiles of the Districts indicate that major crops cultivated include food crops such as yam, maize, plantain, cassava, cocoyam and rice; vegetables such as tomatoes, garden eggs, pepper, okro and onion and tree crops such as cocoa and oil palm and major animals reared include sheep, goat, cattle and birds. Most of the farmers cultivate on an acre or two, have more than one farm and depend on hired labour especially for land preparation and harvest. Mixed farming and cropping are the major farming practice by farmers with most of them engaged in traditional methods of agriculture such as the use of hoes and cutlass.

Farm productivity in the study area is generally low. Data available to Ahafo-Ano South District indicate that production levels only increase with an increase in the acreage of land under cultivation. However, the District average crop yield per hectare for maize, cassava, cocoyam and plantain in the Ahafo-Ano South District are higher than the Regional average. Table 4.1 shows the crop yields per hectare for Ahafo-Ano South District and the Region in 2009.

Table 4.1 Average Yield per Hectare (2009)

Crop	District Average	Regional Average
Maize	1.8	1.6
Cassava	10.8	10.0
Plantain	9.6	9,0
Cocoyam	11.5	9.9

Source: Ahafo-Ano South District Assembly, 2010

Extension services coverage in the Districts is relatively high. Ahafo-Ano South District Assembly (2010) reported that an estimate of 45,000 farmers are found in the District and 29,000 of them are benefiting from the extension services intervention. An estimate of 25,969 farmers is found in the Atwima-Nwabiagya District and 20,256 of them are benefiting from the extension services intervention (Atwima-Nwabiagya District Assembly, 2010).

4.2.3 Infrastructure

There are a number of wide valleys with no evidence of stream flow in the Districts and these have been dammed to provide irrigation for rice, sugarcane and vegetable cultivation. Small scale dams have been constructed in Boama-Odumasi and Nobowam in the Ejisu-Juaben Municipality, Nerebehi, Mfensi and Barekese in the Atwima-Nwabiagya District and Kunsu and Wioso in the Ahafo-Ano South District to provide irrigation to promote all year round farming activities.

Many feeder roads have been constructed in the Districts. However, a large number of them are in deplorable condition. According to the Atwima-Nwabiagya District Assembly (2010), 270.40 kilometers of feeder roads in the District are in deplorable condition. As a result, several farming communities become inaccessible particularly during rainy season, thereby making it difficult for EFS to visit their clients and for the farmers to transport their farm produce to the market centres for sale.

Commercial and Rural Banks are found in the Districts which provide access to the farmers for micro loans and overdraft to finance their activities. Ghana Commercial Bank is located in Ejisu and Nkawie and a host of Rural Banks including Juaben Rural Bank and Atwima Mponua Rural Bank in Toase. There are main market centres in the Districts where the farmers send their farm produce on the market days for sale. These markets are located at Ejisu, Juaben, Kwaso, Boama-Odumasi, Barekese, Abuakwa, Nkawie, Kunsu, Dwinyama, Pokukrom and Sabronum.

4.2.4 Institutional Framework for Agricultural Management

The District Assembly is the highest political and administrative authority in the districts and has 8 Sub-Committees working up to an Executive Committee level including Agriculture. A total of 28 public departments and agencies are established which include Department of Agriculture. It helps in fine-tuning the decisions of the Sub-Committee and the General Assembly on agriculture and is also responsible for the implementation of approved agricultural programmes and decisions of the General Assembly (Atwima-Nwabiagya District Assembly, 2010).

4.2.5 Condition of the Built Environment

It is established that the Selected Districts are located within similar vegetation zone and share same climatic conditions that promote agriculture. The Districts are predominantly rural and their economic activities are basically agriculture practiced on subsistence basis with rudimentary methods. The Ejisu-Juaben Municipal Assembly (2010) has estimated that the rural settlements in the District account for 69.82 percent. Therefore agriculture can be used as a development focus in order to reduce poverty with the provision of agricultural extension services as a major strategy.

4.3 Socio-economic Characteristics of the Respondents

This section discusses the analysis of the social and economic features of the main respondents (farmers). Specific issues discussed include the educational background, sex, number of persons in household, types of crops cultivated, farm sizes of farmers, types of inputs employed, sources of labour, sources of finance, post harvest processing of farm products and level of output.

4.3.1 Educational Background of Respondents

The study identified that out of the farmers interviewed in all the Districts, 39.7 percent had never been formally educated in the study area and as high as 42.9 percent of them were found in Ahafo-Ano South District. Table 4.2 gives a detail of the educational levels of the respondents.

Table 4.2 Educational Levels of Respondents

District Level	Ahafo-Ano South		Ejisu-Juaben		Atwima Nwabiagya		Districts	
	No.	%	No.	%	No.	%	No.	%
Never	24	42.9	18	38	20	37.7	62	39.7
Primary	16	28.6	13	27	14	26	43	27.6
JHS	10	17.8	9	18.8	10	18.8	29	18.6
SHS	5	8.9	4	8.3	6	11.3	15	9.6
Tertiary	1	1.8	3	8.3	3	5.6	7	4.5

Source: Field Survey, May 2011

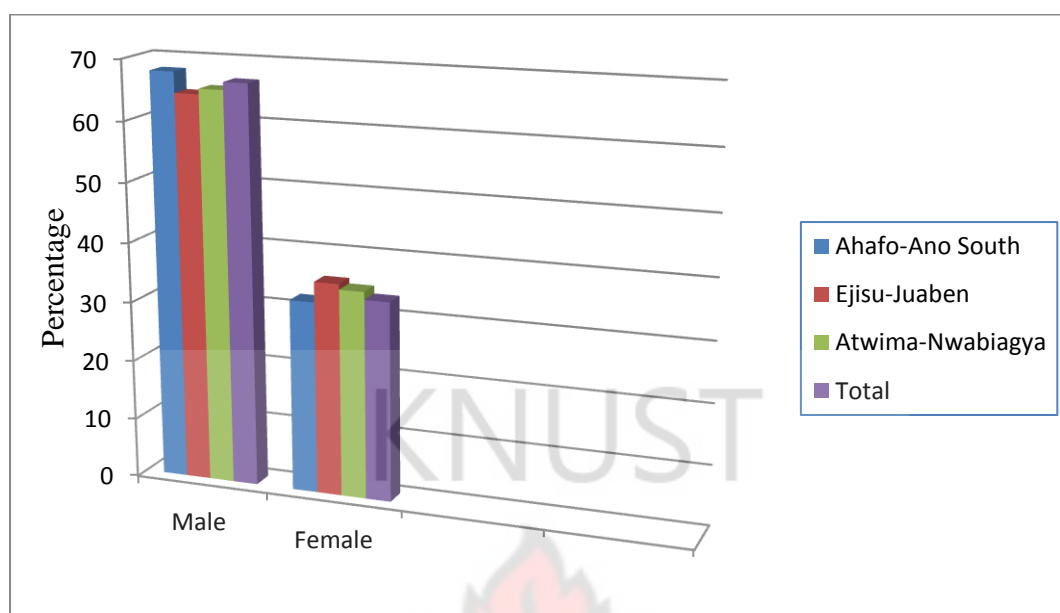
The table shows that only 4.5 percent of the respondents in the Districts have had tertiary education. Ejisu-Juaben Municipality has most of the farmers (8 percent) with tertiary education whilst Ahafo-Ano South District has the least (2 percent). From the table, 27.6 percent of the respondents in the Districts ended their education at the Primary School level, 18.6 percent of them ended theirs at the Junior High School level while 9.6 percent of them ended theirs at the Senior High School level.

The table gives the indication that the general level of education of the respondents is very low, because only 14.1 percent had received higher education up to Senior High and Tertiary levels. This situation poses a setback to the assimilation of the agricultural technology disseminated to the farmers by the AEAs.

4.3.2 Sex of the Respondents

The survey revealed that there were more male farmers, (66 percent) in the Districts than female farmers. The Ahafo-Ano South District has more male farmers (68 percent) than the other two Districts. Ejisu-Juaben District has more female farmers (34 percent) than the other two Districts. All the Districts have a total of 32 percent female farmers. Figure 4.2 depicts the gender of the respondents in the Districts.

Fig. 4.2 Gender of the Respondents



Source: Field Survey, May 2011

The figure therefore indicates that extension services provision in the Districts are being accessed by both sexes but the proportion of the total female farmers benefiting from the intervention in the Districts (32 percent) is low and not encouraging.

4.3.3 Number of Persons in a Household

The survey indicates that 50 percent of the respondents in the Districts keep large number of persons in their households between 6 and 10 persons with respondents in Ahafo-Ano South District (54 percent) having the largest proportion. The number of persons in the households of the study area is represented in table 4.3.

Table 4.3 Number of Persons in Household

District	Ahafo-Ano South		Ejisu –Juaben		Atwima Nwabiagya		Districts	
	No.	%	No.	%	No.	%	No.	%
2-5	14	25	9	19	10	19	33	21.2
6-10	30	54	22	45.8	26	50	78	50
11+	12	21	17	35	16	31	45	28.8
Total	56	100	48	100	52	100	156	100

Source: Field Survey, May 2011

It can be inferred from the table that large number of the respondents kept large family. This might imply that majority of the farmers are likely to experience high dependency burden thereby affecting their savings and consequently raise low capital.

4.3.4 Types of Crops Grown

Referring to the indications the farmers gave on the crops they grew and the animals reared, a number of crops and animals were identified from the survey. However, the main food crops grown and animals reared in the Districts were emphasized. This was due to the fact that there was not much data on output of some crops that were grown on a very small scale. The main crops grown include maize, cassava, plantain, cocoyam, yam, rice, tomatoes, garden eggs and okra and the main animals reared include cattle, sheep, goats, birds, pigs and grass cutter.

4.3.5 Farm Sizes

The survey revealed that out of the 156 farmers interviewed, 74.4 percent in the Districts farmed on small acreage of land; between 1 and 10 acres. Atwima-Nwabiagya District has the highest proportion of 74 percent while and the Ejisu-Juaben District has lowest proportion of 69.5 percent. Table 4.4 presents farm sizes of farmers in the Districts.

Table 4.4 Farm Sizes of Farmers

District Acres	Ahafo-Ano South		Ejisu-Juaben		Atwima- Nwabiagya		Districts	
	No.	%	No.	%	No.	%	No.	%
1 – 10	38	73.1	32	69.5	35	74	105	74.4
11-20	12	23.1	11	24.0	7	15	30	20.7
20 +	2	3.8	3	6.5	5	11	10	6.9
Total	52	100	46	100.0	47	100	145	100

Source: Field Survey, May 2011

From the table, only few respondents from the Districts, 6.9 percent farmed on large area of land of 20 or more acres with the highest proportion of 11 percent found in Atwima-Nwabiagya District and the lowest proportion of 3.8 percent of them was found in Ahafo-Ano South District. It can therefore be deduced from the table that despite the extension services intervention, a very large number of the farmers' farm

on small acreage of land and this might be the reason why subsistence farming dominates in the study area with farm income low and poverty high.

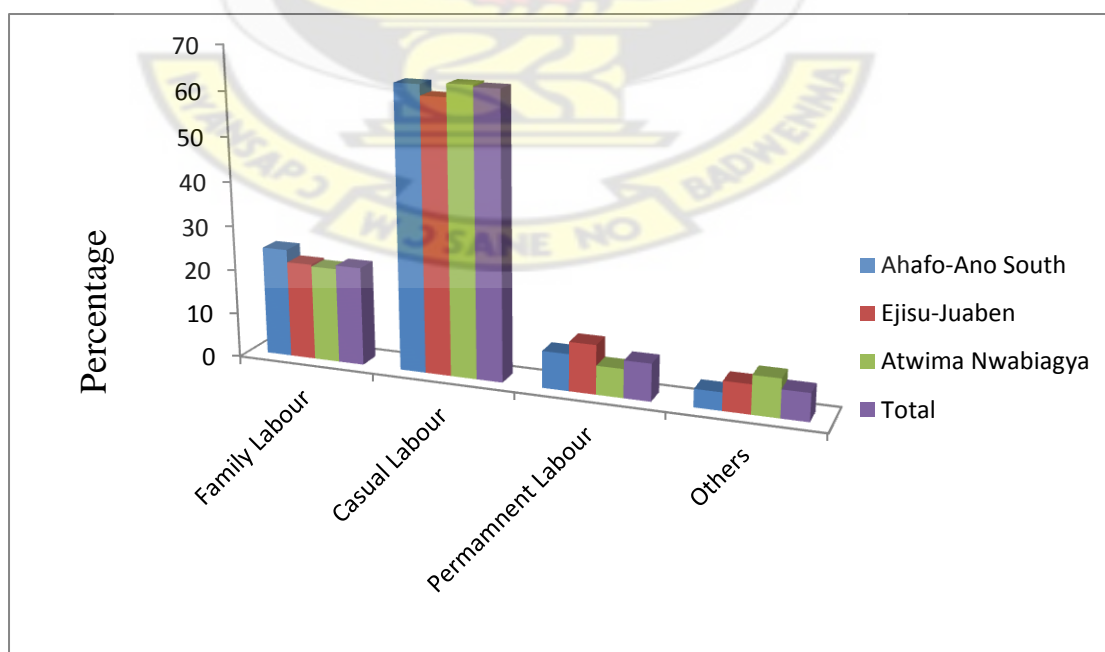
4.3.6 Types of Inputs Employed

The survey identified that out of the majority of the farmers interviewed, 60.7 percent use simple implements such as cutlass and hoes, 33.8 percent of them used spraying machines and only 5.5 percent of them use tractor services for their land preparations and weed control. The data reveals a very small proportion of the respondents; 5.5 percent can hire tractors for their activities to increase farm productivity and output despite their long experience with extension services. It can therefore be concluded that productivity of most of the farmers is low due to the application of simple implements. This situation tends to derail transformation of their agriculture.

4.3.7 Source of Labour

The study revealed that majority of the respondents, (83 percent) employ casual labour in addition to family labour, 11 percent of them employ permanent labour and 6 percent of them employ other source of labour such as cooperate weeding “nnoboa” for their farm preparation, weed control and harvesting. Figure 4.3 shows the sources of labour of the respondents in the Districts.

Fig. 4.3 Sources of Labour



Source: Field Survey, May 2011

The figure portrays that despite the respondents long stint with the extension services intervention, majority of the farmers (83 percent) can not employ permanent labour to help them expand their activities or engage in commercial farming to increase output and income.

4.3.8 Source of Finance

The survey identified that all the respondents (100 percent) finance their farm activities through personal savings, 6 percent of them have theirs through bank credit and 84.6 percent of them were through government credit provided in kind (supply of inputs, such as fertilizer and insecticides to farmers through the AEAs for them to pay with farm produce or cash after harvest). Table 4.5 depicts the sources of finance for the respondents.

Table 4.5 Sources of Finance

District Source	Ahafo-Ano South	Ejisu- Juaben	Atwima- Nwabiagya	Districts	
	No.	No.	No.	Total	%
Self Generated	56	48	52	156	100.0
Relatives & Friends	9	11	10	30	19.2
Co-operative	10	11	5	26	16.6
Donors (NGO)	4	6	9	19	12.1
Bank	3	2	5	10	6.4
Credit in kind	50	42	40	132	84.6

Source: Field Survey, May 2011

It can be inferred from the table that only about 6 percent of the respondents can access bank credits despite their long association experience with extension services. This can be attributed to lack of collateral security, high rates of interest and inflexible loan repayment arrangements. However, the table indicates that credit in kind source of finance is gaining grounds as 87 percent of the respondents are involved in it. It must therefore be emphasized that the government or MoFA should take the necessary measures to make it sustainable owing to its flexible means of repayment.

4.3.9 Post-harvest Processing of Farm Produce

It was revealed from the survey that as high as 86 percent of the respondents in the study area cannot process or store their produce while 14 percent of them can process or store their farm produce. Table 4.6 gives details of the post-harvest processing of farm produce in the study area.

Table 4.6 Post-harvest Processing of Farm Produce

District State	Ahafo-Ano South		Ejisu-Juaben		Atwima- Nwabiagya		Districts	
	No.	%	No.	%	No.	%	No.	%
Raw	48	86	40	84	45	87	133	86
Processed	8	14	8	16	7	13	23	14
Total	56	100	48	100	52	100	156	100

Source: Field Survey, May 2011

The table indicates that Ejisu-Juaben Municipality has most of the farmers (16 percent) able to process or store farm produce while Atwima-Nwabiagya District has the least (13 percent) of the farmers able to process or store farm produce before marketing. This might imply that in spite of long association with extension services, most of the respondents lack storage facilities and capacity to process or store their produce after harvest to add value to them before market to earn high income.

4.3.10 Impact of the Extension Services Provided to the Farmers

Some of the farmers who kept records on their activities gave information on the output of their produce on maize and rice before and after receiving extension services in the Districts. Table 4.7 gives the details.

Table 4.7 Output of Maize and Rice Before and After Extension Services

Crop/ Output District	Maize			Rice		
	Before		After	Before		After
	No.	Qty (Maxi Bag)	Qty (Maxi Bag)	No.	Qty (Maxi Bag)	Qty (Maxi Bag)
Ahafo-Ano South	8	369	801	7	232	495
Ejisu- Juaben	10	301	514	8	182	321
Atwima Nwabiagya	7	280	650	5	201	389
Total	25	950	1,965	20	615	1,205

Source: Field Survey, May 2011

The table indicates that 25 farmers interviewed in the study area harvested a total of 950 maxi bags of maize before the intervention and a total of 1,965 maxi bags of maize after the intervention. This implies that the extension services resulted in an increase in output of 1,015 maxi bags of maize representing a percentage increase of 106.8 percent. Atwima Nwabiagya District recorded the highest increase in output of maize of 370 maxi bags representing 132 percent while Ejisu-Juaben recorded the lowest of 213 maxi bags representing 71 percent. It can therefore be deduced that the services are having much impact in Atwima Nwabiagya District than the rest.

It can therefore be concluded from the table that provision and utilization of extension services by farmers has led to a big increase in their farm output. It must also be emphasized that those respondents who did not keep records on their activities and could not give information on their outputs responded that “*there have been an appreciable increase in farm output after receiving the extension services intervention*”. The respondents attributed the increase in output to the access they got to improved seedlings, technical advice in farm management, prevention of malaria and HIV/AIDS and farm inputs on credit (in kind) from the government – all of which greatly transformed their agriculture and increased farm output and income.

The respondents gave the indications that as a result of their high incomes earned through the intervention, most of them could then send their children to school, register for National Health Insurance Scheme, wear good cloths, pay for their community, family or church welfare dues or levy and have had improved consumption, nutrition and health.

4.4 Nature of the Extension Services

This section of the study discusses the nature of the agricultural extension services provided to the farmers in the region as captured in the farmers and AEAs data and analyzed. The discussion shall focus on the type of the extension services provided; agricultural technology and non-agricultural technology, visits and non-visits by AEAs and the mode and frequency of meetings.

4.4.1 Types of Extension Services Provided

The study revealed that both agricultural and non-agricultural information were provided to the respondents in the districts. The survey identified that all the

respondents (100 percent) in the districts were provided with agricultural technology made up of method and result demonstrations. This indicates that the major focus of extension services delivered to farmers was agricultural technology.

The survey identified that aside the usual provision of access to respondents for bank credit and inputs by AEAs, other non-technology services were provided to respondents. They were identified as the provision of access of respondents to government credit in kind (provision of fertilizer, spraying machines, vaccines and other inputs to farmers to be paid after harvest with farm produce or cash), Women in Agriculture Development (WIAD), HIV/AIDS and Malaria Control and Home Management issues. Table 4.8 captures the types of extension services provided to the respondents.

Table.4.8 Types of Extension Services Provided

Agricultural Information District	Agricultural Technology				Non-Agricultural Technology					
	Method Demonstration		Result Demonstration		Access to Credit		Access to Inputs		Others	
	No.	%	No.	%	No.	%	No.	%	No.	%
Ahafo Ano South	56	100	56	100	35	63	35	63	30	54
Ejisu Juaben	48	100	48	100	28	58	28	58	25	52
Atwima Nwabiagya	52	100	52	100	32	62	32	62	28	54

Source: Field Survey, May 2011

From the table, 54 percent of the respondents in Ahafo-Ano South District, 52 percent in Ejisu-Juaben District and 54 percent in Atwima Nwabiagya District were provided with the other non-agricultural technology services. The table shows that an average of 53.3 percent of the respondents in the Districts was offered with other non-technology extension services. It can therefore be deduced from the survey and the WIAD programme that there are efforts by extension services providers to ensure equal access of extension services to all gender and seek the holistic development in the lives of the respondents.

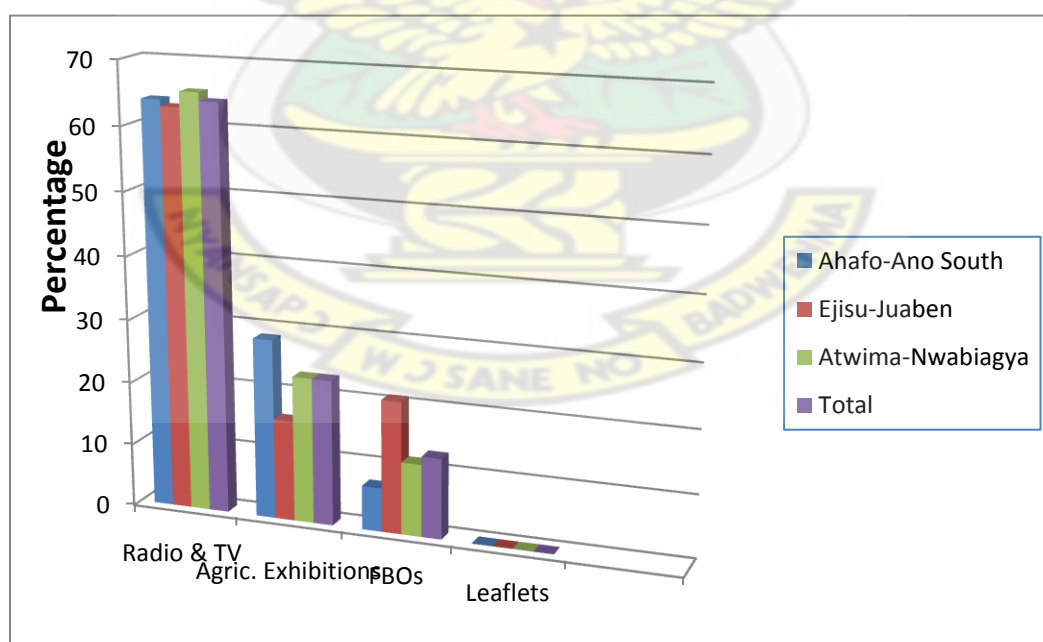
4.4.2 The Mode and Period of Meeting

The survey again identified that the extension services were mainly provided to the respondents in group meetings every fortnight and monthly. All the respondents (100 percent) in the Districts received extension services in groups of between 10 and 20 farmers every 2 weeks for method demonstrations and every 4 weeks for result demonstrations and farmers' field days. The survey indicated that 57 percent of the respondents in Ahafo-Ano South, 58 percent in Ejisu-Juaben and 57 percent in Atwima-Nwabiagya Districts received extension services at fora (Mass Meeting) to disseminate non-agricultural technology to them every 3 months (quarterly).

4.4.3 Extension Services through Non-visits

The survey also revealed that apart from the visits by the AEAs, other forms of extension services were provided to the respondents in varying degrees. They included radio and television extension programmes, visits to agricultural exhibitions, Farmer-Based Organizations and the use of pamphlets and leaflets. The non-visits by AEAs extension services experienced by respondents are depicted in figure 4.4.

Fig. 4.4 Extension Services through Non-Visits



Source: Field Survey, May 2011

The figure indicates that 64 percent of the respondents in Ahafo-Ano South District, 63 percent in Ejisu-Juaben District and 65 percent in Atwima Nwabiagya District experienced radio and television programmes, giving a total of 64 percent in the study area. The figure also shows that none of the respondents in each of the Districts experienced extension services through leaflets. It can therefore be deduced from the figure that the patronage of radio and television extension programmes is high in the Districts due to the possibility of many of the respondents owning radio sets whereas the patronage of leaflets extension programmes is non-existing in the study area due to the low level of education of most of the respondents.

4.5 Logistical and Institutional Capacity

This section discusses the responses of the District Directors of Agriculture in the Districts regarding logistical and institutional capacity of extension services provided and analyzed. Specific issues discussed in this section centre on the required and available logistics, Extension Field Staffs recruitment and motivation, funding and extension services policy.

4.5.1 Logistical Capacity

The survey revealed that there was vast difference between the required and available quantities of most of the logistics used to execute the extension services activities in the Districts. The Required and Available Logistics and their variances are presented in Table 4.9.

Table 4.9: Required and Available Logistics and their Variances

District Logistic	Ahafo-Ano South		Ejisu-Juaben		Atwima Nwabiagya		Districts		
	Req. Qty	Av. Qty	Req. Qty	Av. Qty	Req. Qty	Av. Qty	Total Req. Qty	Total Av. Qty	Variance
Motor bikes	24	6	23	18	25	7	72	31	41
Pick-ups	5	2	-	-	-	-	5	2	3
Rain Coats	31	0	25	0	34	0	90	0	90
Bicycles	2	0	-	-	-	-	2	0	2
Extension Uniforms	31	3	23	23	26	14	80	40	40
Notepads and Pens	25	25	24	24	31	31	80	80	0
Vaccines and Syringes	100 pcs	30 pcs	-	-	-	-	100	30	70
Measuring Tapes	21	5	20	0	25	7	66	12	54
Wellington Boots	24	0	23	23	25	0	72	23	49

Source: Field Survey, May 2011

The table indicates that the whole districts required 72 motor bikes but 31 were provided, creating a deficit of 41; 90 rain coats were required but non was available; 100 packets of syringes and vaccines were required but 30 packets were available, crating and deficit of 70 packets; 66 measuring tapes were required but 12 were provided, creating a deficit of 54 and 72 wellington boots were required but 23 were provided creating a deficit of 49. The table further identified that the deficits were even acute in the Ahafo-Ano South District where 24 motor bikes were required but 6 were provided; creating a or a deficit of 18; 31 rain coats were required but none of them was available; 5 pick-ups were required but 2 were provided, creating a deficit of 3 and 2 bicycles were needed but none was available for use.

It can therefore be inferred from the table that all the Districts do not have the required logistics for their extension activities. The inadequate logistics in the districts might be the reason why extension services providers have not only been able to provide intensive extension services but also reach many farmers in the remote areas with the services.

4.5.2 Institutional Capacity

❖ Staff Recruitment

The study identified that the number of available field staffs in the districts was less than what is estimated or required. The number of estimated and available field staffs and their variance in the Districts is captured in Table 4.10.

Table 4.10 Estimated and Available Field Staffs

District EFS	Ahafo-Ano South		Ejisu-Juaben		Atwima Nwabiagya		Districts		
	Est'd	Av.	Est'd	Av.	Est'd	Av.	Total Est'd	Total Av.	Variance
AEAS	32	17	25	19	32	11	89	47	42
Supervisors	8	7	6	6	6	5	20	18	2

Source: Field Survey, May 2011

Table 4.10 indicates that in Ahafo-Ano South District, 32 AEAs were required but 17 of them were available, creating a shortage of 15 staffs; 25 AEAs were required in Ejisu-Juaben District but 19 of them were available, creating a shortage of 6 staffs; and 32 AEAs were required in Atwima-Nwabiagya District but 11 of them were available, creating a shortage of 21 staffs. In all, 89 AEAs were required in the Districts but 47 of them were available, creating a huge deficit of 42.

From the figure, the staff situation was comparatively good for extension field supervisors. Out of 8 Supervisors required in Ahafo-Ano South District, 7 of them were available, creating a shortage of 1; 6 Supervisors required in Ejisu-Juaben District, all of them were available, creating no shortage; and 6 Supervisors required in Atwima-Nwabiagya District, 5 of them were available, creating a shortage of 1. It can be concluded from the figure that all the Districts lack the required number of AEAs who directly transfer the extension services to the farmers. The inadequate AEAs in all the districts for the dissemination of agricultural information to farmers have resulted in a huge AEA-farmer ratio in the region.

❖ Extension Field Staff Re-training

The survey identified that the extension field staffs in the districts were provided with in-service training, refresher courses, workshop and seminars to improve upon their skills and knowledge but not on regular basis. From the survey, all the three District Directorates of Agriculture indicated that they provided these skills and knowledge enhancement programmes mostly through financial support from donors and institutions. It can be deduced from the ongoing that, the irregular skills upgrading programmes organized for the AEAs has not helped to enhance the skills of the AEAs to effectively transfer the extension services to the farmers.

❖ Motivation of the Extension Field Staffs

The survey further revealed that the extension field staffs in the districts were not provided with incentives of work as done for their counterparts in the other occupations. All the three District Directorates of Agriculture indicated that their extension field staffs were not provided with incentives of work (free accommodation, transport and health care) and that was the major reason why many of their field staffs have migrated to other more attractive occupations.

The survey also identified that a few number of the AEAs is accommodated in the communities they operate. The District Director of Agriculture in Ahafo-Ano South District indicated that out of the 17 AEAs operating in the district, 8 of them are accommodated in the communities they operate. The survey therefore has brought to light that some AEAs face accommodation problems in their operational areas. This has limited the frequency of the visits by AEAs to their clients.

❖ Funding of Extension Activities

The survey identified that the main source of funding of extension activities in the Districts was from the Central Government. It was further revealed that all the Districts received central government funding for their activities every quarter but the funds were not supplied on time. It was only Ahafo-Ano South District which additionally received funding from donors which was supplied on time every year. It can therefore be concluded that the release of government funds to the Districts for extension activities often delayed thereby causing the extension services providers to either suspend their planned programmes with the farmers or execute them belatedly.

❖ Agricultural Extension Services Policy

The study revealed that there is a National Agricultural Extension Services Policy guiding extension provision in the country. From the survey, all the three District Directorates of Agriculture indicated that a National Agricultural Extension Services Policy exists and outlined the following main strategies contained in the policy;

- Address food security
- Improve farmers' livelihoods through increased farm income
- Increase competitiveness in extension services delivery.
- Apply science and technology in food production and agricultural development.
- Establish demand-driven extension service in a decentralized system.
- Use of mass extension service methods such as Farmer Field Schools (FFS), mass communication through radio, television and communication vans.
- Build capacity of Farmer Based Organizations (FBOs) and Community Based Organizations (CBOs) to facilitate delivery of extension services to their members
- Integrate gender in extension services programming to ensure equitable access to services.

4.6 Agricultural Information Dissemination

This section of the study discusses how the agricultural technology was disseminated by the AEAs to the respondents in the districts. The discussion specifically analyzes responses regarding the methods and approaches for agricultural information dissemination.

4.6.1 Methods of Agricultural Technology Transfer

The study identified that Group Extension Method was the main mode of transferring agricultural technology to farmers in the Districts. Table 4.11 depicts the methods used by the AEAs in transferring agricultural technology.

Table 4.11 Methods Used by the AEAs

District \ Method	Ahafo-Ano South		Ejisu-Juaben		Atwima-Nwabiagya		Total	
	No.	%	No.	%	No.	%	No.	%
Individual	0	0	0	0	0	0	0	0
Group	4	100	4	100	4	100	12	100
Mass	3	75	2	50	3	75	8	75

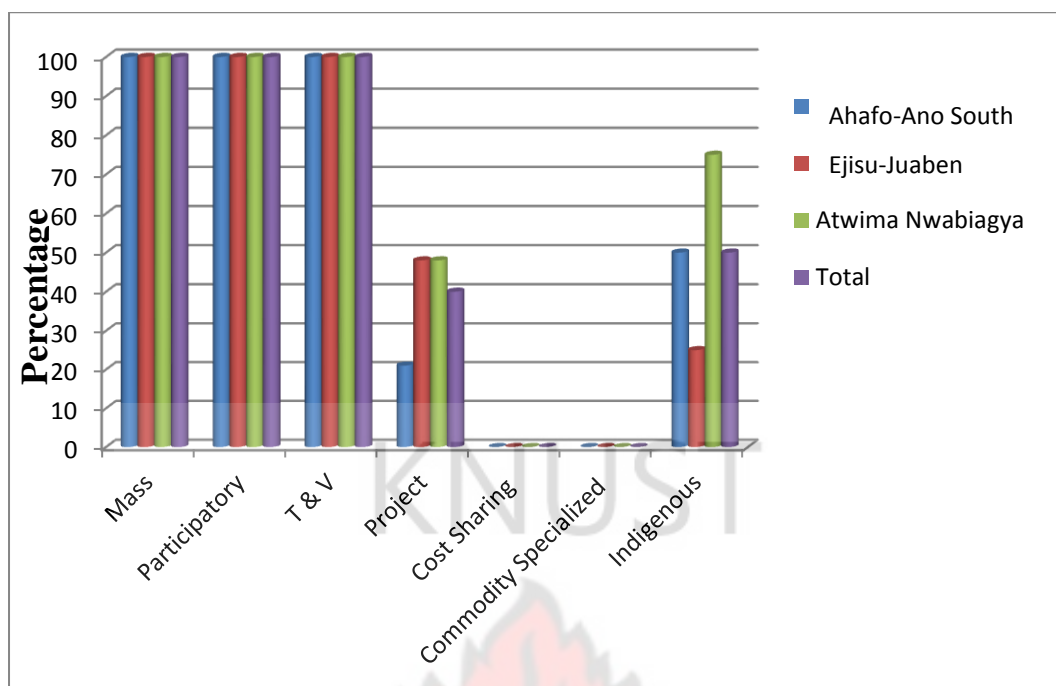
Source: Field Survey, May 2011

The table portrays that all the 4 AEAs (100 percent) interviewed in each district used Group Extension Method with 60 percent involvement of farmers. 3 AEAs in Ahafo-Ano South, 2 in Ejisu-Juaben and 3 in Atwima Nwabiagya Districts used Mass Extension method with as low as 20 percent involvement of farmers. In all the Districts, 8 AEAs, representing 75 percent used Mass Extension Method. Again, the figure shows that none of the AEAs in all the Districts used Individual Extension Method with as high as 80 percent farmer involvement in extension activities. From the table, it can be said that none of the Districts used individual extension method with high farmer involvement because of inadequate AEAs and logistics.

4.6.2 Approaches for Technology Dissemination

The survey revealed that Mass, Participatory and Training & Visit extension approaches were used by all the AEAs. None of them used Cost Sharing, Commodity Specialized and Farming System and Research extension approaches to disseminate technology to farmers in the Districts. The approaches used by AEAs to disseminate technology in the Districts are shown in Figure 4.5.

Fig. 4.5 Approaches Used by AEAs



Source: Field Survey, May 2011

From the figure, it can be seen that 50 percent of the AEAs in Ahafo-Ano South, 25 percent in Ejisu-Juaben and 75 percent in Atwima-Nwabiagya Districts used Indigenous extension Approach. This approach is composed of On-Farm Adaptive Trials, involvement of Farmer Organizations, Common Language Grouping, Youth Associations and the Churches to transfer agriculture information to farmers.

The figure also indicates that all the AEAs (100 percent) interviewed in the Districts used participatory, mass and T&V extension approach which are all exotic whilst none of them (0 percent) used commodity specialized, cost sharing and farming system research approaches to disseminate technology to farmers. Again, the table shows that 5 AEAs in all the Districts, representing 42 percent used project approach which is also exotic to disseminate technology to farmers. It can be deduced from the figure that AEAs in the Districts preferred using exotic approaches to disseminate technology to farmers than the indigenous ones.

4.7 Feedback Mechanisms

This section of the study discusses the mechanisms used by the AEsAs to receive feedbacks on the progress of their clients. The discussion centres on monitoring and evaluation of farming activities of the respondents by the AEsAs. The survey identified that all the AEsAs (100 percent) in each District used monitoring and evaluation to get feedback information from their clients regarding their utilization of the extension services. Table 4.12 depicts the feedback mechanisms used by AEsAs in the Districts.

Table 4.12 Feedback Mechanisms Used by AEsAs

Feedback Mechanism District	Monitoring						Evaluation					
	Fortnight Visit		Monthly Visit		Seasonal Visit		Fortnight Visit		Monthly Visit		Seasonal Visit	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Ahafo-Ano South	4	100	4	100	4	100	0	0	0	0	4	100
Ejisu- Juaben	4	100	4	100	4	100	0	0	0	0	4	100
Atwima-Nwabiagya	4	100	4	100	4	100	0	0	0	0	4	100
Total	12	100	12	100	12	100	0	0	0	0	12	100

Source: Field Survey, May 2011

The table indicates that all the 4 AEsAs (100 percent) in each of the Districts monitored the farming and extension services activities of their clients every fortnight, monthly and made seasonal visits to get feedback information. The table, on the other hand shows that all the 4 AEsAs (100 percent) in each of the Districts evaluated the farming and extension services activities of their clients only at the end of the season to get feedback information. It can be realized from the table that a well laid down mechanism has been put in place by the AEsAs in the Districts to ascertain feedback information on the farming and extension services activities of their clients.

CHAPTER FIVE

SUMMARY OF KEY FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

This Chapter is the concluding part of the study. It summarizes the key findings of the research and indicates how the objectives of the study were achieved. It also provides recommendations for effective agricultural extension services provision.

5.2 Summary of Key Findings

The findings of the study are based on the objectives of the research. As a result, this section identifies issues concerning the nature of the extension services, logistical and institutional arrangements, modes of agricultural technology dissemination, feedback mechanism and national policy intervention and direction for effective provision of agricultural extension services and agricultural development.

5.2.1 Nature of the Extension Services

- Agricultural technology information pre-dominates extension services delivery to farmers. It was revealed that 100 percent of the extension services provided to the farmers were agricultural technology.
- An average of 53.3 percent of the respondents in the Districts was offered with other non-agricultural technology services rather than the usual access to inputs, markets and bank credits. They include the provision of access of farmers to government credit in kind, Women in Agriculture Development (WIAD), and technical advice including HIV/AIDS, Malaria Control and Home Management issues.
- Extension services provided was designed to provide equal access of extension information to both sexes and to ensure holistic improvement in all facets of life of the farmers. This is evidenced by the WIAD extension services provided mainly for women in agriculture and provision of technical advice of HIV/AIDS, Malaria Control and Home Management.

- The extension services were mainly provided to the farmers in groups of 30 to 40. It was, thus, revealed that 100 percent of the respondents received the services in groups with none of them receiving the services individually.
- The extension services provided to the farmers were not only through visits by AEA's but also through non-visits by AEA's. It was revealed that 64 percent of the farmers received the services through radio and television programmes.

5.2.2 Logistical and Institutional Arrangements

- Logistics supplied by MoFA to the District Directorates of Agriculture for extension services activities was inadequate. It was revealed from the study that 54 Measuring Tapes, 41 Motor Bikes and 90 Raincoats required by the Districts were not supplied. This reduced the capacity of the Extension Field Staffs to execute mass and intensive extension services to the farmers thereby limiting the coverage.
- The number of available AEA's was less than the required number needed to reduce the AEA-farmer ratio. The study indicated that out of a total number of 32 AEA's estimated by the Atwima-Nwabiagya District, only 11 of them were available culminating in a very high AEA-farmer ratio of 1:3,017.
- The government policy for recruitment of Extension Field Staffs is by replacement basis. It was revealed from the study that MoFA only employs new AEA's and Field Supervisors when there is a vacation of post.
- There was lack of motivation for the AEA's and Field Supervisors. The study revealed that job incentives such as free accommodation, rent and T&T allowances as well as teaching and demonstration materials such as visual aids were not provided to the AEA's.
- Refresher courses and in-service training programmes were organized for the AEA's on irregular basis. The study identified that the District Directorates of Agriculture provided these skills and knowledge-enhancement programmes to the AEA's only when there was financial support from donors and NGOs.
- The major source of funding of extension programmes and activities is from the Central Government. The study revealed that some few donors fund specific agricultural projects in the Districts such as Valley Bottom Rice Project in Ejisu-Juaben District.

- Government funds were not released on schedule for every quarter as planned. It was indicated by the District Directors of Agriculture that the rolled over of government funds often disorganized the extension programmes and activities.
- There is a National Agricultural Extension Services Policy guiding extension provision in the country. The study revealed that it was launched in 2003 to address the challenges facing extension services provision but little success has been achieved through its implementation.

5.2.3 Modes of Agricultural Information Dissemination

- Group extension method was the major mode used by AEAs to transfer agricultural technology to farmers. The study identified that 100 percent of the AEAs who participated in the research used it.
- The mass extension method was used purposely by the AEAs to disseminate non-agricultural technology, such as provision of technical advice on malaria and HIV/AIDS control to the farmers.
- The major approaches used by the AEAs to disseminate agricultural extension information to the farmers were T&V, participatory and mass extension services approaches. The study indicated that 100 percent of the AEAs who participated in the research used them.
- Transfer of agricultural technology to farmers was hindered by the low level of education of the farmers. The study revealed that only 32.7 percent of the farmers have received education up to the Junior High School, Senior High School and Tertiary School levels.

5.2.4 Feedback Mechanism

- The AEAs used monitoring and evaluation as the mechanisms for obtaining feedback information about the progress of their clients concerning the utilization of the extension services. The study identified that 100 percent of the AEAs who participated in the research used them.
- There were a well laid down mechanisms used by the extension services providers in the Districts to get feedback information. The study revealed that monitoring was used within short periods such as 2 and 4 weeks to ascertain feedback information for remedial work to correct mistakes whereas evaluation was done at

the end of the season to assess how well or not the extension services provided have been utilized.

5.3 Recommendations

The experiences gained from literature and field surveys throughout the research have made it possible for the following recommendations to be made. Depending on the nature of the challenges to be overcome and the approach being recommended, two categories of solutions to the challenges covering short-term and institutional, long-term and policy interventions and directions have been recommended.

5.3.1 Short-term and Institutional

- Public Extension services providers should increase the level of the provision of other non-agricultural technology extension services such as WIAD to that of the provision of agricultural technology. The AEAs should be equipped with the knowledge in malaria control and HIV/AIDS prevention for them to be able to effectively educate the farmers in these areas. The Women in Agriculture Development Programme should be intensified to include more female farmers in the utilization of extension services to help accomplish the strategy of providing equal access to all sexes in extension provision.
- Provision of extension services to farmers in groups should be encouraged due to scarcity of AEAs and logistics but the number of farmers in each group should be manageable or small such as a maximum of ten. This is to help the members of the small groups to actively participate or involve themselves in extension services activities.
- Provision of extension services through non-visits by AEAs should be promoted particularly through radio and T.V. extension programmes. This will help many farmers in the country to access extension services in the comfort of their homes since many of them own radio sets.
- Non-formal education providers should be empowered and the facilitators equipped to give education to the rural farmers. This is to increase the knowledge and skills of the farmers before or whilst receiving the extension services. In this way the AEAs would have little difficulties in the dissemination of the agricultural technology to the farmers.

- The government through the Ministry of Food and Agriculture, must put adequate measures in place to procure and supply the required logistics requested by the District Directorates of Agriculture for the execution of extension programmes and activities. This is to help address the problem of shortage of essential logistics needed to ensure mass and intensive extension services.
- MOFA should fully motivate the Extension Field staffs, particularly the AEAs with job incentives and provision of teaching and demonstration materials. This is to help the AEAs to be committed to their jobs and work very hard to realize the goals set out in the National Extension Policy.
- Refresher courses and in-service training must be organized regularly by MoFA for the Extension field staffs without waiting for donors and NGOs to finance them before they are organized. In this way, the AEAs would be equipped with modern knowledge and skills to effectively disseminate improved agricultural technology to the farmers.
- MOFA should provide more accommodation facilities for all AEAs in the communities they operate. By so doing, the AEAs would be able to visit their clients at regular intervals and as scheduled.
- Extension services providers or MOFA should promote the use of indigenous, participatory and training & visit extension services approaches. This stems from the fact that these approaches possess high degree of farmers' involvement in the extension services programmes and activities so as to make the services timely, relevant and responsive to the farmers' needs.
- The laid down mechanisms by AEAs or extension services providers to get feedback information on farmer's utilization of extension services must be encouraged. Monitoring which is done within short periods should be continued in order to help the AEAs to identify mistakes of farmers promptly and correct them. Evaluation which is done at the end of the season should be continued in order to help the AEAs to assess the effectiveness of the extension services provided.

5.3.2 Long-term and Policy Interventions and Directions

- The government should institute a National Extension Services Provision Fund (NESPf) similar to that of the GETFUND. In this fund, a small percentage of Value Added Tax proceeds should be added. This is to ensure that the government generates enough and regular funds to be supplied to the District Directorates of Agriculture on schedule to enable them discharge their functions timely.
- Extension services Delivery in the country should be properly privatized as contained in the National Extension Services Policy Document. In this regard, where there is no NESP Fund, as proposed, the involvement of the private sector in extension provision and funding would make extension delivery in the country sustainable.
- The current Extension Field Staff recruitment policy should be abolished. Instead, Extension Services Training School should be established to train more AEAs and supply in large numbers to all Districts. In this way, AEA-farmer ratio will be improved for more farmers to access extension services.
- The government's credit in kind programme should be institutionalized. If the programme is sustained, it will help farmers to use their meager capital for acquisition of land and payment for labour to sustain or expand their farm activities for increased income and improved livelihoods.
- There should be land reformation policy in the country. If this is successfully implemented, it will help to divert excess lands from some clans and families to potential farmers to expand their farm activities with extension services.
- Extension Services Delivery in the country should be made demand-driven. This policy should involve the sensitization of the rural farmers by MOFA to make them conscious about the need for the services. In this sense, the farmers will be willing to, even, demand the services at a cost to make the extension services delivery sustainable.

5.4 Conclusion

The study has established that effective organization of agricultural extension services in the country could transform traditional agriculture into a modern one for improved living standards of the rural people. The study has also revealed that a mere provision of extension services could not transform traditional agriculture to reduce rural poverty as the productivity gap theory sought to portray.

The study has therefore succeeded in coming out with some useful findings and recommendations that have contributed knowledge to fill the gaps left by the productivity gap theory.



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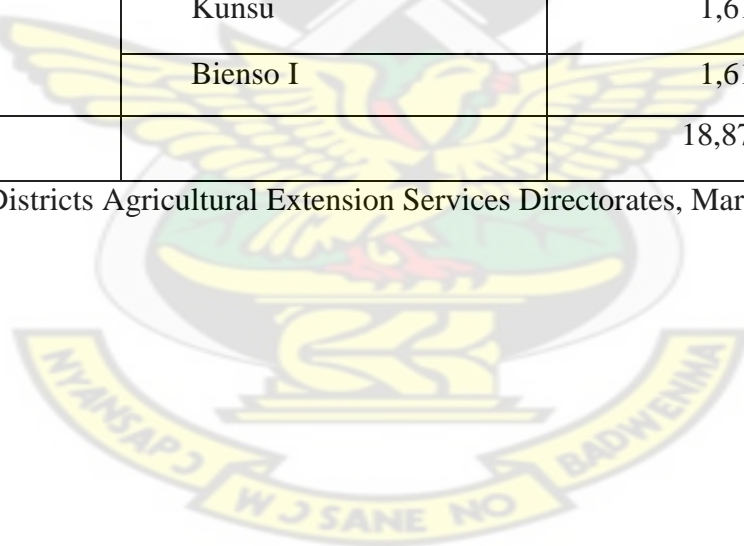
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APPENDIX I

Number of Farmers in the Study Areas

District	Operational Zones Selected	No. of Farmers Receiving Extension Services
Ejisu-Juaben	Amoam-Achiase	1,549
	Ejisu	1,549
	Tikrom	1,549
	Onwe	1,549
Atwima-Nwabiagya	Nkawie	1,558
	Koforidua	1,558
	Akropong	1,558
	Mfensi	1,558
Ahafo-Ano South	Mankranso	1,611
	Adugyama	1,611
	Kunsu	1,611
	Bienso I	1,611
Total		18,872

Source: Districts Agricultural Extension Services Directorates, March 2011



APPENDIX II

**DEPARTMENT OF PLANNING
FACULTY OF PLANNING AND LAND ECONOMY
COLLEGE OF ARCHITECTURE AND PLANNING
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**TOPIC: The Role of Agricultural Extension Services in Agricultural
Transformation for Rural Poverty Reduction in the Ashanti Region
INTERVIEW GUIDE FOR FARMERS**

(Tick the Appropriate Option / Options or Write the Response where Applicable at
the Space Provided)

Name of Respondent.....

Name of Zone & Community

Date of Interview.....

(A) Background Information

1. Age of the respondent.....

2. Sex of the respondent.....

Male { } Female { }

3. Level of Education;

Never { } Primary { } Middle/JSS { } Post Sec/SHS { } Tertiary { }

4. No. of persons in household.....

5. How long have you experienced extension services?

1-5 years { } 6-10 years { } 11-15 years { } 16-20 years { } 21+ years { }

(B) Socio-economic Characteristics of Respondents

6. What type of food crop or crops do you grow and the acreage of land cultivated?

No.	Type of Crops Grown	Tick	No. of Acres Cultivated
1	Tuber crops and Plantain		
2	Grains		
3	Vegetables		
4	Cereals		
5	Others		

7. If you are a livestock farmer, what kinds of animal(s) do you rear and the total number?

No.	Kind of Animal	Tick	No. of Animal Reared
1	Goats		
2	Sheep		
3	Bees		
4	Pig		
5	Grasscutter		
6	Birds		
7	Cattle		

8. What kind of land preparation technique do you employ before cultivation of your crops?
 Slash and burn { } Zero tillage { } Plough & harrow { }
9. What farming method or system do you apply for your farming activities?
 Monocropping { } Mixed cropping { } Mixed farming { } Inter-cropping { }
 Others (Specify).....
10. What farm cultural practices do you apply for the cultivation of your crops?
 Fertilizer application { } Pests & diseases control { } Weed control { }
 Others (Specify).....
11. If you apply fertilizer, what category of fertilizer do you use?
 Organic { } Inorganic { }
12. What is the source(s) of labour for your activity?
 Family hands only { } Family and Casual labour { } Family and Permanent labour { }
 Others (Specify).....
13. What kind(s) of farm inputs do you use for your farm activities?
 Simple implements { } Spraying machine { } Tractors { }
14. How often do you get new farm inputs or replace old ones?
 Less than a year { } Every year { } Every two years { } More than two years { }
 As and when they are worn out { }
15. Do you keep farm records?
 Yes { } No { }
16. What is the source(s) of finance for your farm activities?

No.	Source of Finance	Tick
1	Self Generated	
2	Relatives & Friends	
3	Co-operative Society	
4	Donors e.g. NGOs	
5	Bank / Institutional Credits	
6	Credit in kind eg. Seed & fertilizer	
7	Others (Specify)	

17. If one of your sources of finance is bank or institutional credits, how do you access it?

.....

18. What state do you sell your produce after harvest?

Raw state { } Processed state { } Both states { }

19. What is the source of market for your produce

At farm gate { } At the open market { } Through middlemen { }

Others (Specify)

20. What is the total output of your farm produce **before** and **after** the extension services intervention?

No.	Crop/Animal	Before	After	Difference
1.				
2.				
3.				
4.				
5.				

(C) Nature of the Extension Services Provided

21. What type of extension services, frequency and mode of meetings do you have with your visiting AEA?

Type of Services	Tick	No. of Meeting	Mode of Meeting
Method Demonstration			
Result Demonstration			
Access to credits			
Access to Market & Input			
Others:			

22. Apart from the visits of the AEAs, what are the other forms of extension services do you receive from the Agricultural Extension Services?

Visits to Agricultural Exhibitions { } Radio/Television Extension Programmes { }

Leaflets/Pamphlets { } Video/Cinema Shows { } Co-operate Society { }

23. Do you discuss your indigenous farming knowledge and specific needs with your AEA?

Yes { } No { }

24. If Yes, do the extension providers incorporate this knowledge and needs in the extension planning and delivery to make it responsible and relevant?

Yes { } No { }

25. How have the extension services provided to you impacted on/or influenced your livelihoods?

.....

.....

.....

26. What suggestions will you give for the improvement of extension services delivery in your community?

.....

.....

.....

.....

**DEPARTMENT OF PLANNING
FACULTY OF PLANNING AND LAND ECONOMY
COLLEGE OF ARCHITECTURE AND PLANNING
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**TOPIC: The Role of Agricultural Extension Services in Agricultural
Transformation for Rural Poverty Reduction in the Ashanti Region**

QUESTIONNAIRE FOR AGRICULTURAL EXTENSION AGENTS (AEAs)

(Tick the Appropriate Option/ Options or Write the Response where Applicable at the Space Provided)

Name of respondent

Name of District & Zone

Date of interview

Telephone number.....

(A) Agricultural Technology Dissemination to the Farmers

1. What kind(s) of extension services do you deliver to the farmers?

No.	Kind of Extension	Tick
1.	Method Demonstration	
2.	Result Demonstration	
3.	Access to credits	
4.	Access to Market & Input	
5.	Others:	

2. What is the main source of agricultural technology generation for dissemination to the farmers?
.....

3. Does the source incorporate the specific needs and feedbacks from the farmers?

Yes { } No { }

4. Which type or types of extension method do you use for technology dissemination to the farmers and the estimated percentage of farmers' participation?

No.	METHOD	TICK	% FARMER PARTICIPATION
1.	Individual Extension		
2.	Group Extension		
3.	Mass Extension		
4.	Others:		

5. Which type or types of extension approach do you use for technology dissemination to the farmers and the estimated percentage of farmers' participation?

No.	Approach	Tick	% Farmer Participation
1.	General or Mass Extension		
2.	Training & Visit		
3.	Commodity Specialized Extension		
4.	Farming System Research/Extension		
5.	Cost Sharing		
6.	Participatory Extension		
7.	Project		
8.	Others:		

6. Do you use any indigenous extension strategy to disseminate agricultural information to the farmers?

Yes { } No { }

7. If Yes, state these strategies and the estimated percentage of farmers' participation.

No.	Indigenous Extension strategy	% Farmer Participation
1.		
2.		
3.		
4.		

8. What are some of the obstacles to agricultural technology transfer to the farmers in your operational zone?

.....

.....

.....

(B) Feedback Mechanism

9. Which mechanism or mechanisms do you use to get feedback from your clients, the frequency within the year or season and your approach?

No.	Feedback Mechanism	Tick	Frequency	Approach e.g. forum, visits etc
1.	Monitoring			
2.	Evaluation			
3.	Others:			

10. How do you measure the progress of your clients with regard to the extension services provided to them?

Change in farm output of clients { } Expansion of clients farms { }

Others (specify).....

.....

.....

11. How do you receive concerns and views of your clients regarding the extension services provided to them?

.....

.....

12. Are the concerns and views of your clients delayed in addressing them due to certain constraints?

Yes { } No { }

13. If Yes, state these constraints.

.....

.....

.....

14. Are the concerns and views of your clients incorporated in the technology generation and dissemination?

Yes { } No { }

15. How have the extension services provided to the farmers impacted on their livelihoods?

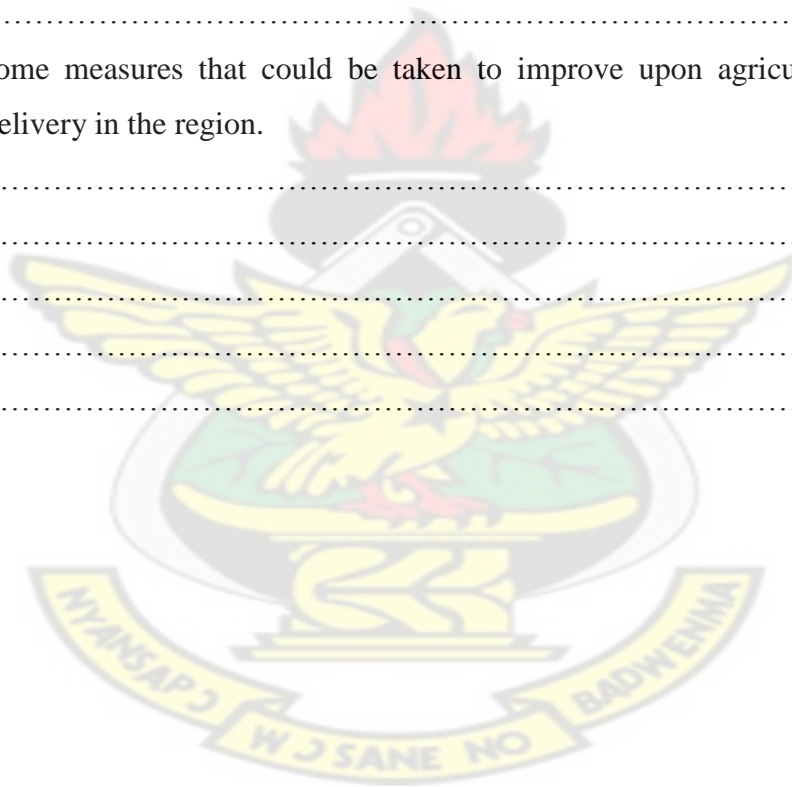
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16. Suggest any agricultural extension transformation strategies for your area of operation

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

17. Suggest some measures that could be taken to improve upon agricultural extension services delivery in the region.

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



DEPARTMENT OF PLANNING
FACULTY OF PLANNING AND LAND ECONOMY
COLLEGE OF ARCHITECTURE AND PLANNING
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

TOPIC: The Role of Agricultural Extension Services in Agricultural Transformation for Rural Poverty Reduction in the Ashanti Region

QUESTIONNAIRE FOR HEADS OF AGRICULTURAL EXTENSION SERVICES DIRECTORATES AND DISTRICT ASSEMBLIES

(Tick the Appropriate Option/ Options or Write the Response where Applicable at the Space Provided)

Name of respondent

Name of Directorate.....

Status of respondent

Date of interview

Telephone number.....

(A) Institutional and Logistical Capacity

1. Indicate the logistical facilities your directorate or Assembly is expected to acquire and those currently acquired for extension activities in your district.

No.	Logistic	Tick	Estimated Quantity	Quantity Available
1.	Motor Bikes			
2.	Pick-ups			
3.	Bicycles			
4.	Wellington Boots			
5.	Measuring Tapes			
6.	Note Pads & Pens			
7.	Syringes & Vaccines			
8.	Rain Coats			
9.	Extension Uniforms			
10.	Others:			

1. If the available quantities for some of the logistics are less than those estimated, state the possible causes.

.....

.....

.....

2. What are the total numbers of estimated trained extension field staffs (EFS) and those currently employed for extension activities in your district?

No.	Extension Field Staff	Estimated Staff	Available Staff
1.	Agricultural Extension Agents		
2.	Extension Field Supervisors		

3. If the available EFS are less than those currently employed, state the possible causes.

.....

.....

.....

4. How many of your AEAs reside in the community they operate?

..... Out of

5. Are the Extension Field Staffs (EFS) provided with work incentives or fringe benefits as their counterparts in the other occupations?

Yes { } No { }

6. If No, is that one of the reasons why some of the EFS are migrating to the other occupations?

Yes { } No { }

7. Which skills and knowledge enhancement programmes has your ministry been organizing for the AEAs in your district and the frequency?

No.	Skills & Knowledge Enhancement Programme	Tick	Frequency
1.	Refresher Courses		
2.	In-Service Training		
3.	Others:		

(B) Extension Services Funding and Policy

8. What are the source(s) of funding for extension services delivery in your district, the period of supply and whether the funds are released on scheduled or not?

No.	Source of Funding	Tick	Period of Supply	On Scheduled or Not
1.	Central government			
2.	District Assemblies			
3.	NGOs			
4.	Donors			
5.	Others:			

9. If the funds are not supplied on scheduled and are not adequate, state its effects on the extension services provision in your district.

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10. Is there any national agricultural extension services policy direction for the country?

Yes { } No { }

11. If yes, state the major strategies outlined in the policy document aimed at improving agricultural extension services in the country.

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12. Suggest some measures that could be taken to improve upon agricultural extension services delivery in your district.

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