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Subsistence Farmers' Perceptions of Pluralistic Agriculture Extension in Northern Ghana

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Abstract

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MS, University of Maryland University College, 2004

BS, University of Maryland College Park, 1996

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

In 2013, the Ministry of Food and Agriculture of the Republic of Ghana implemented a reformed food and agriculture sector development policy (FASDEP II) to reduce poverty among the poorest subsistence farmers in the nation. These extension efforts have been unsuccessful. The purpose of this ethnographic case study was to understand the perceptions of subsistence farmers in the Savelugu-Nanton District (SND) who participated in FASDEP II on how the program had affected their ability to meet their subsistence needs. The theoretical framework of collaborative advantage was used to analyze farmers' opinions of how the decentralized, pluralistic extension policy did or did not result in effective collaborations to benefit both farmers and support organizations. Data from unstructured interviews with 12 male farmers, selected through purposeful sampling, were analyzed by inductive coding and thematic analysis. Farmers' perspectives were confirmed through observations at a public farmers' meeting and a review of operations documents of Busaka, a FASDEP II agribusiness partner. Key findings indicated that the current pluralistic extension lacked the characteristics of collaborative advantage and farmers continued to face challenges in access to farming inputs, credit, climate change effects, and cronyism. Farmers perceived the system was more beneficial to large-scale farmers. Positive social change implications of this study include identifying factors to improve effective pluralistic extension for subsistence farmers, the poorest persons in SND; improving the financial conditions of these subsistence farmers through more sustained and equitable partner collaboration; and contributing to the economic development of SND.

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Dedication

To my dearest mother, Stella Ayaovi Baah, for her unconditional love and amazing support. For being the constant and steady one in times when all odds were against me and being the branch to hold on to until calm times prevailed. God bless you abundantly!

To my dear father, Amos Kwesi Baah, who left us too soon, but still was able to instill in me a solid work ethic that I relied on multiple times to cross the finish line. Rest in peace.

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Chapter 1: Introduction to the Study

Introduction

Subsistence farmers who grow staple crops are central to solving the problem of extreme poverty in Ghana, and effective agricultural extension is critical to their success. *Agriculture extension* is a service or system that assists farmers, through educational procedures, in improving farming methods and techniques, increasing production efficiency and income, bettering the levels of living, and lifting the social and educational standards of rural life (Swanson & Claar, 1984). Agriculture and improvements in staple crop production were found to have the most significant positive effect on poverty reduction using an economy-wide multimarket model that simulated different poverty reduction trends from different sources of growth (Al-Hassan & Diao, 2007, p. 19). Blanket extension policies implemented in the early 1990s do not take into account regional disparities, such as climatic and geographic factors, in Ghana (Okorley, Gray, & Reid, 2009, p. 234). The present ethnographic case study focuses on the effectiveness of revised agricultural extension policies that sought to make extension services more accessible to subsistence farmers in Northern Region, Ghana.

Subsistence farmers who participated in this study grow food crops on less than 6 hectares (approximately 15 acres) of land. The land is usually owned by the family and accessible to all family members, handed down through the generations. Family members typically provide the labor. In Ghana, subsistence farmers usually live on the land, eating what they grow and selling the surplus in the local town market to buy other essential items such as soap, sugar, milk, and charcoal for cooking. In other cases, farmers and

their family live on the land and farm the land for sustenance. These farmers serve as caretakers of the land, protecting the land from encroachers. Subsistence farmers form the majority of the poorest people in Ghana (Al-Hassan & Poulton, 2009, p. 1).

Ghana has reduced the percentage of the population living below the national poverty line from 51.7% in 1991/92 to 31.0% in 2005/06, achieving further reductions to 24.2% in 2012/13 (Ghana Statistical Service [GSS], 2014, p. 10). These percentages of the population correspond, in absolute terms, to 7.4 million individuals in 1991 (GSS, 2013, p. 2), 6.8 million in 2005, and 6.4 million in 2012 (GSS, 2014, p. 9). In Northern Region, Ghana, 50.4% (approximately 1.3 million individuals) of the population lives below the national poverty line (GSS, 2014, p. 14). There are 10 regions in Ghana, and the trend of poverty reduction is not evenly distributed around these regions. Between 1992 and 2006, regions in the south of Ghana realized a decline in the number of poor people by 2.5 million while regions in the north saw an increase of 900,000 poor people (International Fund for Agricultural Development [IFAD], 2012). Between 1992 and 2006, poverty was reduced from approximately 66.4% of the population to 61.6% in the north of the country, and from approximately 45.8% to 16.4% in the south (Aryeetey & McKay, 2004, p. 17; IFAD, 2012). Disparities in poverty rates between the north and the south could be interpreted as social injustice and discrimination against the north. In the south, poor people are able to access resources and thus maintain livelihoods that raise them above the poverty line; there is more policy interest in allocating scarce resources to the south rather than to their counterparts in the north (Al-Hassan & Diao, 2007, p. 19). The capital city of Ghana—Accra—is located in the south.

The literature includes three definitions of poverty, depending on the context in which the measurement is made and what is being measured. The most common measures of poverty used in analyses are P_0 (poverty incidence), P_1 (poverty gap), and P_2 (poverty gap index). Additional information on these measures is provided later in this chapter. The measure of poverty used in the context of this study, P_0, indicates the ability of the individual and his or her household to meet its basic needs, as defined by socioeconomic factors. Without access to key resources such as money, food, and shelter, the individual or household cannot provide for its basic needs, based on the standard of living established in that community (Goulden & D'Arcy, 2014, p. 6). Households that cannot provide their basic needs are characterized by illiteracy, income levels below the established national threshold, the absence of food and shelter, the absence of potable water, and the absence of income-generating activities (Goulden & D'Arcy, 2014, p. 3; Issifu, 2010, p. 13). In essence, poverty incidence is a measure of the proportion of the population that is poor (GSS, 2014, p. 9; GSS, 2015, p. 6). Poverty rates of the 10 regions of Ghana are summarized in Table 1.

Table 1

Poverty Rates by Region in Ghana

Region	Poverty rate (%)
Southern	
Greater Accra	5.6
Ashanti	14.8
Central	18.8
Eastern	21.7
Western	20.9

(*table continues*)

Region	Poverty rate (%)
Transitional	
Brong Ahafo	27.9
Volta	33.8
Northern	50.4
Upper East	44.4
Upper West	70.7

Note. GSS (2014, p. 15).

More than half (50.4%) of the population of Northern Region is poor, and they represent 1.3 million (approximately 20.8%) of the poor in Ghana (GSS, 2014, p. 147). Collectively, the poor in Northern Region, Upper East Region, and Upper West Region constitute approximately 22% of the population of Ghana and 80% of the poor in all of Ghana (IFAD, 2012; GSS, 2007). In Northern Region, those who live in extreme poverty—surviving on less than $1.90 per day (Cruz, Foster, Quillin, & Schellekens, 2015, p. 1)—make up 27% of those living in extreme poverty in Ghana (GSS, 2014, p. 15). In Ghana, the extreme poverty level is the lower threshold of the poverty line (P_2) in analyses of the income distribution of a population (Al-Hassan & Poulton, 2009, p. 10). P_2, as a measure of the severity of poverty, is sensitive to the distribution of income among the poor (Francisco, Aragon-Chiang, & Norton, 2014, p. 261).

Results of the Ghana Living Standard Survey Round 5 revealed food crop farmers in Northern Region, Upper West Region, and Upper East Region constitute 43% of the population in the region, but represent 69% of the poor in the region, yielding a poverty rate of 46% among food crop farmers (Al-Hassan & Poulton, 2009, p. 1). In other words, poverty in Ghana is concentrated in Northern Region, Upper East Region, and Upper West Region (Al-Hassan & Poulton, 2009, p. 1). Concentrations of poor populations in

certain parts of a country is not a condition unique to Ghana. The poorest persons in the world are usually subsistence food crop farmers who live in rural areas and depend on some form of agriculture for their survival (Naamwintome & Millar, 2013, p. 4). According to Pye-Smith (2012), agricultural extension services do not serve subsistence farmers as well as they serve their cash crop counterparts. Armah et al. (2011, p. 293) indicated that some of the issues faced by farmers in the north of Ghana include difficulty in accessing credit, unreliable rainfall patterns, low soil fertility, and inadequate irrigation facilities. These factors create hardship situations for the farmers who depend directly on natural resources and agriculture for sustenance.

The definition of a subsistence farmer depends on the economy of the country, the region of the country, and the development of nonagricultural sectors in that region (Fan, Brzeska, Keyzer, & Halsema, 2013, p. 2). In land-abundant developing countries, the subsistence farm size has been estimated to be as large as 7 hectares (Fan et al., 2013, p. 2). The most common definition of a *subsistence farmer* in the context of a developing country includes having a maximum farm size of 6 hectares (14.8 acres), having farming as the main source of income, having a majority of farm labor from family members, and having the farm produce being for consumption and limited commercial purposes (J. R. Davis, 2006, p. 4; Fan et al., 2013, p. 2; Nagayets, 2005, p. 356; Narayanan & Gulati, 2002, p. 4).

The present study focused on the Savelugu-Nanton District (SND) area, located north of Tamale, in Northern Region, Ghana. SND has a land area of approximately 1,790 square kilometers and, in 2010, a population of 139,283 (Mustapha & Abubakari,

2014, p. x). The district is composed of 149 communities, with 143 described or categorized as rural areas (Ministry of Local Government and Rural Development, n.d.). According to the 2010 census, 60.3% of SND residents live in the rural communities, making SND predominantly rural (Mustapha & Abubakari, 2014, p. 15). There are more women than men in the district (48.5% or 57,531 versus 51.5% or 71,752, respectively; Mustapha & Abubakari, 2014p. 15). Despite this slight disparity, men are the predominant household heads (89.4%), with the remainder of households headed by women (Mustapha & Abubakari, 2014, p. 22). The average number of people in a household in SND is 9.4 persons (Mustapha & Abubakari, 2014, p. 23).

In SND, agriculture is the primary economic industry, engaging approximately 97% of the workforce in the district through subsistence farming of staple crops, such as maize, soybeans, rice, yam, and groundnuts. Approximately 70% of the beef and staple grains such as sorghum, millet, soybeans, and cowpeas raised in Ghana are produced in Northern Region, Upper West Region, and Upper East Region (Kolavalli et al., 2009, p. 7). Given these statistics, a key facilitator of poverty reduction is a thriving agricultural sector (Akudugu, Guo, & Dadzie, 2012, p. 1). Growth in the agricultural sector in Ghana is a more effective strategy for reducing poverty than growth in other sectors, such as imports and exports, because of the strong correlation between the income of the poor and the extent of their consumption of agricultural and nonagricultural consumer goods (Ministry of Food and Agriculture, Republic of Ghana [MOFA], 2007, p. 3). Farmers' increased incomes will translate into increased spending on agricultural and nonagricultural consumer goods. Farmers will be more likely to invest more funds into

the operation of their farms by purchasing farm inputs, such as hybrid seeds, fertilizers, and machinery, and to increase general household spending to improve their quality of life (Al-Hassan & Diao, 2007, p. 6).

Farmers in Northern Region, Upper East Region, and Upper West Region experience difficult environmental conditions. In all three regions, there is little tree cover; the *harmattan* seasons are harsh. The *harmattan* season, characterized by dry, dusty winds that blow from the Sahara toward the West African coast, usually begins in November and ends in March (Ministry of Local Government and Rural Development, n.d.). During this period, temperatures can reach as low as 3° Celsius, the humidity can drop as low as 15%, and the force of the winds associated with *harmattan* can damage crops and erode topsoil (Schwanghart & Schütt, 2008). Income and productivity levels in the agricultural sector in Northern Region are low because the majority of the sector depends on rain for crops, and rain can be unpredictable and sporadic. Less rain falls in the northern areas of Ghana than in the south, and the rain that does fall is torrential. These weather conditions contribute to the poor quality of the soil, making the region prone to topsoil erosion (Al-Hassan & Diao, 2007, p. 2). Because subsistence farmers are among the poorest people and depend primarily on agriculture for sustenance, conditions that degrade soil quality increase the difficulty of farming the land, making alleviation of their poverty difficult.

Poverty reduction in SND can be achieved by focusing on the subsistence agricultural sector because it is the primary economic sector in the district (Al-Hassan & Diao, 2007, p. 3). Increasing the productivity of subsistence farmers in the region will

increase the availability of food in the region and thus move the region closer to achieving food security for its residents. Beyond achieving food security, increased productivity will contribute to increased household and disposable income among the poor, which should stimulate economic growth and thus reduce poverty (Al-Hassan & Diao, 2007, p. 5). An effective and efficient agricultural extension services system is essential when relying on agricultural development to increase agricultural productivity (Jadallah, Bakar, & Jais, 2011, p. 895).

In Ghana, agricultural extension emerged in the 1970s as a vehicle to increase agricultural productivity by transferring agricultural knowledge and technology to the farmer. At that time, the Ghana MOFA employed agricultural extension agents (AEAs) to disseminate information to farmers using a top-down approach. Agricultural extension plays a critical role in the economic future of Ghana in that it is the chosen vehicle for developing and sharing farming innovations, such as the use of hybrid seeds and sustainable farming methods by linking farmers to the actors in the innovation process. Actors involved in the innovation process include researchers; private companies that provide specialized agricultural services and inputs, such as tractors and seeds; non-governmental organizations (NGOs), and marketplaces for credit and produce (Wellard, Rafanomezana, Nyirenda, Okotel, & Subbey, 2013, p. 22).

Background of the Study

Decentralization of Agricultural Extension Services

In 1997, the MOFA initiated nationwide decentralization of the agricultural extension system in response to reports that the "traditional" extension system introduced

in the 1960s was a top-down system that had several disadvantages. The traditional system was deemed ineffective in increasing agricultural productivity because poor farmers were unable to access the benefits of the system (Okorley et al., 2009, p. 234). Access to credit to implement the agricultural methods or to finance the inputs, such as certified hybrid seeds, was not available to the subsistence farmers, and the needs of farmers in the various agro-ecological regions of Ghana were not reflected in the top-down structure of MOFA agricultural services.

MOFA programs are designed at MOFA headquarters in Accra, the capital city of Ghana, located in the south. After being approved, the programs are handed down to the various regional agricultural directorates, where the district agricultural directorate units implement them. Farmers' needs vary significantly among districts. In one district, farmers might require assistance with irrigation methods and drought resistant seeds; in another district, farmers might require training in disease and pest prevention for specific food crops (Akudugu, Guo, & Dadzie, 2012, p. 3).

Decentralization of the agricultural extension by MOFA in 1997 spawned the 10 regional agricultural development units (RADUs), one for each of the 10 regions of Ghana and 110 district agricultural development units (DADUs). The RADUs are responsible for coordination, management, and implementation of the agricultural projects and programs in the regions; the DADUs are responsible for management of projects and programs and for implementing policies and decisions from the RADUs (Amezah & Hesse, 2004, p. 12). Before decentralization, MOFA followed a top-down approach whereby the national director of agricultural extension services, based in Accra,

coordinated all extension services. Regional and district agricultural extension services departments took their instructions from the director (Amezah & Hesse, 2004, p. 12). In the decentralized structure, the responsibility for providing agricultural extension services was transferred to private firms, farmers' associations, NGOs, and the local government, specifically the RADUs and DADUs (Swanson & Samy, 2003, p. 6).

In the decentralized system, the central government transferred the deliberative, legislative, and executive powers to the DADUs, thereby enabling them to implement projects and programs that addressed the needs of the farmers in their region within general government policy guidelines (Okorley et al., 2009, p. 240). Although power was transferred to the RADUs and DADUs as part of the decentralization process, financial and human resources were still governed by the central government through MOFA. Okorley et al. (2009) asserted that retaining control of the fiscal and human resources of the extension system hindered implementation of agricultural extension projects and programs planned by the DADUs. In some cases, annual funding requested by the region or district was reduced at the headquarters level, and DADUs reported delays in funds released to them (Okorley et al., 2009, p. 240). When funding was lost, districts were forced to abandon or change priorities. Because fiscal systems were not decentralized, the districts could not generate their own funds, transfer financial resources, or hire staff (Okorley et al., 2009, p. 240).

Food and Agriculture Sector Development Policy (FASDEP I and II)

Decentralization did not improve productivity of the agricultural sector to the extent necessary to facilitate poverty reduction; therefore, MOFA revisited the strategies

developed under the decentralization policy. In 2002, MOFA developed the first Food and Agriculture Sector Development Policy (FASDEP I). FASDEP I represented a framework of strategies to modernize the agricultural sector.

Farmers reported problems with FASDEP I, such as the need to fill out multiple forms with the same information, which made access to services tedious. There were reports of conflicting services and farmers having to provide the same information to multiple agencies because the agencies did not communicate with each other. The evolution of agriculture in Ghana and lessons learned over the 4 years of implementation of FASDEP I prompted a revision of the policy into FASDEP II (MOFA, 2007, p. vii). Focus on farmers who had few resources for farming was one of the primary drivers of FASDEP II. Strategies introduced in FASDEP I had resulted in subsistence farmers being isolated because they lacked the resources to participate in the programs implemented under FASDEP I (MOFA, 2007, p. 3). FASDEP II engaged the private sector and emphasized collaboration between MOFA, the private sector, and other partners, such as NGOs, in implementing the revised strategies.

Varieties of stakeholders were encouraged to provide their opinions to ensure the revisions reflected stakeholders' interests. The main goal of the revised policy—FASDEP II—was collaboration among all of the ministries, departments, and agencies (MDAs), NGOs, farmers, the private sector, and the civil societies to implement the proposed strategies. Collaboration among the stakeholders in the agricultural sector was expected to increase employment, improve agricultural productivity, reduce poverty, and enable the country to attain food security (MOFA, 2007, p. vii). An exhaustive review of the

literature, however, did not identify any collaboration in Ghana among any of the stakeholders in the agricultural sector.

FASDEP I. The policy was developed and rolled out in 2002 to strengthen the role of the private sector in decentralized agricultural support. The policy failed to facilitate poverty reduction, according to the results of a poverty and social impact analysis conducted in 2004 (Kolavalli, Flaherty, Al-Hassan, & Baah, 2010, p. 5). According to the poverty and social impact analysis, the strategies outlined in FASDEP I failed for the following reasons (MOFA, 2007, p. 1):

- The policy did not reflect the needs, perspectives, and priorities of the subsistence farmers;
- The policy did not make provisions for poor farmers to easily access agricultural inputs such as credit, infrastructure, and markets; and
- The policy did not have a process in place for MOFA to address issues that were not assigned focal points within the MDAs.

Deficiencies discovered during implementation of FASDEP I formed the basis for the revision of the policy that was eventually established as FASDEP II.

FASDEP II. FASDEP II is a revised version of FASDEP I. The revised policy was intended to help subsistence farmers achieve sustainable growth, reduce poverty, and empower poor farmers by way of a decentralized agricultural extension system. The policy aimed to strengthen the partnerships between all MDAs and the private sector, with MOFA as coordinator. Regional- and district-level members were also encouraged to take up more responsibilities in the FASDEP II framework. FASDEP II had five goals:

- a focus on addressing subsistence farmers' needs with appropriate policy and programs;
- MOFA implementing regional balance in agricultural development, with poorer regions getting more funds or resources to build up their comparative advantage with other regions;
- implementing the policy within a decentralized framework and working to strengthen the decentralized agricultural structures, such as the RADUs and DADUs that had previously been established;
- MOFA partnering with the private sector and civil society in implementing and thus fostering a collaborative environment;
- improving and increasing accessibility of services for poor farmers, with MOFA pursuing pluralistic extension in service delivery; and
- the government of Ghana, through MOFA, ensuring a facilitating environment for successful implementation of strategies to improve the agricultural sector by providing for infrastructure, such as roads and energy, and storage for agricultural produce and inputs, such as certified hybrid seeds (MOFA, 2007, p. 23; Kolavalli et al., 2009, p. 6).

Pluralistic extension in service delivery. According to a publication by The World Bank, *pluralistic extension*

> recognizes the inherent diversity of farmers and farming systems and the need to address challenges in rural development with different services and approaches. It is characterized by the coexistence of multiple public, private, and mixed

> extension systems and approaches; multiple providers and types of services; diverse funding streams; and multiple sources of information—all of which benefit from some degree of coordination and regulation that facilitates interaction and learning. (Heemskerk & Davis, 2012, p. 194)

The concept of pluralistic extension is based on the coordinating agency—in this case, the regional or district level of MOFA—establishing collaborative relationships with MDAs (government sector), the private sector, and NGOs to increase access of farmers to resources for extension delivery (Jadallah et al., 2011, p. 898; Okorley, Gray, & Reid, 2010, p. 1). The key feature of the pluralistic extension system is the presence of multiple service providers in the community who essentially filling in the gaps by addressing farmers' needs that cannot be met through the public extension organization represented by the regional or local level of MOFA (Okorley et al., 2010, p. 1). This approach "can be used to develop the best mix of services required and can ultimately lead to pluralistic extension. . . . Under pluralistic systems, different types of agricultural and agribusiness advisory services or different providers work together to provide extension services" (Heemskerk & Davis, 2012, p. 195). For example, the private sector and NGOs are usually considered to be better positioned to provide access to agricultural inputs, such as machinery, chemicals, seeds, livestock, and veterinary supplies, than are regional- or local-level MOFA personnel. The mix of private sector resources with MOFA support promotes the integration of other sectors, such as education, health, finance, forestry, and environment, into an agricultural extension system. The integration of other sectors as part of the pluralistic extension facilitates multisector linkages that

allow subsistence farmers to gain access to services such as research, farm inputs, training, and marketing that have been beyond their reach in past models of agricultural extension (Okorley et al., 2010, p. 2).

Various organizations such as the Adventist Development and Relief Agency and Engineers Without Borders are involved in agricultural activities and projects in SND (Ministry of Local Government and Rural Development, n.d.) to support agricultural extension services and implementation of agricultural productivity. Their activities are intended to advance pluralistic extension within the framework of a decentralized agricultural extension system, which requires the presence of these external organizations. Under pluralistic extension, these external organizations are expected to cater to farmers' specific needs. Pluralistic agricultural extension systems are characteristic features of successful extension services (Okorley et al., 2010, p. 1). Given that 97% of the population in SND is involved in agriculture, gaining insight into strategies that could improve their economic wellbeing is essential to achieve poverty reduction goals.

Studies conducted in some African countries revealed that coordination of services, public or private, and delivery of agricultural support services is a major challenge faced in agriculture extension involving subsistence farmers (Poulton, Dorward, & Kydd, 2010, p. 1413). For example, in Malawi, where pluralistic extension has been implemented, Chowa, Garforth, and Cardey (2013, p. 162) found that the farmers had to make do with whatever services the service providers chose to provide and that farmers' demands failed to drive the type of services provided. Chowa et al.

concluded that poor coordination among service providers and farmers resulted in the provision of services that did not address the needs of subsistence farmers. Although a formal pluralistic extension system was set up, weak monitoring mechanisms and lack of effective interaction among stakeholders in the system caused the system to fail (Chowa et al., 2013, p. 163). Little is known about the sentiments of subsistence farmers in the poorest regions of Ghana about FASDEP II and the extent to which pluralistic extension has improved their economic wellbeing.

Problem Statement

Ghana MOFA made efforts to reform agricultural policies through FASDEP I and FASDEP II and thereby improve agricultural productivity and advance economic wellbeing of subsistence farmers. The results of their efforts were not encouraging (Naamwintome & Millar, 2013, p. 4). Decentralization of agricultural extension and the subsequent implementation of agricultural policies that sought to improve the economic wellbeing of subsistence farmers have not shown satisfactory results. Access to extension and advisory services, markets, farm input—such as hybrid seeds or farm machinery, credit services, and public infrastructure—were primary limitations to successful implementation of the agricultural policies intended to improve agricultural productivity, thus hindering advancements in the economic wellbeing of subsistence farmers (Naamwintome & Millar, 2013, p. 4).

Implementation of FASDEP I and FASDEP II, as a whole, yielded economic growth for Ghana on the whole. The problem is that the trend is not uniform throughout the country. The economy in northern portions of Ghana—Northern Region, Upper East

Region, and Upper West Region, in particular—continues to lag behind other parts of the country. This economic inequity has raised concerns about inequality in administration of the services of FASDEP agricultural reforms, about the moral implications of these practices, and about challenges to reducing poverty in the country (Al-Hassan & Diao, 2007, p. 1; Issifu, 2010, p. 16). An exhaustive search of current literature revealed no recent research on the effects of FASDEP II on economic growth in the northern regions of Ghana. Given that 80% of the extremely poor in Ghana reside in Northern Region (International Fund for Agricultural Development [IFAD], n.d.), the particular barriers to successful implementation of FASDEP II need to be identified and eliminated.

Historically, agriculture policy reform has involved importing models or practices identified as "best practices." FASDEP I and FASDEP II were modified best practices. Importing best practices has not worked in Ghana and does not resolve the fundamental issue that the needs of farmers in Northern Region, Upper East Region, and Upper West Region are not being addressed (Birner et al., 2009, p. 1). FASDEP II is touted as having policies and strategies that put more focus on subsistence farmers by addressing their specific needs through pluralistic extension services (Birner et al., 2009, p. 1). The additional service providers engaged through FASDEP II were originally expected to eliminate the funding, staffing, and expertise shortfalls, thus providing the capacity to meet the needs of subsistence farmers in these regions (Birner et al., 2009, p. 2). Although MOFA made efforts to improve agricultural policy through FASDEP II, the economic wellbeing of subsistence farmers are not improving, as indicated by poverty statistics in SND.

Purpose of the Study

Current literature suggested that FASDEP II would enable subsistence farmers to improve their economic wellbeing. Despite an exhaustive search of the literature, I was unable to identify any study that sought farmers' perceptions about whether FASDEP II had met their needs. The purpose of this ethnographic case study was to determine subsistence farmers' perceptions of the effectiveness of FASDEP II in implementation or facilitation of pluralistic agricultural extension services in SND.

Qualitative case study design was identified as best suited for investigating the experiences and perceptions of this understudied population. Results could offer direct evidence for the MOFA of Ghana to revise the policies and strategies of FASDEP II. Information was sought and obtained on effectiveness of the current policies related to implementation and facilitation of the pluralistic agricultural extension concept in the decentralized extension system in Ghana. With this information, MOFA will be able to target the areas where FASDEP II policy has not created environments that support improved agricultural productivity and facilitated the success of the decentralization of the agricultural extension system in SND.

The present study focused on subsistence farmers' perceptions of pluralistic extension in meeting their needs. Specific projects or activities undertaken by these organizations were not evaluated or assessed. In that regard, the study did not address the activities of any organizations or contact any of the organizations to discuss their projects or activities.

Nature of the Study

I used a qualitative ethnographic case study design to collect data from 12 subsistence farmer through in-depth interviews. The farmers were selected based on the most common shared characteristics of the population in SND. Characteristics included farm size (6 hectares or less), type of crops cultivated (food crops only), the period of involvement in farming (active farmer since implementation of FASDEP I in 2002), and the farm set-up (primary source of income). Interview questions were designed to explore farmers' opinions about how the current strategies and policies of FASDEP II in addressed their problems. The emphasis of the questions was on what prevented the pluralistic system from being successful. Interview data and descriptive regional data were analyzed to identify collective themes and topics. Follow-up interviews were scheduled, as needed, to ensure the themes and topics that emerged were fully explored. A review of literature on the subject is presented in Chapter 2. Details of data collection and analysis are presented in chapters 3 and 4. Discussions, conclusions, and recommendations are offered in Chapter 5.

Research Question

This study sought to answer the following research question, How do subsistence farmers in the Savelugu-Nanton District perceive the effectiveness of the Ghana Ministry of Food and Agriculture FASDEP II strategies and policies in implementing pluralistic agricultural extension within the framework of decentralization?

Although competent service providers may be participating in a pluralistic extension system, they might not be effective if they lack effective coordination and

collaboration (Jadallah et al., 2011, p. 898; Okorley et al., 2010, p. 2). Poulton et al. (2010) argued that this hurdle developed because of disparities between service providers' organizational goals and because service providers regard each other as competitors rather than as collaborators in the pluralistic extension system (p. 1414).

FASDEP II was intended to promote multisector participation and a pluralistic system through which to provide agricultural extension services with the objective of combating poverty, especially among subsistence farmers. SND, the region of interest, is located in Northern Region, Ghana. Northern Region, Ghana, is one of the three regions in which 80% of the extremely poor in Ghana reside (Al-Hassan & Poulton, 2009, p. 1). Subsistence farmers' perceptions of accomplishments brought about by FASDEP II were solicited through direct feedback on effectiveness of the policy in implementing a pluralistic system within the framework of decentralization.

Theoretical Base

Decentralization of agricultural extension is intended to promote pluralistic extension when external service providers join the extension system to provide services to satisfy the needs of farmers in the region. Pluralistic extension works best when there is synergy among the service providers involved, including the public extension option being provided by the local government (in this case, MOFA and its regional and district affiliates). Poor coordination between service providers in an established pluralistic agricultural extension system is a primary contributor to failure, as has been the case in Malawi (Chowa et al., 2013, p. 163). Lack of collaboration among the service providers participating in the pluralistic extension system in Malawi, especially providers of

complementary services, weakens the potential of the pluralistic extension (Poulton et al., 2010, p. 1415).

The theory of collaborative advantage served as the interpretive theoretical framework for this study. Collaborative advantage, in summary, is the theory that organizations working effectively together are able to accomplish more than any one of the organizations is able to accomplish alone (Devine, Boyle, & Boyd, 2011, p. 26; Huxham, 2003, p. 403). In-depth interviews with farmers explored farmers' experiences with MDAs, NGOs, private sector organizations, civil societies, the decentralized operations and administration of the agricultural extension system, and the pluralistic extension practice within the decentralized agricultural extension system in SND. Collaborative advantage provided a framework within which data from the interviews were integrated and analyzed. According to the theory of collaborative advantage, pluralistic extension works best when there is synergy between the service providers involved, including the local government agency—in this case, MOFA—which provides the public extension.

A pluralistic extension system involves the presence of multiple service providers collaborating. In an ideal collaborative, the collective service providers make available all of the services needed by farmers within that district. Farmers' needs may include farm inputs, such as tractors and certified hybrid seeds, as well as access to best practices, such as information about ideal spacing between crops and cultivation techniques. Service providers in the pluralistic extension system may provide these services for pay or as part of a program that fits the mission statement of the organization, as is the case with NGOs

and civil societies. Several developing countries have implemented decentralization reform to facilitate the agricultural extension authority of local branches of the government to attract service providers (Swanson & Samy, 2003, p. 7).

A typical scenario from the traditional extension system that contributed to the implementation of FASDEP is that farmers were unable to access credit to gain access to and implement technology, such as improved seeds passed to them by the agriculture extension agents (AEAs). AEAs were not working with lenders to assist farmers in financing adoption of the technology. Without prior collaboration between the seed provider and the lender, farmers were unable to implement the technology obtained from the AEAs. Lenders may implement blanket policies of lending to only creditworthy farmers, in which case subsistence farmers are ineligible. Collaboration between the lender and the seed provider might encourage lender to implement a policy to lend to ineligible farmers only if they intend to implement the associated seed provider's technology. While this system presents its own set of challenges, with the appropriate monitoring, bias and the inherent challenges of coordination can be mitigated or eliminated, in keeping with the theory of collaborative advantage.

Interview data were collected, coded, and analyzed using the theory of collaborative advantage to determine if there is a lack of coordination between MOFA and the agencies offering services in the pluralistic extension setting of SND. Findings presented in Chapter 4 indicate there is a perceived lack of coordination and collaboration by subsistence farmers. Farmers also believe this lack of coordination influences their confidence in their interactions with MOFA, and that MOFA is unable to correctly

identify farmers' needs and facilitate the availability of service providers who will address these needs through the pluralistic extension service. The study also determined the extent to which the lack of coordination among the agencies is likely to create a tedious process for farmers to get effective and efficient service from the pluralistic extension system.

Definition of Terms

Agricultural extension agents (AEAs). AEAs are governmental officials employed chiefly to advise farmers on farming and marketing techniques (Etwire et al., 2013, p. 40).

Best practices. Best practices are methods or techniques that have consistently shown results superior to those achieved with other means, and that are used as a benchmark (Vanlauwe et al., 2014).

Collaborative advantage. Collaborative advantage is a circumstance in which strategic benefits are gained over competitors in the marketplace through supply chain partnering. The notion of collaborative advantage relates to the desired synergistic outcome of collaborative activity that could not have been achieved by any firm acting alone (Vangen, Hayes, & Cornforth, 2014, p. 1241).

Comparative advantage. Comparative advantage is a form of competitive advantage that stems not from natural or historical endowment, but from the various elements of the local economic system working together more effectively than their counterparts in competitor cities (Vangen et al., 2014).

District agricultural development units (DADUs). DADUs are governmental organizations operating in Ghana (there are 170 units within the 10 regions in Ghana) that manage and coordinate the District Department of Food and Agriculture within the district assembly and ensure the development and effective implementation of the district agricultural programs (MOFA, n.d.).

Extreme poverty. Extreme poverty is a standard of living that is insufficient to meet basic nutritional requirements, even if the entire budget is devoted to food (GSS, 2014, p. 12).

Fertilizer. In the context of the present study, fertilizer refers to a nitrogen-based chemical mixture used to improve soil fertility, differentiated from organic fertilizer (animal manure, or compost) by its manufacture and chemical modification (Peterman, Behrman, & Quisumbing, 2014, p. 4).

Fiscal decentralization. Fiscal decentralization is an economic policy that involves transferring budgetary authority from central government to selected subnational government entities, thereby granting these subnational government entities the power to make decisions regarding taxes and expenses (Bahl, 2008, p. 3).

Ministry of Food and Agriculture (MOFA). In Ghana, MOFA is the lead governmental agency responsible for developing and executing policies and strategies for the agriculture sector in the context of a coordinated national socioeconomic growth and development agenda (MOFA, n.d.).

O level. General Certificate of Education Ordinary Level (GCE O Level), developed in England and taught in secondary schools in Ghana, represents a standard of

academic achievement. It is a subject-based (science, arts, or business) track system (Wood & Brown, 1976, p. 297). The GCE O Level was phased out by the Ghana Education Service in 2007.

Pluralistic extension. Pluralistic extension is the provision of agricultural extension services for a community, conducted by more than one source of extension service provider (Agunga & Manda, 2014).

Poverty (P_0). Poverty (P_0)is a measure of the proportion of the population that is poor (GSS, 2014, p. 9; GSS, 2015, p. 6). The concept of hardship that reflects the economic position or wellbeing of a people and the measurement of economic poverty is meant to identify individuals or families whose command over resources falls below an established minimally acceptable level. Poor households are characterized by illiteracy, income levels below the established national threshold, absence of potable water, food, and shelter, and absence of income-generating activities (Goulden & D'Arcy, 2014, p. 3; Issifu, 2010, p. 13)

Poverty gap (P_1). Poverty gap (P_1) is a measure of how far the poor are from the poverty line (GSS, 2015, p. 6). P_1 is also a measure of the intensity of poverty in a country, factored as the ratio of individuals (the gap) who fall below the poverty line; for non-poor, the gap is counted as zero (GSS, 2014, p. 9).

Poverty gap index (P_2). Poverty gap index (P_2) is a calculation that indicates the severity of poverty; the result of the calculation is used analytically because poverty is sensitive to changes in the distribution among the poor (Francisco et al., 2014, p. 261).

Regional agricultural development units (RADUs). RADUs are governmental organizations operating in the individual regions of Ghana that exercise regional oversight over the district food and agricultural departments and ensure effective performance of district food and agricultural departments within the decentralization framework and policy of government (MOFA, n.d.).

Service provider. In the context of pluralistic extension systems, service providers are organizations, businesses, or individuals that offer services to support agricultural initiatives or services to others in exchange for payment (Peterman et al., 2014).

Subsistence farming. In contrast to commercial farming for profit, subsistence farming is self-sufficiency farming in which the farmers focus on growing enough food to feed themselves and their families. The typical subsistence farm has a range of crops and animals needed by the family to feed and clothe themselves during the year (Tibesigwa & Visser, 2015). For the purposes of this study, a subsistence farmer is one whose farm size is 6 hectares (14.8 acres) or less, uses farming as the main source of income, has family members who provide the majority of the farm labor, and uses the farm produce primarily for sustenance and limited commercial purposes when there is a harvest surplus.

Weedicide. Weedicide is the term for *herbicide* used by farmers and shop owners in Northern Region, Ghana (A. Ansah-Akrofi, personal communication, March 7, 2016).

Assumptions

In conducting this study, it was assumed participants were open and honest about their experiences with the pluralistic extension system in the decentralized agricultural

system. The pluralistic extension system in SND is assumed to function as one of the characteristics of a successful decentralized extension system.

Limitations

Practical constraints such as geographic locations, climate, time, and logistics of travel limited this study to the farmers' perceptions of the decentralized extension system in SND, Northern Region, Ghana. An examination of the perceptions of all farmers in all of Northern Region, in the 10 regions of Ghana, or in the Sub-Sahara region of West Africa was beyond the scope of the present study. Economic conditions, developmental goals, rainfall, and work environment in SND may differ from those in other adjacent districts, which may limit the influence of agricultural extension service performance and therefore limit the generalizability of findings from the present study to other districts without adequate examination of shared characteristics.

The study used a sample size of 12 subsistence farmers as participants, which is considered small relative to the number of farmers in SND. Although small in size, using a small sample allowed ample time for in-depth interviews of participants. By conducting in-depth interviews, I obtained rich data that enabled an exhaustive analysis of the farmers' perceptions of pluralistic extension in SND. Dagbani is the local language spoken in the region; English, the official language of Ghana, is taught in primary school, but is spoken proficiently by about 52% of the population in the north of Ghana (Ministry of Local Government and Rural Development, n.d.). I do not speak the local language of the region, which could have been a limitation, if the 12 farmers who participated in the

study had not spoken English. Translation services were not needed for the data collection phase of the study.

Scope and Delimitations

The scope of this study was subsistence farmers in SND who had access to and had taken advantage of pluralistic extension services within the framework of a decentralized agricultural extension system since inception of FASDEP I policies in 2002. Service providers were not interviewed or observed as part of this study because the study focused on farmers' perceptions of the implementation of the pluralistic extension service.

Significance of the Study

The economy of SND relies on its agricultural sector. This research could provide a better understanding of how the nationwide policies in agricultural extension affect their agricultural workforce. With this information, district officials could implement local policies and supplement existing FASDEP II policies and strategies to address the barriers so that a fully functioning pluralistic extension system could be realized. Localized amendments or supplements provided by the district in the area of agricultural extension could influence the district's success in increasing agricultural productivity, reducing poverty in the region, and improving the rural population's general wellbeing (Darr, Hoffmann, & Helmle, 2014, p. 206).

FASDEP II was implemented in 2006, but there are no studies in the literature regarding farmers' perceptions of the revised strategies and policies and how these strategies and policies affected functioning of the pluralistic extension system. The

pluralistic extension system is believed to be a key component of a decentralized agricultural system that will improve agricultural productivity, facilitate subsistence farmers' access to farm inputs and services that directly address farmers' needs, improve the economic wellbeing of subsistence farmers in rural areas, and ultimately contribute to poverty reduction (Pamuk, Bulte, & Adekunle, 2013, p. 228). Many countries, including Ghana, have incorporated pluralistic extension services into agricultural reforms, but little information is available on how farmers perceive pluralistic extension systems (K. E. Davis, 2008, p. 21).

The present study is significant because it highlighted SND subsistence farmers' perceptions of the pluralistic extension system and addressed efficiency of the system relative to improving the economic wellbeing of subsistence farmers in SND. The theoretical framework of collaborative advantage between the external extension service providers and the public extension system in place provided by MOFA served as the framework. District government administrators will be able to use the findings of this study to help improve subsistence farmers' economic wellbeing by seeking collaborative remedies for conditions that prevent SND farmers from rising out of poverty. Improving the financial conditions of poor farmers and facilitating economic development of SND, which is in one of the poorest regions in Ghana, will initiate positive social change by improving the lives of subsistence farmers.

Summary and Transition

The agricultural sector of SND, located in Northern Region, Ghana, employs approximately 97% of the workforce in the region. Subsistence farming of staple crops,

such as maize, beans, rice, and other grains, is the primary form of agriculture in the sector. The three northern regions of Ghana—Northern Region, Upper East Region, and Upper West Region—produce approximately 70% of the staple grains consumed in the country. These same regions are home to 22% of the population of Ghana, yet represent 80% of the extremely poor in the country. For significant progress in poverty reduction in Ghana, the country must focus on improving the agricultural economy of the northern regions. Improving the economic wellbeing of the subsistence farmers in SND would stimulate the economy of SND because farmers, who make up 97% of the workforce in the region, will actively fuel the economy by spending their incomes on nonagricultural and agricultural inputs for operation of their farms.

Seeking to improve the economic wellbeing of subsistence farmers, MOFA implemented reform policies in the 1970s that included the introduction of an agricultural extension service system. These early policies were structured as top-down approaches and failed to achieve the expected goals. In 1997, the agricultural extension system was decentralized, allowing individual districts to implement projects that directly addressed the needs of local farmers. Decentralization spawned FASDEP I in 2002 and a revision, FASDEP II, in 2006. Pluralistic extension, a benefit of a decentralized extension system, encourages multiple service providers to offer services the farmers in the district need and want. Implementation of strategies to promote pluralistic extension is one of the tactics of FASDEP II. This study explored the perceptions of 12 subsistence farmers in SND on the effectiveness of FASDEP II in implementing pluralistic extension under the decentralization framework.

Having multiple service providers in the pluralistic system does not guarantee system success. The theory of collaborative advantage suggests synergy among the service providers is important for satisfying farmers' needs, the hallmark of success of a pluralistic, decentralized extension system. Regional poverty statistics in SND suggest the extension system is not working effectively to meet farmers' needs. Perceptions of subsistence farmers in SND have not previously been probed or analyzed. The dynamics of collaboration among all stakeholders (MDAs, NGOs, MOFA, subsistence farmers, private sector organizations, and civil societies) was gleaned from interviews with farmers to determine the extent to which collaboration or its absence is influencing the effectiveness of the pluralistic system within the framework of decentralization in achieving poverty reduction goals in SND.

Chapter 2 covers the following topics:

- current literature on the factors that have facilitated or encumbered the pluralistic extension system in other countries and districts;
- the theoretical framework of collaborative advantage;
- the characteristics of a successful collaboration among different actors and stakeholders that confirm the collaborative advantage theory of achievement by the different actors in resolving a social problem;
- literature on pluralistic extension systems to determine the ideal conditions for the system to flourish successfully; and
- research on the performance or effectiveness of service providers within the pluralistic extension in a decentralized extension framework.

Chapter 3 discusses the qualitative ethnographic case study methodology, sample size, and appropriateness of the methodology for the research question.

Chapter 4 covers the following topics:

- the process of recruitment of the participants and demographics;
- setting of the study;
- methods of data collection and analysis; and
- findings of the study.

Chapter 5 provides interpretations of the study, recommendations, and implications of social change in the study.

Chapter 2: Literature Review

Introduction

In Ghana, the MOFA decentralized the agricultural extension system to improve the economic wellbeing of subsistence farmers. The goal of agricultural extension initiatives was to increase agricultural productivity by transferring knowledge and technology to Ghanaian subsistence farmers (Akudugu et al., 2012, p. 3; Amezah & Hesse, 2004, p. 12). Data from IFAD (2012) suggest the reforms are not uniformly successful throughout Ghana; while numbers of poor farmers decreased in the south, the numbers increased in the north (GSS, 2007). No positive results from the countrywide reforms have been reported in the three northern regions (Naamwintome & Millar, 2013, p. 4). It is possible that subsistence farmers in these areas still encounter barriers to overcome poor agricultural productivity.

Agricultural extension system decentralization introduced a pluralistic extension service to address local farmers' specific needs. A pluralistic extension system involves a group of organizations and/or stakeholders working together to address the specific needs of subsistence farmers. Pluralistic extension within a decentralized governmental system framework and collaborative advantage are the two main platforms of this review because both platforms can contribute to poverty reduction by improving agricultural productivity. Collaborative advantage facilitates goal achievement of organizations or stakeholders (Huxham & Macdonald, 1992, p. 51).

Explanations for the failure of agricultural markets in sub-Saharan African countries are not based on empirical data (Dillon & Barrett, 2014, p. 3). Policies that are

effective elsewhere may still fail in this part of the world; policies need to reflect the constraints and conditions of that particular region. To date, the pluralistic extension system established under FASDEP II has not been explored under the umbrella of a collaborative advantage, even though the goal of a pluralistic extension system is similar to that of a system exhibiting collaborative advantage. This study involved interviewing subsistence farmers in SND to capture their perceptions of the pluralistic extension service using the lens of collaborative advantage.

Literature Search Strategy

A review of literature on pluralistic extension revealed how the system is expected to work, factors necessary for success, and barriers encountered during execution. I conducted a search for relevant literature using the following databases: Academic Search Complete, Science Direct, and Google Scholar. The process began by using Google Scholar to generate a list of potential peer-reviewed articles and publications for further examination. Early searches involved the terms *pluralistic extension service* and *decentralized agricultural extension*. The results of these searches were filtered to display peer-reviewed articles published after 2009 to ensure that the literature reflected recent developments in the agricultural sector. Application of additional search phrases of *Ghana pluralistic extension service* and *decentralization in Ghana* narrowed the focus of the search. Publications related to agriculture in Africa, including those of the IFPRI, were also reviewed for additional background. Bibliographies of relevant articles found through the search for literature yielded additional articles.

The search of literature was further narrowed by applying additional search phrases, such as *agricultural extension in poor Africa*, *pluralistic extension in poor Africa*, and *perception of agricultural extension*. Articles found using these three key phrases were filtered to include only those published after 2013 because the agricultural sector in Africa in general, and Ghana in particular, is dynamic. Keywords and key phrases that were used to further narrow the focus of the literature search were *agricultural extension*, *agricultural growth*, *agriculture*, *decentralization*, *decentralized governance*, *extension reform*, *Ghana*, *non-governmental organizations*, *pluralistic extension*, *poverty reduction*, *small-scale farmers*, *small scale farmers*, and *regional inequality*. A search using the term *perception of agricultural extension by subsistence farmers* yielded no results.

Searches for *collaboration theory*, *collaboration among organizations*, *organizational collaboration*, and *collaborative theory* led to the discovery of collaborative advantage theory, which was deemed an appropriate theory for the study. No literature was found on farmers' perceptions of the extent of collaboration among service providers and between farmers and service providers, or on agricultural extension services research (or similar works) that used collaborative advantage theory. An additional search conducted following data collection yielded no newly published relevant literature. In general, little relevant information has been published within the last year; any relevant information obtained from the recent literature was included in the review.

Pluralistic Extension

As agricultural extension emerged as a valuable contributor to agricultural development in Ghana, it became clearer that public extension alone was inadequate to improve subsistence farmers' economic wellbeing. The various agro-ecological regions of Ghana and the needs of subsistence farmers in each region are different. What is needed in Ghana is a system that fosters a policy environment that facilitates effective collaboration among private, community, and public extension (Birner et al., 2009, p. 2; Kaur, Shehrawat, & Peer, 2014, p. 81), as demonstrated in the case of Timor Leste (Kelly, 2013, p. 170). The pluralistic extension system is driven by the privatization of the agricultural extension system. For the pluralistic extension system to take root, the private sector must see a financial opportunity in providing services needed by farmers in a particular region or district (Kaur et al., 2014, p. 81). In the pluralistic extension service, service providers are able to address farmers' specific needs by tailoring their offerings to market demands more easily than is possible in the public extension system (Okorley et al., 2010, p. 2).

In countries that depend on agriculture, the trend of declining government expenditures for public agricultural extension services has contributed to privatization of the extension system (Kaur et al., 2014, p. 81; Kelly, 2013, p. 168). As Ghana moved toward decentralization of MOFA, a system in which RADU selected projects was supposed to be implemented, but sharp reductions in government funding forced the RADUs to scale back their support. Funds reduction catalyzed the RADUs to implement mainly high-priority projects and programs. These higher priority projects and programs

reflected the top-down approach of the traditional extension system (Amezah & Hesse, 2004, p. 12). In more recent studies, decentralization of the agricultural extension system was found to facilitate development of a pluralistic extension (Okorley et al., 2010, p. 1).

Okorley et al. (2010, p. 2) asserted development of pluralistic extension as the best path forward for extension systems in developing countries. A review of case studies conducted in 21 countries in sub-Saharan Africa revealed that effective collaboration was enabled through a facilitation process in the successful agricultural extension systems. Collaboration between actors and stakeholders included building partnerships based on common interests and identification of opportunities for improvement. A network consisting of groups from the public, private, and NGO sectors is key to promoting agricultural innovation, thus leading to increased agricultural productivity. The primary factor for this network to work effectively is members' capability and willingness to collaborate in an environment that facilitates cooperation, builds trust, and establishes a common vision or goal for the future (Adekunle et al., 2012, p. 5). This network of research, training, and development stakeholders from the public, private and NGO sectors is akin to a pluralistic network with the actors and stakeholders from the public, private, and NGO sectors as the service providers.

Pluralistic networks provide farmers with multiple sources of information and sustainable resources for extension. The challenge to effective operation in the pluralistic network is arranging collaboration and coordination of the various service providers and the stakeholders in the network. Without engagement and collaboration, effective and supportive partnerships cannot be achieved (Adekunle et al., 2012, p. 6). Changes to

collaboration and coordination occur most frequently in the areas of preventing duplication of services, avoidance of wasted resources, and unifying the services available to the farmers (Hanyani-Mlambo, 2002; Rivera & Alex, 2004). Little research has been conducted on how pluralistic extension systems can be organized to promote collaboration and coordination. An extensive search of literature revealed no empirical evidence of the problem, although countries such as Malawi, Uganda, Kenya, Mozambique (K. E. Davis, 2008, p. 20), Burkina Faso, Mali, and Senegal (Umali-Deininger, 1997, p. 215) may have already begun to address their challenges through constant revisions of their systems. Revisions to FASDEP II were expected to unify services and improve collaboration among service providers, specifically between all of the ministries, departments, and agencies (MDAs), NGOs, farmers, the private sector, and the civil societies (MOFA, 2007, p. vii).

Asia occupies approximately 17% of the surface of the Earth and is home to approximately two thirds of the world's population. Approximately 60% of the population of Asia is engaged in agricultural (Baig & Aldosari, 2013, p. 619). Approximately 80% to 90% of the poor in Asia live in rural areas, thereby making rural poverty a phenomenon in Asia. Poor rural farmers in Asia have limited access to credit, equipment, and technology. Other constraints that limit their ability to compete in equal terms in the marketplace include lack of market information, business experience, and the absence of collective organizations (IFAD, n.d.). The traditional top-down agricultural extension in Asia has not made significant impact to improve agricultural production due to a host of problems similar to those encountered in Ghana during implementation of the

traditional agricultural extension system. Common problems include a weak organizational structure, low participation of farmers in the extension system, and wide communication gaps between stakeholders (Baig & Aldosari, 2013, p. 619). After reviewing their existing agricultural extension systems, most of the countries in eastern and southeastern Asia crafted a system that involved NGOs, the private sector, and the government. Ultimately, most countries in eastern and southeastern Asia opted for a pluralistic extension model (Baig & Aldosari, 2013, p. 620) and made impressive progress in reducing rural poverty since the 1980s (IFAD, n.d.).

Collaborative Advantage Theory

The collaborative advantage theory was developed by Vangen and Huxham (2013), based on data collected from multiple collaborative systems of various types. Collaborative advantage theory is "a practice-based theory about the management of collaborations, which focuses on the potential for collaborative advantage rising out of inter-organizational partnerships" (Vangen & Huxham, 2013, p. 51). Vangen and Huxham collected data to support the theory from research begun in 1989. Individuals from whom data were collected either were related to or involved in partnerships and collaborations between organizations. Collaborations in the research ranged from those involving two parties to international networks. Collaborations also involved several different industries between and within the public, private, and nonprofit sectors. The combined effect of the efforts of the participating organizations working together and the presence of encumbrances that slow down the production of outputs are the two organizing principles of collaborative theory (Vangen & Huxham, 2010, p. 163).

Collaborative advantage theory is both descriptive and prescriptive. It can be categorized as a descriptive because it describes the complex elements of a collaborative situation, including the challenges introduced or faced by an organization engaged the collaboration. The theory may also be categorized as prescriptive because it covers the list of issues that must be managed or resolved to allow for success of the collaborative (Huxham & Macdonald, 1992, p. 51; Vangen & Huxham, 2010, p. 164). As such, collaborative theory elaborates on the nature of collaborative situations and the potential positive and negative effects of managing these situations to arrive at the goals established by the collaboration (Vangen & Huxham, 2013, p. 52).

A search of literature on collaborative theory yielded no agricultural extension studies in which collaborative theory served as a theoretical framework. The theory is frequently used in studies pertaining to management activities and the organizational environment aimed at gaining strategic benefit (Doberstein, 2016, p. 820; Huxham & Macdonald, 1992, p. 50). Although collaborative advantage theory is most often applied in evaluating public voluntary relationships, it can be extrapolated to evaluate any market sector, such as sports tourism (Devine et al., 2011 p. 26). Devine et al. (2011) applied the theory to compare factors that affected inter-organizational relationships in the sports tourism policy arena in Northern Ireland and Republic of Ireland. The theory is adaptable to most areas of study because researchers are able to contribute new themes that are specific and relevant to the area of study (Devine et al., 2011, p. 26).

Collaborative advantage theory has also been used to develop a framework that can assist nonprofit organizations (NPOs) to develop strategic collaborations with

businesses to maintain their economic viability and sustainability (Al-Tabbaa, Leach, & March, 2014, p. 657). Much like DADUs that must operate in a constrained environment with uncertain and shrinking government funding, NPOs can use collaborative advantage theory to outline factors that influence strategy development (Al-Tabbaa et al., 2014, p. 659; Okorley et al., 2009, p. 240). Al-Tabbaa et al. (2014) demonstrated that the framework developed for NPOs based on collaborative advantage theory provided another tool to reduce uncertainty in evaluating their collaborations with businesses. The tool represented how the alliance or collaboration could enhance or reduce the impact of its pooled resources and capabilities to meet strategic goals (Austin & Seitanidi, 2012, p. 943).

Collaborative advantage theory was appropriate for the present study because of its descriptive and prescriptive nature and its aim to gain strategic benefit. Flexibility of the theory to adapt to unique situations and specific contexts makes it suitable for this study. Previous studies have been prescriptive, evaluating and outlining what needs to be done to improve the agricultural extension system and pluralistic extension. These previous studies were constructed outside the contexts of the subsistence farmer, who is the ultimate beneficiary of the study (Juma, 2011). For a study to be effective in determining the factors needed for a pluralistic extension to be successful, a construct that examines the system from the perspective of the farmer is essential (Assefa, Waters-Bayer, Fincham, & Mudahara, 2009, p. 38).

Pluralistic extension in agricultural extension systems is successful when there is effective collaboration among the private, public, NGOs, and civic (farmers) sectors.

Multiple studies conducted in Malawi (Chinsinga, 2008; Knorr, Gerster-Bentaya, & Hoffmann, 2007; Masangano & Mthinda, 2012) confirm the implementation of pluralistic extension in Malawi, but the presence of multiple service providers has resulted in competition among themselves. Chowa, Garforth, and Cardey (2013, p. 163) concludes that although subsistence farmers in Malawi have access to extension via various sources, they still face challenges because the services provided are based on strategic benefits to the service providers rather than the needs of the farmers. In Malawi, the pluralistic extension environment is characterized by competition among service providers rather than collaboration to achieve the goal of addressing Malawian subsistence farmers' needs.

In a study conducted in Zimbabwe, Hanyani-Mlambo (2002) examined the status of the extension system and found a lack of pluralism and coordination among the extension service providers. The lack of coordination and inefficient collaboration led to duplication and waste of scarce resources, resulting in lower productivity and confusion among the farmers (Hanyani-Mlambo, 2002). Despite an exhaustive search of databases and government agency publications, I found no studies that viewed implementation of pluralistic extension through the lens of collaborative advantage theory and in the context of the perspective of the farmers. Juma (2011) noted previous studies have been prescriptive, but did not address how an effective collaborative situation is achieved. Instead, an effective collaborative situation is assumed to be present. As long as all factors contributing to a successful system are in play, then the system will be successful.

Collaborative Activities in Ghana

Since the 1980s, collaborative activities have become popular and influenced institutional forms of governance in all sectors (Selsky & Parker, 2005, p. 849). Ansell and Gash (2008) defined collaborative activities in governance as

> a governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets (Ansell & Gash, 2008, p. 544).

In this definition, "one or more public agencies" refers to MOFA and other governmental agencies, such as the Ministry of Local Government and Rural Development, that liaise with the RADUs and/or DADUs and may have some aspects of their operations that overlap. The farmers, service providers, actors in the private sector, and the civil society fit into the category of the non-state actors. So far, there have been no discussions or studies on how the strategies of FASDEP II will manage the overlap of operations by service providers. The overlap in services may foster competition among service providers and possibly be counterproductive to the proposed benefits of having those service providers participate in the pluralistic extension system.

Collaboration among businesses, governmental agencies, and civil society is ubiquitous in the literature. Collaborative activities address social issues and causes of common interest among these three sectors of society (Austin, 2000; Gray, 1989; Sternberg, 1993; Stone, 2000; Young, 1999). Deakin (2002, p. 134) explored efforts to promote partnership among various public agencies, people, and civil organizations,

including NGOs, in the United Kingdom and concluded that there was a lack of connectedness among parties of the partnership. Issues contributing to the lack of connectedness included the absence of a clear philosophy upon which all the parties of the partnership operated (Deakin, 2002, p. 143). Deakin found that efforts to improve partnerships to resolve issues of injustice and social exclusion have evolved from simply addressing questions concerning efficient delivery of services and distribution of services. The devolution of power to the regional level and, eventually, the community level was an additional long-term objective (Deakin, 2002, p. 144). Most studies found in the literature focused on the theoretical aspect of how collaborative advantage works or is expected to work, but little research has been conducted to examine the nature of the impact of collaborative advantage on policy development (Selsky & Parker, 2005, p. 858).

The agricultural extension system in Ghana has evolved into a decentralized system, with power transferred from MOFA headquarters to a series of RADUs and DADUs. Decentralization of the agricultural extension system was expected to facilitate the pluralistic extension system (Amezah & Hesse, 2004, p. 12), but few studies have been reported in the literature to support or refute the presence of pluralistic extension and its contribution to poverty reduction. Increasing agricultural productivity will expand subsistence farmers' disposable income, thus enabling them to afford basic necessities and improve their standard of living above the poverty threshold (Jadallah et al., 2011, p. 895). Most of the research conducted to date has focused on the policy level of collaborative advantage rather than at practical level of facilitating pluralistic extension

by decentralization of agricultural extension (Huxham, 2003, p. 419). Those few studies that addressed the practical aspect of collaborative advantage focused on skills needed to manage the collaboration networks rather than on competition among actors or the effect of actors' relationships on beneficiary stakeholders—subsistence farmers (Huxham, 2003, p. 419). None of the studies found in the literature evaluated the performance or impact of these policies after implementation (Dillon & Barrett, 2014, p. 2), as is the case with the implementation of FASDEP II in Ghana.

Summary and Transition

The three northern regions of Ghana are home to some of the poorest of subsistence farmers in Ghana. Collaborative advantage is a theory that organizations working effectively together are able to accomplish more than any one of the organizations is able to accomplish alone (Devine et al., 2011; Huxham, 2003). Pluralistic extension "recognizes the inherent diversity of farmers and farming systems and the need to address challenges in rural development with different services and approaches" (Heemskerk & Davis, 2012, p. 194). Under FASDEP II, policies to promote collaborative advantage and pluralistic extension were implemented in Ghana with the objective of elevating subsistence farmers from extreme poverty.

Data from IFAD (2012) on decentralization of the agricultural extension system in Ghana, put in place by FASDEP II, suggest the reforms are not successful throughout Ghana. An initial search for relevant literature published since 2009 (to reflect recent developments) yielded insights into various aspects of collaboration to support agriculture in Ghana and other sub-Saharan countries (Birner et al., 2009, Kaur et al.,

2014; Kelly, 2013; Okorley et al., 2010). No positive results from the countrywide reforms have been reported in the three northern regions (Naamwintome & Millar, 2013, p. 4), but little is known about how subsistence farmers in these regions perceive effectiveness of the policies and initiatives associated with FASDEP II relative to elevating subsistence farmers from extreme poverty. The present study addressed a gap in the knowledge base by exploring the effectiveness of a pluralistic extension operating under the theory of collaborative advantage through perceptions of the beneficiaries, the subsistence farmers in SND.

The research question in the study was, How do subsistence farmers in the Savelugu-Nanton District perceive the effectiveness of the Ghana Ministry of Food and Agriculture FASDEP II strategies and policies in implementing pluralistic agricultural extension within the framework of decentralization? According to Yin (2013), case study design is most suitable to explore *how* and *why* questions. The study explored the perspectives of subsistence farmers regarding FASDEP II and, in the process of answering the question of how, also answered the question of why.

Chapter 3 covers the following topics:

- the research method used to conduct the present study;
- the role of the researcher as the primary data collection instrument;
- rationale for selection and relevance of the ethnographic case study method to the purpose of the study;
- methods of participant selection and participant selection criteria;

- rationale for data collection by the interview method, as well as the interview questions posed;
- data validity;
- compliance with ethical procedures;
- measures to ensure the privacy and confidentiality of participants; and
- mechanisms to ensure the security of the raw data are discussed.

Chapter 3: Research Method

Introduction

The focus of this study is reflected in the research question: How do subsistence farmers in the Savelugu-Nanton District perceive the effectiveness of Ghana Ministry of Food and Agriculture FASDEP II strategies and policies in implementing pluralistic agricultural extension within the framework of decentralization? The answers to this question represent firsthand feedback to MOFA on subsistence farmers' perceptions of the effectiveness of FASDEP II to improve agricultural productivity and thereby reduce poverty levels of subsistence farmers by implementing pluralistic agricultural extension under the decentralized extension system.

Included in this chapter are justification for selection of the qualitative method of research, as well as application of the ethnographical case study research design as the most suitable way to answer the research question. A study that explores the effectiveness of strategies and policies of FASDEP II from the perspective of the intended beneficiaries—the subsistence farmers in a region where the policies and strategies of FASDEP I did not work—represents a unique opportunity to provide insight into the performance and shortcomings of FASDEP II.

Subsistence farmers in SND who participated in this study experienced the phenomenon of farming under FASDEP I and FASDEP II. Therefore, they shared this policy implementation experience. These farmers also shared the experience of operating in a harsh agro-ecological environment (as is the case with most subsistence farmers in Africa), are poor, and operated a farm on a small scale. A qualitative ethnographical case

study offers the opportunity to examine the perceptions and experiences of these farmers with regard to pluralistic extension under the strategies and policies of FASDEP II. Interviews with farmers revealed the extent to which FASDEP II policies support collaborative advantage strategies among the multiple service providers involved in the pluralistic extension as a result of decentralization of the agricultural extension system (Willis, 2007, pp. 107–108).

Research Design

Qualitative research methods have been the primary method for the research and studies on pluralistic extension and collaborative advantage (Creswell, 2006; Okorley, 2010). Popular methods of qualitative research used to study this topic include case studies and qualitative analysis of surveys and existing data (Creswell, 2006; Okorley, 2009). The central question posed in this study is, How do subsistence farmers in the Savelugu-Nanton District perceive the effectiveness of Ghana Ministry of Food and Agriculture FASDEP II strategies and policies in implementing pluralistic agricultural extension within the framework of decentralization?

Subsistence farmers' experiences with pluralistic extension following the implementation of FASDEP II was the central phenomenon of this study. As Naamwintome & Millar (2013, p. 4) pointed out, FASDEP reforms have not yielded positive results in Northern Region, Ghana. As such, there may be other factors associated with subsistence farmers' challenges that were not considered during development of FASDEP I or FASDEP II. There has been no evaluation of the performance of FASDEP II in facilitating and promoting pluralistic extension since it was

implemented in 2007. Therefore, it needs to be studied. Because the answer to the research question is best answered by posing *how* and *why* questions, the ethnographic case study design was applied to explore the perceptions of SND subsistence farmers relative to the policies and strategies of FASDEP II. The ethnographic case study design was an appropriate choice because the focus of the study was limited by socioeconomic and geographic location factors and not necessarily focused towards all farmers in Ghana.

Role of the Researcher

Trustworthiness of collected data is an essential aspect of a qualitative study. Often in qualitative studies, data triangulation is performed, as is peer review and evaluation. The researcher is considered as the greatest concern for trustworthiness, especially when the researcher is the primary data collection instrument (Poggenpoel & Myburgh, 2003, p. 320). Open-ended questions are a feature of a successful qualitative interview, and I was attentive to develop appropriate open-ended interview questions that and avoided asking closed-ended questions during the interviewing process (Sofaer, 2002, p. 334). Although interviewing is a popular method in qualitative study, it is also presents challenges in rigor and bias (Chenail, 2011, p. 256).

As a Ghanaian who grew up in rural areas in Ghana, I have prior knowledge of the customs of the people and can recognize situations and behaviors that may be considered offensive and disrespectful by the farmers or cause them to exaggerate their true opinions. I lived as an agricultural studies secondary school student in villages with subsistence farmers, and my experience of having interacted these farmers in my youth enabled me to ask questions respectfully, as well as pose follow up questions to further

explore themes that revealed themselves in the interviews, adding to the richness of the data collected. As a General Certificate of Education Ordinary Level (GCE O-Level) science student in Nkwatia, a farming community in Eastern Region in the south of Ghana, agricultural studies was one of my core subjects. I had the opportunity during practical work to interact extensively with the local subsistence farmers. My early experiences enabled me to cultivate a camaraderie with the subsistence farmers; as such, my research on poverty reduction through agricultural development was a personal affair.

In a qualitative study, the researcher is considered as the primary instrument (Maxwell, 2012, p. 79). Poggenpoel and Myburgh (2003, p. 420) identified the following factors and situations that can contribute to bias due to the role the researcher plays in the instrumentation:

- the researcher is inadequately prepared for field study;
- the researcher's mental state, background, and prior experiences might cause discomfort to the researcher during collection and analysis of the data, posing a threat to the true representation of the data; and
- the researcher unknowingly conducts inappropriate interviews that include asking leading questions and introducing the researcher's bias into the open-ended discussion, thereby stemming the flow of the true life experience of the participant.

Mehra (2002, p. 6) added to Poggenpoel and Myburgh's (2003) concerns, noting the researcher's familiarity with the population and the phenomenon being studied may affect the depth of the analysis and the researcher's curiosities about the phenomenon. I

believe my training in public policy and administration, careful self-criticism, and my familiarity with the region, the people, and the Ghanaian culture minimized my bias as well as eliminated any inappropriate behaviors. I designed the data collection tools, including the open-ended questions, and potential follow-up questions for the interviews, selected participants based on criteria developed purposefully for this study; conducted the interviews; and transcribed the data from the interview recordings. English is the official language of Ghana; as such, the interviews were conducted in English. The recordings of each interview were transcribed immediately after each interview to ensure all information was captured accurately and completely. Field notes were written immediately after interviews to document participants' body language and gestures during the interviews.

The researcher in this study was not affiliated with MOFA or any agriculture-related NGO. Neither the researcher nor his family is a farmer in SND. Although there were no situations in which the researcher had a supervisory or instructor relationship with the participants, my role as a researcher may have been perceived as a position of power and influenced the nature of the data collected from participants. The researcher was drawn to the topic of this study because of he is a citizen of Ghana and desires to contribute to the reduction of poverty in Ghana and possibly Africa. There was a possibility that the researcher's opinions about the agricultural extension service in Ghana might have affected the participant selection process and trustworthiness of the data and analysis, but every effort was made to address personal bias, bias relative to the topic, and any other potential biases perceived in the role of researcher.

Methodology

Ethnography served as the method of research in the present study. Much of the research conducted to date on pluralistic extension and collaborative advantage has been qualitative in nature. Previous researchers conducted case studies and qualitative analysis of surveys, existing data, and prior studies for both themes: pluralistic extension and collaborative advantage. A quantitative approach was not deemed suitable for this study because of the closed-ended nature of surveys and other quantitative data collection instruments. The closed characteristic of the quantitative approach does not allow further exploration of the themes and limits information about participants' experiences to the parameters predetermined by the data collection instrument—the survey.

The quantitative approach is more suitable to explore a well-known and studied topic, unlike the focus of this study (Chenail, 2011, p. 256). The open-ended questions of a qualitative approach that begin with *what*, *why*, *where*, and *how* were best suited to elicit expansive responses from the participants. It was through these expansive responses that participants' true perceptions of the effectiveness of FASDEP II relative to eventually improving participants' standard of living were discovered. It was less likely for the participants to answer the question with a preconceived idea of what they thought was the "right" answer (Katz, 2001, p. 445). For these reasons, a qualitative approach was best structured to support data collection to address the research question.

An analysis of the five typical designs used in qualitative studies led me to conclude that an ethnographic case study was the best suited approach for the study. This design was most appropriate because it facilitates access to understand the reasons that

guide the views of the subsistence farmers relative to FASDEP II (Hammersley & Atkinson, 2007, p. 7). Ethnography is based on the premise that the social world should be studied in its natural state and environment, and this approach investigates social processes in everyday settings (Hammersley & Atkinson, 2007, p. 24). Exploring the everyday realities and activities of the study participants in their natural settings, with rich descriptions of how the phenomenon is understood from a member's perspective are the main principles guiding the ethnographic methodology (Blomberg & Karasti, 2013, p. 374). This study, with its aim to answer the what, why, and how of the views of subsistence farmers, called for the use of ethnographic case study design. Subsistence farmers' perceptions' of the effectiveness of FASDEP II in implementing pluralistic extension were best determined by experiencing the policies and strategies of FASDEP II in action and in the natural settings and operational context of the subsistence farmers of SND. Genuine responses of how the subsistence farmers feel about the implementation of pluralistic extension were obtained through the rich and in-depth descriptions that the farmers gave to me regarding how they make meaning of their experiences with pluralistic extension, why those experiences were happening, and what those experiences mean for them to arrive at those feelings.

The following subsections describe the participant selection process, participant recruitment, the data collection process and instrumentation. The data analysis plan is offered. Trustworthiness is addressed.

Participant Selection

The central focus of this study was to examine the effectiveness of FASDEP II in implementing pluralistic extension successfully, as perceived through subsistence farmers' experiences. Literature reviewed for the study supported the conclusion that lack of collaboration among extension service providers has been one of the major obstacles to adequately addressing the needs of subsistence farmers (Hanyani-Mlambo, 2002). To examine the effectiveness of pluralistic extension under FASDEP II through the empirical data of farmers' experiences of the collaborative environment in the pluralistic extension, subsistence farmers were chosen to participate. A sample of 12 subsistence farmers in SND in Northern Region, Ghana, where the agro-ecology is particularly harsh and unforgiving, participated in the study. This population was targeted for the study because a primary rationale for the revision of MOFA policies and strategies into FASDEP II was that not all subsistence farmers in Ghana were benefitting equally from MOFA policies (MOFA, 2007, p. 3).

To be eligible to participate in the study, farmers were required to cultivate food crops on less than 6 hectares of land and to work on family-owned land or land that was accessible to the farmer through a caretaker of the land tenure system. Family of the farmers had to provide the majority of labor on the farm, and the surplus produce of the farm was required to serve as the main source of income to the farmers who participated. Participants were required to have been actively engaged in agriculture at least prior to 2006, when FASDEP I was implemented, to the present time, meaning the farmers had experienced implementation of FASDEP II. These selection criteria were enforced to

ensure that participants had actually experienced the phenomenon of subsistence farming under the policies and strategies of both FASDEP I and FASDEP II and were able to compare and elaborate on their experiences during the two periods. By experiencing both policies and strategies, the participants were able to provide rich descriptions explaining their views and feelings about FASDEP II in a given context.

Because this research was conducted as an ethnographic case study, it was ideal to have participants with diverse backgrounds but also have experienced the same phenomenon being studied. Varying the backgrounds and characteristics of the participants and examining the data in the context of these backgrounds and characteristics reconfirmed the boundaries of the population by including the different characteristics that may be argued as alternative explanations for the results (Katz, 2001, p. 454).

Demographic data such as years of farming experience, farm size, crops cultivated, type of farm labor, and geographical location within SND were noted during data collection to assure adequate diversity. Demographics of the study participants are presented in Chapter 4. Limits on the selection of participants included farm size of 6 hectares and less to ensure selected farmers were operating on a farm size that was representative of the typical subsistence farmer in the region, the country, and possibly West Africa. The selection was limited to farmers growing food crops with no cash crops because this study concerns the subsistence farmer.

Participants were selected through purposeful sampling. Purposeful sampling facilitates the identification and selection of an information-rich portion of the population

for efficiency in data collection. The "typical case" strategy of purposeful sampling was used because the objective of this study was to determine typical or average subsistence farmers' perceptions of the success of FASDEP II in supporting the pluralistic extension concept (Palinkas et al., 2015). Initially, 10 participants were selected for the study, but the number was increased in multiples of two until no new themes were discovered in the data collected. The study was designed to have a minimum of 12 participants and a maximum of 20 participants. Although there is some variance in recommended sample sizes for qualitative case studies, Creswell (2006) suggested between 5 to 20 participants. Others have suggested data saturation, the point at which no themes emerge, as the mechanism for identifying the appropriate sample size (Mason, 2010, p. 10). The skill of the interviewer is critical for reaching data saturation; a skilled interviewer might reach data saturation with fewer interviews than a novice interviewer (Lester, 1999, p. 3; Mason, 2010, p. 10). Details of participant recruitment are presented in Chapter 4.

I intended to contact agriculture-related NGOs operating in the region with the objective of gaining access to their public documents, obtaining information on their services, and to introduce the study to them. During the field work, I was able to make contact with only one NGO, Busaka Agribusiness Company Limited (Busaka) in Savelugu. Busaka was the only NGO operating at the time of the study. Busaka is an agribusiness set up under the Millennium Development Authority (MiDA) project to provide agricultural support along the agricultural value chain for farmers in Savelugu-Nanton Municipality, a municipality within SND. Some of the activities of Busaka include coordination with farmer-based organizations to identify special requirements for

credit and engaging farmers in practical training on demonstration fields to compare indigenous agricultural practices and supplement or blend with innovative best farming practices, such as irrigation methods. There was no news of other agriculture-related NGOs operating in SND at the time of the study. The data obtained from the public records of Busaka outlined the services offered to farmers in the farming communities in SND. I selected communities across the region to facilitate recruiting participants who were truly representative of the target population.

Data Collection and Instrumentation

Unstructured in-depth interviews were conducted in English with the participants as the primary mechanism of data collection. I chose interviews as the method of data collection because my goal was neither to answer questions nor to test a hypothesis. My goal was to facilitate an understanding of the lived experiences of the population of interest and how members of this population interpreted the experience (Seidman, 2013, p. 9). Interviewing provides access to the context of the person's behavior, which was essential because the farmers' behavior provided access to understand the farmers' views of the effectiveness of FASDEP II (Seidman, 2013, p. 10).

The in-depth interviews were unstructured, allowing the participants freedom to venture into rich descriptions of their experiences of the pluralistic extension system and their feelings towards the setup of the agricultural extension system. Guiding interview questions are listed in the Interview Protocol (Appendix A). Alternatively, structured interviews could have been conducted, but structured interviews might set artificial boundaries on relevant information the participant might contribute. Instead, the open-

ended questions were intended to encourage the subsistence farmers to talk about their experiences with the agricultural extension and the service providers involved in pluralistic extension. Some questions were prepared prior to conducting the interviews to get the discussion started. The prepared questions and all follow-up questions were "directed to the participant's experiences, feelings, beliefs and convictions about the theme in question" (Welman, Kruger, & Kruger, 2001, p. 196), such as poverty reduction, access to inputs, and pluralistic extension to meet the subsistence farmers' needs.

At the end of the interview, participants were invited to make any additional comments about the extension services, especially the way they perceived effectiveness of the system in facilitating their economic wellbeing. The participants were also invited to ask any questions about the interviewing process or the study. Four days after conducting the interview, I reviewed the transcript of the interview with participants. In general, the participants did not add any new comments or make any major revisions to the transcribed recorded interviews.

The first few interviews were critical to refining the questions posed during the interviews. The first two interviews served as pilot interviews to standardize the interviewing protocol. Individuals who participated in the pilot interviews provided feedback on the assumptions they made about the interviewing process, the scheduling challenges and logistics, and the actual interview activity. The pilot interviews were conducted as per expectations; there was no need to adjust any instrumentation or address bias issues, question clarity, reduce difficulty, or modify the time estimate to complete

the interview (Beebe, 2007; Chenail, 2011, p. 257; Lancaster, Dodd, & Williamson, 2004).

Observation of a public meeting of farmers in Dipale provided the second source of data. The data collection process followed during the public meeting is detailed in Chapter 4. A review of relevant documents at Busaka containing feedback received from farmers on activities and projects completed served the third source of data for the study, thereby allowing for triangulation of data. Memos and notes made in my field notebook and journal provided yet another source of data and provided context for the farmers' statements. Data collection from multiple sources allowed for data triangulation that validated the data collected in the study (Arksey & Knight, 1999; Bloor, 1997; Denzin & Lincoln, 2009).

There were no follow-up interviews conducted in this study because the data collected from the interviews, the observation of the public meeting, and the review of the public documents in the Busaka office did not reveal new themes that needed to be further explored. If a follow-up interview had been needed, the same manner of contacting the participants and the logistics in which the initial interviews were set up would have been used in setting up the follow-up interviews.

Prior to the start of the study, I familiarized myself with the region, the various processes of doing business in the extension system, and the general way of life in SND. I also visited an agricultural demonstration for Early Maturing Maize Variety project site sponsored by Busaka in Nanton and an improved seed vendor located in Tamale, the capital city of Northern Region, located approximately 24 kilometers (15 miles) due

south of Savelugu and 23 kilometers (14 miles) southwest of Nanton. The goal of these visits was to get an overview of SND and to get a well-defined grasp of the agricultural extension operations conducted there, including the roles of the non-governmental service providers prior to the start of the study. The initial plan was to contact several NGOs in the region, but, at the time of the study, Busaka was the only NGO operating in the area.

Observation of the public meeting revealed no new themes. Discussions at the meeting echoed themes similar to those that had been encountered in interviews with the farmers. The public meeting was not recorded and no specific details that could assist in identifying the speakers or the issues discussed at the meeting were recorded or captured. Field notes made while observing the public meeting described the themes raised by meeting participants. These notes did not explain why a farmer had a particular experience. The notes did not also include any details of who, what, or where of the related event from which the themes were being developed.

Data Analysis Plan

Collected data were analyzed by following a systematic approach that allowed discovery of concepts, which were then organized to generate themes (Bradley, Curry, & Devers, 2007, p. 1761). Sections of the data were tagged with labels or codes (Miles & Huberman, 1994) that represent or are related to key concepts that emerged during the review of the data with NVivo Pro 11. I did not conduct any preliminary coding. The coding structure was developed following an inductive approach to avoid the possibility of a preconceived conclusion without conceptual analysis of the data (Glaser, 2002, p.

32). The codes and the concepts they represent were refined as more data were reviewed. Comparison of segments of data that already had been coded confirmed the suitability of the codes assigned or generated new codes. The iterative process followed ensured that the coding structure accurately captured the experiences of the participants (Bradley et al., 2007, p. 1762; Glaser & Strauss, 2009).

The code structure was developed using the codes identified in the data review. Four types of codes were used in the data analysis. These codes were (a) conceptual, which identified concepts; (b) relationship, which linked the conceptual codes identified; (c) participant perspective, which identified a positive, negative, or neutral experience; and (d) participant characteristics, which described demographics of the participant (Bradley et al., 2007, p. 1763). Once no new codes were identified after successive data review, the coding structure was finalized, indicating theoretical saturation and attainment of data saturation (Bradley et al., 2007, p. 1764; Glaser, 2002; Mason, 2010, p. 10; Patton, 2002).

Themes generated from the coding were reviewed in the context of a pluralistic extension within a decentralized system exhibiting the characteristics of collaborative advantage. This review established the link between the data from the interviews, the public meeting observation, and the review of the documents from Busaka. Details of how the themes were developed and related to collaborative advantage are presented in Chapter 4.

Trustworthiness

Validation of the data collected is essential to the study. Credibility, transferability, dependability, and confirmability are the components of trustworthiness used in validation procedures in qualitative studies (Thomas & Magilvy, 2011, p. 152). Validating the results of a qualitative study is different from the validation process of a quantitative study. In the quantitative study, the validation process focuses on the instrument construction to ensure replicability and repeatability of the results obtained (Golafshani, 2003, p. 598). In a qualitative study, the researcher is the primary instrument, and validity depends on the ability and effort of the researcher (Golafshani, 2003, p. 600; Poggenpoel & Myburgh, 2003, p. 320).

Validation Procedures

Credibility refers to whether the data collected are a true representation of the participant's opinion (Thomas & Magilvy, 2011, p. 153). For this study, a transcript review by the participants after transcribing the interviews established credibility. Transferability refers to whether the results of the study can be generalized to another group (Lincoln & Guba, 1985, p. 290). Providing extensive and rich demographic descriptions of the population and the geographical boundaries of the study are common external validity tests to establish transferability (Miles & Huberman, 1994). Dependability refers to the reliability and reproducibility of the study (Miles & Huberman, 1994, p. 278). Providing details of factors that influence how the study was conducted are intended to enable other researchers to follow my decision trail during the study. These details addressed the dependability of the study. Confirmability of the study

was addressed by establishing credibility, transferability, and dependability of the study (Thomas & Magilvy, 2011, p. 154; Trochim & Donnelly, 2007). Ensuring that the presented results of this study were credible, accurate, objective, and free of bias addressed its internal and external validity.

Ethical Procedures

Potential participants in the study completed an informed consent form prior to participating in the study. The Walden University Institutional Review Board (IRB) reviewed and approved the informed consent form to protect the rights and welfare of the participants. The Walden University IRB approval number for this study is 01-12-16-0201256; it expires on January 11, 2017. The IRB reviewed the research protocol by assessing its ethics and the presence of fully informed and voluntary participation by the participants to protect them from physical or psychological harm.

The contents and implications of the informed consent form were discussed with all potential participants during the initial contact with them. In that initial contact and discussion, details about the study were shared with the potential participants, including the roles of the researcher and participants in the study. Typical issues addressed in the initial contact and discussion with potential participants included both local and academic contact information for me, a description of the study, and an explanation and discussion of the perceived risks and benefits. Additional topics included the confidentiality statement for participating in the study, the rights of the participant, the ability to withdraw from the study at any time without any repercussions, and the venue of the

interviews. All questions from both parties were addressed prior to the start of any data collection activity.

The purpose and potential outcome of the study was discussed and explained to the potential participants. Retaliation from MOFA or any of the service providers participating in the pluralistic extension was one of the main concerns of potential participants. Efforts were made to demonstrate to potential participants that their participation in the study was confidential and would only be revealed to others with the participant's written permission. Each participant was identified by a number code to ensure that the participant's identity was kept confidential and within the bounds of the study. The key that correlates the number codes to the participants was kept in a password-protected spreadsheet file and stored on a password-protected personal computer, separate from the study materials.

Raw data were stored on two external drives, one as the primary and the other as the backup, in a safe in my residence. Data and associated analyses were kept only in electronic form; there was no hard copy. No portions of the data were, are, or will be accessible by Internet or web sources, including any cloud data storage. All the digital data are stored in password-protected files and the primary and backup external drives; the raw data are kept in a safe at my residence.

I transcribed the audio recordings alone without the assistance of a transcriber; therefore, the data collected were under my control at all times. The raw data and analysis will be kept under the current security protocol for 5 years after the final version of the

study has been accepted by Walden University. At that time, all electronic and digital data will be destroyed.

Summary and Transition

To understand how subsistence farmers in SND perceive the effectiveness of the policies and strategies of FASDEP II in promoting and supporting pluralistic extension, an ethnographic case study was conducted. Addressing problems unique to farmers from a particular region instead of the blanket nationwide policies in the traditional agricultural extension system was a primary reason for reforms in the agricultural extension system in Ghana. An exhaustive search of the literature yielded no information on current reforms from the perspective of the beneficiaries, the subsistence farmers, in SND, Northern Region, Ghana.

Ethnographic studies are based on the philosophy that the perspective of truth is the subject of the study (Baxter & Jack, 2008, p. 545). In this study, the answer to the research question was determined from the truth as perceived by participating subsistence farmers. Data were collected for this study through unstructured interviews with 12 subsistence farmers, observation of a public meeting, a review of relevant documents at Busaka containing feedback received from farmers on activities and projects completed, and memos and notes from my field book that provided context for the farmers' statements. Every effort was made to avoid biases that might have emerged from my role as the researcher.

Purposeful sampling ensured the subsistence farmers who participated in the study represented the average Ghanaian subsistence farmer in the area and had

experienced the agricultural extension system under both the FASDEP I and II policies and strategies. Two pilot interviews were conducted to fine-tune the interview process. Data saturation was achieved by the time 10 participants had been interviewed. Interviews were audio-recorded and transcribed by the researcher after each interview.

The study strictly adhered to all policies and procedures in the IRB process to ensure that ethical standards were applied. Chapter 4 presents the results of the study, including demographic data and a brief description of the backgrounds of the participants. Analysis of collected data and results of the study are presented in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this ethnographic case study was to explore Ghanaian subsistence farmers' perceptions of the effectiveness of MOFA FASDEP II strategies and policies in implementing pluralistic agricultural extension within the framework of decentralization. I used the following data: in-depth unstructured interviews of subsistence farmers in SND, public records of farmer assistance projects implemented by Busaka, an agriculture extension NGO operating in SND, and observations from a public meeting where farmers shared their difficulties and successes in subsistence agriculture.

This study was based on the theory of collaborative advantage, according to which actors in a pluralistic extension work together to achieve goals not achievable individually in a decentralized agriculture extension system. The data collected, including conflicting results, highlighted the importance of policy on the effectiveness of performance of pluralistic extension in meeting farmers' needs in SND. The following topics are covered in this chapter: descriptions of the research setting, participants' demographics, data collection process, data analysis, mechanisms put in place to establish trustworthiness, and research results.

Pilot Test

The study followed the original research design, as outlined in Chapter 3. A pilot test consisting of two interviews was conducted using the probe questions (Appendix A). Feedback from the pilot test did not result in any changes to the query instrument, interview protocol, data analysis strategy, or probe questions. The time needed to conduct

the pilot test interviews indicated that the interviews could be conducted within the estimated 60 minutes. The probing questions were appropriate because they encouraged the participants to detail their experiences with agricultural extension, pluralistic extension services, and farming in SND.

Recruitment

Participants were recruited from four farming villages in SND using the two approaches described below. Research was conducted during the off season, in March 2016, so farmers were easily located at a common gathering point in each of the villages—Nanton, Pong-Tamale, Savelugu, and Kpachelo—where they gathered to socialize and to discuss various topics ranging from politics to farming. Gathering points were usually under a tree with ample shade near the center of the village or near a busy destination, such as the market area. I arrived at the gathering point at about 10 a.m. to ensure that I was able to make contact with the farmers and allow them to complete any morning errands.

For the first approach, I visited the gathering point and introduced myself, the study, answered their questions about the nature and purpose of the study, the data collection, and how they could obtain copies of the results, if desired. The measures put in place to protect participants' privacy and confidentiality in audio-recorded interviews and transcripts were explained. Before leaving, a document containing my name, contact number, and information about the study was distributed among the farmers, with instructions for farmers to contact me if they were interested in participating in the study.

In addition to the informational document, copies of the letter of consent were offered to the gathered farmers for their review at their convenience. During my second approach, I asked potential participants whom I had met about which villages in the district had a high population of subsistence farmers such as themselves. Actions taken during the initial approach were repeated in the recommended villages.

Farmers from the various locations I visited for recruitment purposes started contacting me using my local phone number within an hour after having visited the gathering points. When the farmers contacted me, they expressed their interest in participating in the study. In almost all cases, participants asked to conduct the interviews that same day; to meet the demand, a few interviews were scheduled for the next day if no same-day interview slots were available. Before concluding the telephone conversation to schedule the interview, potential participants were informed again about their rights and protections during participation. I invited them to participate and encouraged them to ask questions, and ensured they understood they could withdraw from the study at any time they felt uncomfortable or for any other reason.

A private meeting was arranged with each potential participant, at which time the informed consent procedures were followed. The interview protocol (Appendix A) and the letter of consent were presented and explained to each potential participant. A signed letter of consent was obtained from each farmer who agreed to participate in the study. All eligible participants that contacted me opted to participate in the study and signed the letter of consent prior to their interviews.

Recruitment of potential participants was halted after 12 participants confirmed their participation. The first two participants were involved in the pilot test. After the pilot test, the data collection and instrument were reviewed; the researcher determined there was no need for modifications or adjustments. Two additional participants were recruited to achieve the minimum sample size; recruitment of these two additional participants followed the initial recruitment procedures after initial interviews of the selected 10 farmers were completed and themes had been determined. The process for participant selection did not need to be activated again because data saturation was achieved by interviewing the 10 selected candidates.

The public meeting observation involved no recruitment of participants. I attended a gathering of farmers in Dipale to observe a public meeting. These gatherings follow no set agenda. At the observed public meeting, farmers met informally and discussed the upcoming farming season, shared their experiences from the last farming season, and sought ideas and solutions to issues that they had encountered in the previous farming season. I informed the farmer who was the de facto leader of the group and explained the Public Meeting Observation Guide (Appendix B).

Recruitment of participants for the study followed the guidelines established by the research study design and the IRB process. No potential participant was coerced to participate in the study by any entity. There were no payments, gifts, or rewards offered or given to participants. As per the IRB process and requirement for informed consent, I addressed all questions and concerns of the farmers before requesting their signature on the letter of consent. Copies of the signed consent forms containing contact information

for the IRB contact person me and were provided to participants. Participants were directed to contact the IRB or me to address any concerns that might arise during or after the study. As of the writing of this document, no concerns have been raised.

Setting of Study

Data for this study were collected from among five farming communities. Interview participants were selected from Savelugu, Nanton, Pong-Tamale, and Kpachelo. Observation of a public meeting took place in Dipale. Document review was conducted at the local office of Busaka in Savelugu. A map of these locales is provide (Appendix C). Kpachelo (not shown) is a small farming community approximately 7.4 kilometers (4.6 miles) southeast of Savelugu, off the road to Nanton.

Savelugu is the capital of SND. Table 2 shows the population in the communities and the corresponding proportion to the total population of SND, as reported by Mustapha and Abubakari (2014, p. 68).

Table 2

Demographic Characteristics of Communities

Community	Rank by size	Population	% of SND population
Nanton	1	5,710	4.1
Pong-Tamale	3	5,172	3.7
Dipale	9	1,936	1.4
Kpachelo	unknown	unknown	<1

All the interviews were conducted outdoors, usually under a tree in a secluded area where the conversation between the researcher and the interview participant could not be seen or heard by other persons. The researcher encouraged participants to choose the location for the interviews to ensure that they felt safe and comfortable in a familiar

environment. The public meeting of the farmers I observed in Dipale also took place under a tree where the ground had been compacted to form a firm earth surface. Long benches were placed in a rectangular setting such that the seated farmers could face each other. Although the tree provided ample shading, a roof with a grass thatch roof was constructed over the benches. When the study was being conducted, there were no political issues or debates in the news concerning agriculture extension that could have influenced the views of farmers. Ultimately, neither the farmers no I noted any issues that could influence the farmers' responses during the interviews and discussions at the public meeting.

Review of public documents took place in the Busaka office in Savelugu. The office was a two-room building shared by four staff members located next to a grain warehouse and a shed housing agricultural machinery. The site was surrounded by a chain link fence. The warehouse was used for storage of grains that Busaka had certified into the various grades and were ready to be transported to the market. Busaka was engaged in assisting the farmers in market access through this program. Equipment on the Busaka property was available to registered farmers by reservation on first-come, first-served basis. Farmers who used the equipment were expected to provide the fuel to operate the machinery for their use. Farmers visited the office throughout the operating hours of 0800 and 1730 with various requests ranging from preseason land preparation questions to inquiries about equipment.

Demographics

Demographic data and background of the participants relative to their farming operations were collected during the interviews. A brief description of the background of each of the participants is presented in Table 3. Table 4 is a tabulation of the demographic data. Categories of the demographic data are farm size, number and types of crops cultivated, years of farming experience, farm labor source, and geographic location. Demographic data for two farmers who pilot-tested the questions and the interviewing process are not presented in these results.

As shown in Table 4, all of the participants were male farmers, had 10 to 49 years of farming experience, and cultivated one to five types of crops in farm lots ranging in size from 0 to 5.7 hectares (0 to 14 acres). The participants employed three primary sources of farm labor on their farms: nuclear family, extended family, and communal laborer. Also shown in Table 4 is the geographic location distribution of the 12 participants within SND. The interviews were conducted in farming villages in SND: Nanton (six participants), Pong-Tamale (three participants), Savelugu (two participants); and Kpachelo (one participant).

Table 3

Participants' Background

Partici-pant	Age	Years farming	Background
KT01	Mid-20s	12	Lives in Kpong-Tamale, grows rice and maize. Started following his parents to the farm after school. He and his parents work on the farm. He recently graduated from Kpong-Tamale Senior High School. He sometimes pays for inputs with farm produce. He and his family live very close to the farm, which is located on the outskirts of the Kpong-Tamale.
KT03	Mid-60s	34	Lives in Kpong-Tamale, grows rice, yam, soybeans, ground nuts, and cassava. Rumored to have started farming the moment he could walk. His large extended family works on the farm, but he but uses communal laborers primarily. He was the chairman of the farmers' association 3 years earlier. Claimed he would dance to the MOFA office if they can offer him any help. He and his family ride bicycles to the farm.
KT04	Mid-20s	12	Lives in Kpong-Tamale, grows maize and rice. The extended family work on the farm. He recently graduated from the Kpong-Tamale Senior High School. He has been farming with his family since he was an adolescent. He is a believer in using seeds saved from the previous harvest and uses animal dung as fertilizer. He does not use any chemicals on his farm. He controls the weeds on his farm by cutting them with a machete instead of using a weedicide.
NA01	Mid-60s	20	Lives in Nanton, grows maize, cassava, soybeans, yams, and groundnuts. He uses communal laborers on his farm. He used to work as an agriculture extension officer and focused on farming about 6 years ago. He hopes to transition into storage and selling for farm produce in the next 5 years.
NA02	Mid-20s	11	Lives in Nanton, grows maize and groundnuts. He uses communal laborers on his farm. He recently completed the Savelugu Senior High School. He worked as a farmer while in school. His farm is quite far from Nanton, so he and the communal laborers ride motorbikes and bicycles to the farm. He learned agriculture since infancy and hopes to expand his farm if he is able to get more funds. He also sells agrochemicals to other farmers on the side.
NA03	Early 40s	20	Lives in Nanton, grows maize and groundnuts. He has a large family who work on the farm. He plans to educate his children with the income from selling the surplus produce. They walk to the farm, which is located about 1/2 mile from their home.
NA04	Mid-40s	20	Lives in Nanton, grows maize, yams, guinea corn, and sweet potatoes. He uses communal laborers on the farm because his children are in school. He hopes his children will help him farm after they complete their studies. He rides a bicycle to his farm, which is located about 1 mile from his home.
NA05	Mid-50s	30	Lives in Nanton, grows maize, yams, soybeans, and groundnuts. His extended family work on the farm. He is new in the community and seeks to make friends to start a farmers' group. He is willing to volunteer to be the leader of the group. He and his family ride bicycles to the farm, which is located 1 mile from their home.
NA06	Mid-40s	20	Lives in Nanton, grows maize and soybeans. His family works on the farm. He has been farming with his father since he became a young man. He supplements his income as a petty trader in petrol, selling the fuel by the liter. He walks to his farm, which is located 1/2 mile from his home.

(*table continues*)

Partici-pant	Age	Years farming	Background
SV01	Mid-50s	15	Lives in Savelugu, grows maize. Currently, his nuclear family works on the farm. He believes his fathers and forefathers gave birth to them so they can continue farming in the family. Part-time work as an electrician, repairing electronics for supplemental income. He strongly believes that education is constant and refers to himself as a student in farming. He walks to his farm, about 5 kilometers (3 miles) from his home.
SV02	Mid-50s	15	Lives in a small hamlet on the outskirts of Savelugu, grows maize and soybeans. His nuclear family works on the farm. He considers farming to be his life and prefers his children to learn agriculture in school so they can continue farming when he retires. He walks to his farm, about 5 kilometers (3 miles) from his home.
KP01	Mid-30s	15	Lives in Kpachelo and, like most farmers, started farming at a very young age. Grows maize and rice. His extended family helps him on the farm; they mobilize and work on each other's farms. Part-time work as a driver of a tractor for supplemental income because his farm produce is just enough for his family. When there is an opportunity, he uses the tractor on his farm. He gets to his farm, about 7 kilometers (4.4 miles) from his home, on a bicycle.

Table 4

*Demographic Characteristics of Farmers (*N = *12)*

Demographic variable	Farmers	
	N	%
Gender		
Male	12	100
Female	0	0
Farm size (acres)		
0–2	2	17
3–5	6	50
6–8	1	8
9–11	2	17
12–14	1	8
Crops cultivated (*n*)		
1	1	8
2	7	58
3	0	0
4	2	17
5	2	17
Years farming		
10–19 years	6	50
20–29 years	4	33
30–39 years	1	8
40–49 years	1	8
Farm labor source		
Nuclear family	5	42
Extended family	3	25
Communal laborers	4	33
Geographic location		
Nanton	6	50
Savelugu	2	17
Pong-Tamale	3	25
Kpachelo	1	8

Data Collection

Data collection for the study consisted of three main sources: 12 unstructured in-depth interviews of subsistence farmers, observation at a public meeting of approximately 15 farmers in Dipale, and review of publicly available information on planning of assistance to farmers from Busaka, including [my] notes about additional contextual backgrounds to the data.

All 12 interviews in the four farming communities took place between March 7, 2016, and March 21, 2016. The data collected in the interviews were derived from discussions with the farmers regarding their farming operations, guided by 13 interview probe questions (Appendix A). None of the participants objected to the interviews being audio-recorded. The interviews lasted between 45 minutes to 60 minutes each. The time taken up by the interview included reading and reviewing the interview protocol with the participant, answering questions, and conducting the interview. I took notes of important details and observations of the participants' mood and demeanor when discussing their opinions. I asked follow-up questions to encourage the participants to elaborate on topics that seemed relevant or important to them, based on their body language. After personally transcribing the audio recordings, I reviewed the transcripts of the interviews with the participants at a second meeting we scheduled after the interviews, usually 4 days after the interview date.

It was anticipated that a minimum of 10 interviews, with the possibility of an additional two, would be needed to achieve data saturation (Mason, 2010, p. 10). In actually, data saturation was reached after seven interviews, but because the minimum of 10 participants and the additional two participants were still available, the interviews were conducted as planned. There were no unusual circumstances or deviations from the proposed plan for data collection.

Observation of the public meeting among farmers took place in Dipale. The researcher was present and observed the meeting for the entire duration of the event, which lasted approximately 45 minutes. There were, in total, 15 farmers present who

used farming as their primary source of income and food for their families. Before the start of the meeting, I was introduced to the group by the de facto leader of the farmers. He mentioned to the group that I was a student at Walden University and was at the meeting to observe and to get an idea of subsistence farmers' experiences with farming. My presence at the meeting and the introduction offered by the de facto leader provided the opportunity to address the group and mention my practice of making notes in a field notebook during the meeting. The farmers present at the public meeting were welcome to read the notes after my observation, if they wished to do so, but none of the farmers expressed an interest in reviewing the notes made during the meeting.

My interest in attending the public meeting was to listen to the challenges raised by the farmers and to generate codes and tags without interpreting the comments made by the farmers. Activities, conversations, and narratives were documented through hand-written notes without any details of time, place, and participants' names. The meeting dynamics regarding issues that were not farming-related were of interest, and these matters were also documented to provide a context of the way of life of subsistence farmers in SND.

To reduce the potential influence of my presence at the public meeting, I refrained from asking any questions or making any comments during the meeting. My chosen seat was at the back of the group so that potential speakers were not distracted by my presence. By sitting behind the group, my note taking was not a distraction during exchanges or dialogues in the group.

Public documents provided by Busaka were reviewed at the Busaka office in Savelugu. These materials included farmer assistance project descriptions, feedback from farmers about participation in the projects, and advertising media releases for Busaka. There were suggestions for projects and forms of assistance from the farmers using services offered by Busaka. My notes of the review reflected situations described in the documents and the farmers' general sentiments about the projects and services received from Busaka.

My written notes helped me to sense of the relationship between the raw data and my understanding of the phenomenon of experiencing the agricultural extension system. Daily summaries were usually drafted at the end of the day in conjunction with other notes taken during the day. In these memos, I expressed my thoughts about the personal stories shared and my interpretation of the events witnessed during the data collection process. Memos enabled me to put into context the environment in which the subsistence farmers related to the agricultural extension service. Tufford and Newman (2012, p. 86) stated that the process of the researcher writing memos allows the researcher to express his or her thoughts which, when taken into context, can contribute to providing valuable insights to the study. The data and thoughts captured in the memos contributed to my insights of the phenomenon and to understanding the meanings behind the perceptions shared by the subsistence farmers.

Data Analysis

I used NVivo Pro 11 to manage, code, and identify themes in the data from the interviews, notes from having observed the public meeting, notes public records and

documents made available by Busaka, and memos-to-self. I read the data several times to get a general understanding and familiarize myself with the concepts and contexts before beginning the coding process. As discussed in Chapter 3, I did not use any preliminary codes. The coding followed an unstructured inductive format in which to develop themes from the data collected (Bradley et al., 2007, p. 1761).

I reviewed the data line by line and assigned codes to words, phrases, sentences, and paragraphs. In the process of reviewing the data, new sections of data were compared to sections of data that had been coded, allowing for the refinement of codes. When differences in concepts emerged, a new code was generated. This constant comparison of the specifications of codes ensured that the codes generated accurately represented the concepts and contexts of the data being analyzed (Glaser & Strauss, 2009).

The codes generated were then tagged as one of the four types of codes discussed in Chapter 3. As represented in Figure 1, the codes generated were reviewed within the framework of collaborative advantage theory to allow for examination of their conceptual and contextual characteristics as elements of a successful collaboration. The codes were reviewed and combined to form themes. Figures presented in the following subsections illustrate the emergence of the theme from the various codes or tags from the three data sources and their contextual backgrounds. Codes are tagged as *I* for interview, *O* for observation of the public meeting, and *D* for the Busaka documents review. I confirmed a theme as being relevant to the population when it appeared in all three sources of data.

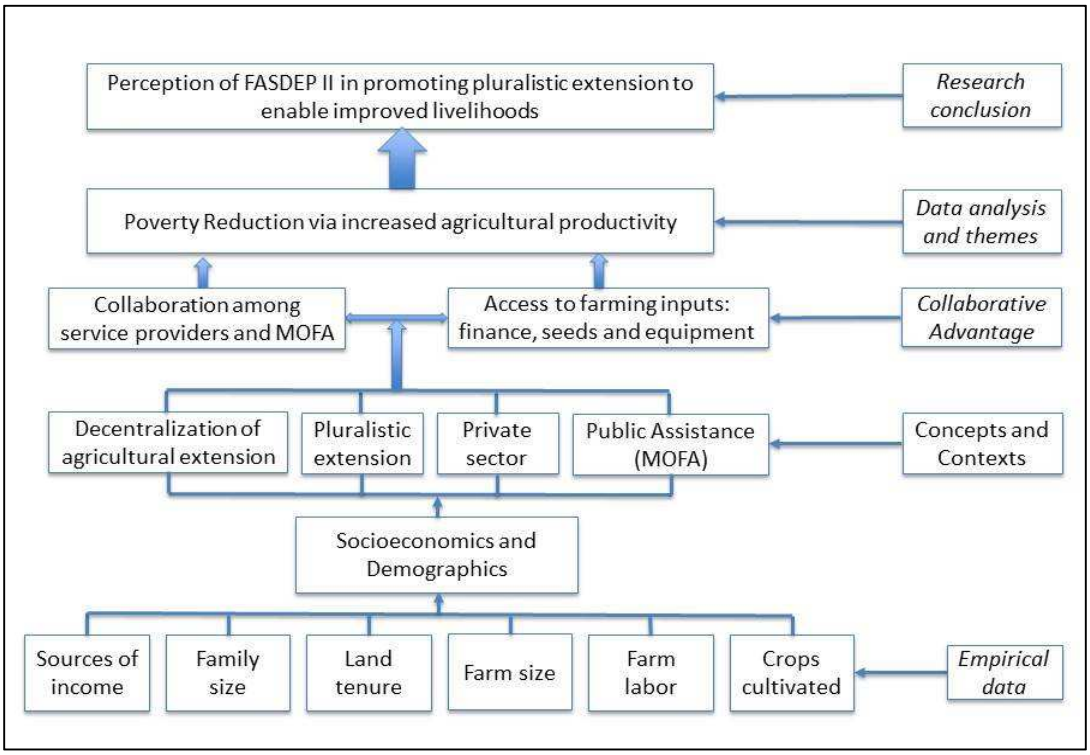

Figure 1. Research method and design flowchart.

Unstructured interviews allowed the participants to discuss the topics without restriction. The participants were encouraged to elaborate on issues that they believed were crucial to them in their farming operations, thus resulting in several codes that eventually were combined into themes based on the common context in which their experiences occurred. The final list of themes identified came from the review of all the codes identified in the interviews, the public meeting observation, and the review of public documents from Busaka.

Discrepant cases and the context in which they were presented were noted. The establishment of structural themes and rich textural descriptions from the unstructured collection of codes is one of the benefits of NVivo. Following this approach to coding

allowed the blending of textual descriptions to explain subsistence farmers' perceptions of pluralistic extension under FASDEP II policies.

Themes emerged from the rich descriptions of participants' experiences as the codes linked concepts and contexts. The themes were reviewed to determine the roles they played in poverty reduction efforts via increased agricultural productivity. Contextual linkages with the themes reflected the farmers' perceptions of how decentralization of the agricultural extension system and the revision of policies and strategies in FASDEP II have contributed to the current performance of pluralistic extension under the theoretical framework of collaborative advantage. As Patton (2002) explained, the approach to coding followed in this study enabled the identification of the major themes and patterns in the data and ultimately facilitated a deeper understanding of the agricultural extension service phenomenon, as perceived by the farmers. The themes identified in this study are presented in the Findings section of this chapter.

Evidence of Trustworthiness

For this study, I used the methods described in Chapter 3 to establish internal and external validity of the study findings. Credibility and dependability are internal, while transferability and confirmability are external. I reviewed the interview transcript with each participant privately to confirm the opinions and experiences expressed were accurately described. As explained in Chapter 3, a transcript review is one of the methods to establish credibility: the study data and results represent the true opinions of the participants (Creswell, 2006, p. 206; Thomas & Magilvy, 2011, p. 153). None of the participants added any new information or requested any of the information contained in

the transcripts be omitted or deleted. The transcript review took approximately 30 minutes with each participant, including time to exchange pleasantries and casual small talk.

Dependability is another method used to establish internal validity by ensuring that the study was conducted with reasonable care. To demonstrate dependability, I documented the study setting, conditions, and situations that influenced the manner in which the study was conducted. The pilot test confirmed that the interview questions were clear and the interview process was suitable to the proposed plan. The plan was carried out as originally proposed.

During data collection and analysis, I took care to adhere to all the rules and regulations mandated by the IRB and ethical standards of research involving human subjects. My role as researcher was clearly stated. Audio recordings of interviews replayed as I reviewed transcripts of the interviews. Coding and themes were repeatedly reviewed during data analysis to confirm sections of data were tagged correctly. Following the security procedures ensured the confidentiality of data and participants. My field notes and memos to myself documented in detail the manner in which the study was conducted and why additional NGOs were not contacted for a review of their public documents.

During the interviews, follow-up questions encouraged the participants to provide thick, rich, and extensive demographic information about themselves, such as how they got into farming and their hopes or plans for the future. These demographic data helped to define the boundaries of the study and to test if the results of the study can be

transferred to another group or generalized to another phenomenon (Lincoln & Guba, 1985, p. 290; Yin, 2013), thus allowing for transferability. There was a wide variation in participants' ages, from mid-20s to mid-60s. Some participants came from farming communities in small villages, such as Kpachelo, while others came from major towns, such as Savelugu. Participants had varied educational backgrounds ranging from basic education to senior high school certificates. Trustworthiness and validity of the data for this study were ensured through triangulation of data from multiple sources, addressing and controlling researcher bias, transcript review, pilot testing interview questions, and providing rich and dense descriptions of participants and contextual backgrounds (McReynolds, Koch, & Rumrill, 2000).

Findings

Findings of the study are presented in this section. This study sought to explore, in the context of the decentralized agricultural extension system, the concept of pluralistic extension with public assistance from MOFA. The decentralized agricultural extension system followed policies and strategies to facilitate pluralistic extension that was expected to contribute to poverty reduction via increased agricultural productivity among participating subsistence farmers. Seven main themes emerged from the public meeting, document review, and interviews, as discussed in Data Analysis. The themes and their corresponding data for the public meeting and public document review are presented in Table 5 and Table 6, respectively.

The discussion at the public meeting focused mainly on the challenges farmers had faced during the last farming season and how some of them managed to overcome

the challenges. The farmers also shared their positive and negative experiences with the agricultural extension system, pointing out to others, new information they had discovered, and in general sharing any feedback on practices they had tried in the last farming season.

Table 5

Themes and Coded Descriptions of Public Meeting Comments

Theme	Code description
Access to credit	• Unable to afford the improved seeds for drought. • No collateral for the bank, so loan not possible.
Environment and climate change	• Rain might come early this year, according to tracking over last few years. • The past rainy season was shorter than before and it has been getting shorter through the years.
Cronyism	• Tractors sent from MOFA headquarter in Accra to NGO were taken back and now being used for construction. • You have to know someone in the agriculture office to be able to get access to any new inputs brought from the MOFA office.
Access to inputs	• Seeds are not available; this type of seed was not available last planting season. • Better to save the time and travel to Tamale to look for the seeds and chemicals you need on the farm.
Access to machinery	• Need a reliable tractor to rent; last season, he was late for days. • Last season, the rental tractor broke down after half a day of work and there was no replacement available to hire.
Meeting needs of farmers	• Herbicide that was recommended destroyed the groundnuts. • Infrequent visits from agriculture extension officers. • Agriculture extension officer sometimes does not know the solution.
Evidence of pluralistic extension	• Assistance from NGOs. • Unreliable assistance from NGOs. • Many signs for vendors selling seeds in town, but they are usually short and waiting for delivery.

Table 6

Themes and Coded Descriptions of Public Records and Documents Reviewed

Theme	Code description
Access to credit	• Farmers asked about credit services. • Farmers used barter system to acquire inputs. • Farmers know the inputs and methods to solve their problems but these are not affordable.
Environment and climate change	• Notes about field assistance given to farmers to rescue crops due to the rainfall ending sooner than expected after fertilizer application.
Cronyism	• Tractors given under government assistance program were requested to be returned and relocated for nonagricultural use.
Access to inputs	• Farmer requests for assistance packages that contained improved seeds used in demonstration farms. • Busaka is not able to provide such packages at this time, as they have to purchase them at retail price.
Access to machinery	• Farmers cite their inability to find a tractor to plow their farms as one of the main reasons that they did not get a good harvest and therefore are not able to repay the service rendered by Busaka.
Meeting needs of farmers	• Busaka provided market access by grading and buying produce from farmers at market price. • Implemented a barter system where farmers could get inputs and pay later with produce after harvest. • Inadequate capacity of Busaka to provide the needs of the farmers such as tractor services.
Evidence of pluralistic extension	• Collaboration with USAID. • Collaboration with MiDA. • Collaboration with other service providers such as improved seed providers and irrigation system vendors to showcase products in demonstration farms.

Results of the interviews are also presented under each of the themes as sub-sections, with figures illustrating the derivation of themes from the codes generated from interviews (*I*), observation of public meeting (*O*), and review of documents (*D*).

Access to Credit

Participants in the study were convinced that a bank loan was more trouble than good for them. This theme was common among all the participants in the four farming communities, as shown in Table 7. Almost all the participants displayed body language that suggested a strong negative perception of the process of applying for a bank loan.

These sentiments were echoed in the frustration expressed at the public meeting in Dipale, where a speaker recounted his inability to obtain a bank loan because he did not own property to use as collateral. Records from Busaka revealed that farmers working with the NGO had requested credit services because accessing credit through banks was cumbersome and futile. Farmers cited their inability to finance the prescribed treatments and activities for their farms in support of their request. Participants' personal accounts that support this theme are presented in Table 7. Figure 2 reveals the derivation of the theme. The theme is summarized as follows:

- difficult conditions and requirements to be eligible for a loan,
- rigid conditions for repayment of the loans,
- inability to implement best farming practices, and
- situations in which bank loans were obtained late and were therefore not beneficial.

Table 7

Theme 1: Access to Credit

Partici-pant	Farmers' comment
KT01	"Sometimes, in this our area, especially in Northern Ghana, sometimes you can go and collect the loan and the rain will fail you. If you give the excuse that there was no rain so because of that you did not get much product, they will not understand, so they will be putting you more pressure to bring the money back. So sometime, normally we don't want to go for bank loan because in Northern Ghana, actually you don't know, you cannot just tell that this year there will be much more rain."
KT03	"No bank loan. I am not a civil servant. They will let us organize an association, so that they will give us the loans and it will not be possible. They will still not give us so it is very difficult to get."
KT04	"I just weed, it is very difficult but it is because of a lack of finances that brings it to be. It is difficult to get the finances to get the seeds. . . . No never, because I cannot pay [a bank loan] and the process is too long so I do not want the loan."

(*table continues*)

Partici-pant	Farmers' comment
NA01	"It [a bank loan] will be difficult because of their bureaucratic systems."
NA02	"I don't have the knowledge of securing a bank loan."
NA03	"We are afraid to go into such matter [bank loan] because of what we hear from our friends about the charges."
NA04	"Their bureaucratic method makes it difficult to access loans. The unfortunate part is, you sometimes get the loan at a time the season is halfway and the crops may fail due to late planting. Inadequate funds has compelled me reduce it [farm size], previously, a tractor service was between 5 Ghana Cedis ($1.30 USD) and 15 Ghana Cedis ($3.83 USD) per acre but now an acre is ploughed for 55 Ghana Cedis ($14.00 USD)."
NA05	"I was formerly in a farmers' group where we go for a bank loan in a group but now I have relocated to a different community which has made me not part of that group to get such assistance. At that time it was easy and it did help me a lot. Lack of funds is preventing me from using improved seeds."
NA06	"The loans were given to us with a condition of growing a specific crop but at the time of disbursement of the loans, it was late to plant that particular crop. But we were still compelled to grow the crop which is soybeans. The crop was also a long maturity plan which could not get enough rains before the rains stopped. So the yield was poor and compelling us to store the little harvest with the aim of selling it at a later higher price. But the bank threaten us so we were forced to sell the small harvest at a lower cost to defray the cost. So this is making a lot of us not interested in bank loans."
SV01	"No I do not have a bank loan. For actual fact I never go to bank for loan. When the farming reach [the farming season], I also mobilize some small money. It [bank loan] is not easy."
SV02	"I do not have the chance to get a bank loan."
KP01	"Because I don't want to go that side [to get a bank loan], that side, it has many problems because when you get the loan and you farm sometimes you can farm and you didn't get a lot of yield. It is important you pay back and at that time you harvest it and the time that you have to pay back, the small money that you get cannot pay all the loan that you collected. Secondly, no market. That is why I don't want that hassle."

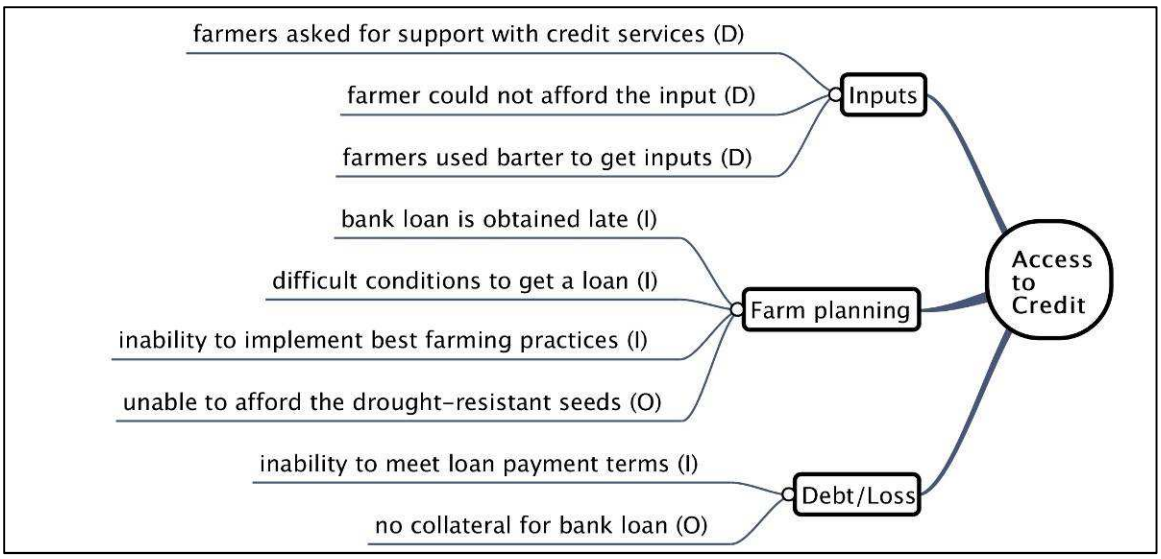

Figure 2. Derivation of the theme of access to credit.

Environment and Climate Change

Subsistence farmers depend on natural resources such as rainfall to irrigate their farms (Armah et al., 2011, p. 293). Participants from all four farming communities indicated that changes in the environment and climate have affected their farming operations. Their comments, presented in Table 8, indicated that changes and uncertainty in rainfall patterns influenced their farming choices, including which crops to cultivate, sources of inputs such as seeds, and adoption of farming methods learned through agriculture extension. They attributed changes in rainfall patterns to climate change. Reduced land fertility was mentioned as an environmental change.

Interviewees shared similar emotional responses of despair when they discussed the effects of the environment and climate changes on their farming operations. The topic appeared to be a source of frustration among study participants and the farmers at the public meeting. A few of the participants who attended the public meeting agreed that the last rainy season was shorter than normal and warned that the rains might come earlier than usual in the next rainy season. Records offered by Busaka indicated that farmers had requested training and advice in selecting appropriate drought-resistant seeds because of the unpredictability of the rainfall. Participants' personal accounts that support this theme are presented in Table 8. Figure 3 reveals the derivation of the theme of environmental and climate change.

Table 8

Theme 2: Environmental and Climate Change

Participant	Farmers' comments
KT01	"In Northern Ghana, actually you do not know, you cannot just tell that this year there will be much more rain."
KT04	"When the rains come early, I will get high yield with the farm. Due to the lack of the rain, we could not get much produce.
KP01	"The climate has changed, because at that time the rain is raining, but now, you cannot get rain like that so the way MOFA train us it help us. When a rain fall we know how to plough the farm so it can be preserving water in it."
NA01	"No, this year because of the rain, my harvest didn't do well."
NA03	"I do not plant groundnuts and cowpeas anymore due to the drought. In all, due to the climate changes and money involved in farming of late we having to find our own seeds does not work any longer."
NA04	"And also the land was more fertile those days than these days. Previously the land was very fertile with a good rainfall pattern but now if you don't go in for improved and early maturing seeds, the rainfall pattern is not as good as previously, and so we are compelled to adopt this new technology to avoid low yields and crop failure."
SV01	"From my point of view things that have changed are two things, the land fertile [fertility] and the change in the rain. These two things have changed. It is difficult for farmers to understand it."

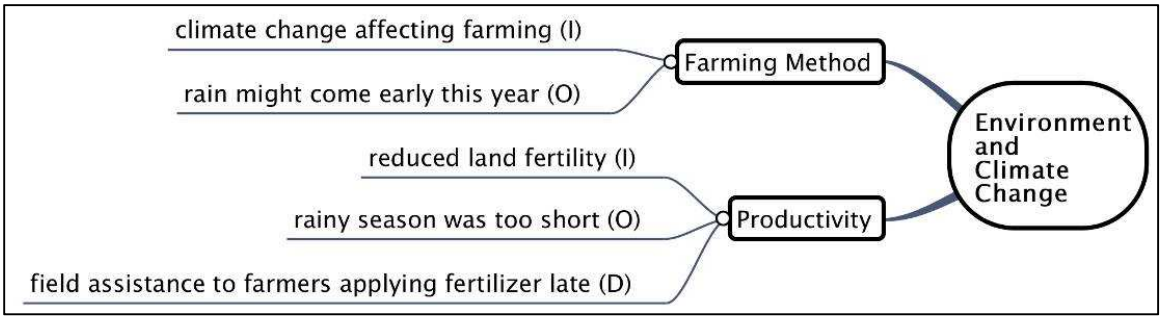

Figure 3. Derivation of the theme of environment and climate change.

Cronyism

Cronyism was added as a relevant theme in the study, although cronyism per se was not mentioned by interviewees in all four communities. Participants in Savelugu, Nanton, and Pong-Tamale mentioned experiences in which they believed cronyism was the reason they were not able to obtain public assistance. The five participants who

expressed their belief that cronyism was a problem were from communities that ranked first, third, and fourth in terms of population in SND, as presented in Table 2. Interviewees' comments mentioning cronyism are presented in Table 9.

Table 9

Theme 3: Cronyism

Partici-pant	Farmers' comments
KT01	"Normally if they brought the seeds, and fertilizer, if they brought the agricultural inputs at the office there, if you didn't know anybody you cannot get. Even most specially, if they brought them the people who are workers there, like the agricultural directors, they will not distribute. They themselves, they will rather take it and go and farm."
KT03	"If you have coupons, the price of the fertilizer is cheap, but if you don't, it will be high for you to buy. You get the coupons from the agriculture office. If you go there, unless you know somebody in the office, not everybody can go there. If someone can go and the coupons are there, they say the coupons are not there and someone can go and they can give them. The problem comes from the directors, the board of directors inside there, the problem comes from them. Those who can who cultivate large acres they give all the coupons to them. Those who cultivate the big size they give them, giving the coupons to those who cultivate the largest ones."
NA02	"Any help to farmers we should be considered, instead of only focusing on the bigger farmers or even allocating to people without knowledge in agriculture. So MOFA should put things in place such that, when for example a tractor is allocated to assist farmers it should be made to reach the peasant [subsistence] farmers in villages."
NA05	"I would urge the government to give tractors to the extension people who are more close to us because they will ensure it benefits all of us than to leave the tractors at the ministry where it can't be accessed easily."
SV01	"He (agriculture extension officer) asked me to mobilize a group that so he would help us with inputs such as fertilizer, so finally we mobilized the group and unfortunately the help was not able to be done. I think the help went to some other farmers who knew someone in the office."

Figure 4 reveals the derivation of the theme of cronyism.

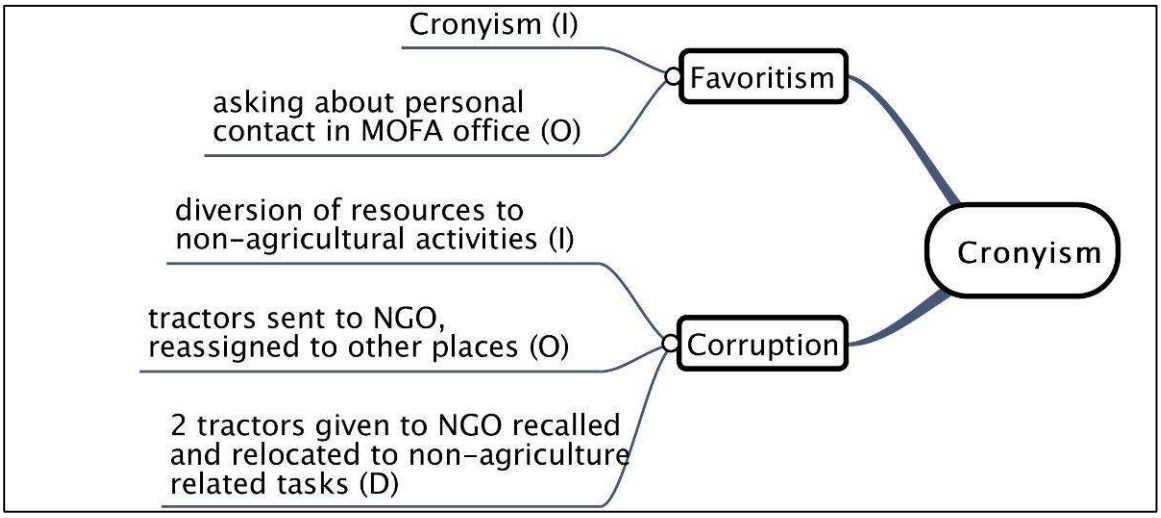

Figure 4. Derivation of the theme of cronyism.

Study participants indicated that the resources needed, when available, were not disbursed as intended. Instead, the resources went only to those who were affiliated with or knew someone in charge. Farmers believed there was cronyism at the MOFA office serving the district. They also believed that large-scale commercial farmers were favored over the subsistence farmers in terms of gaining access to assistance. The issue was further reinforced during my observation of the public meeting, when farmers narrated experiences similar to those of the interview participants. One of the farmers asked others at the meeting for a contact in the agriculture office to assist in obtaining coupons to buy fertilizer because coupons were not readily or easily available from the agricultural office. Another farmer spoke about an experience when tractors sent to an NGO for access by farmers were reassigned elsewhere for use in construction. Farmers at the meeting were quite outspoken on the issue of having to know someone in the MOFA office to be able to obtain any form of assistance. The document review in the Busaka

office mentioned an incident where tractors given to them under a government program had to be returned after a few weeks.

Access to Inputs

The theme of access to inputs was emphasized several times by participants in their interviews. Participants referred to difficult accessibility to agricultural inputs, specifically improved seeds, fertilizer, and agrochemicals, such as weedicides and pesticides, as among their main frustrations. One participant characterized the frustration as "suffering." Farmers said the inputs were often unavailable in the stores near them and, when they were available, they were not affordable, thus characterizing farming as being an endeavor for rich people.

Concerns over access to inputs were reinforced at the public meeting; a few participants asserted that the improved seeds recommended for the region were not available last season. Another mentioned that farmers must travel to Tamale, the capital city of Northern Region, which is located 24 kilometers (15 miles) south of Savelugu, the capital town of SND, to be able to get these seeds. Even if the farmer were to travel to Tamale to purchase the improved seeds, there was no guarantee the shops would have the seeds in inventory. Public records reviewed at Busaka reflected farmers' difficulty in obtaining inputs. Farmers had made requests for Busaka to sell them packages with the improved seeds, but such transactions were not possible because Busaka was not a vendor and had no dealings with the seed company. General frustration among the interview participants and the farmers at the public meeting revolved around accessing inputs for the upcoming farming season. It was apparent that some farmers have given up

on obtaining the needed inputs because of the difficulty involved in making the nearly 50-kilometer round trip to visit a store that was not guaranteed to have the seeds and chemicals needed. Comments on the theme of access to inputs are presented in Table 10. Figure 5 reveals the derivation of the theme of access to inputs.

Table 10

Theme 4: Access to Inputs

Participant	Farmers' comments
KT01	"No, it [inputs: the seeds, pesticides, fertilizer] is not easy. If MOFA or NGO provide the agriculture inputs like tractors and fertilizer and other things, it will be cheaper, it will be cheaper for the farmers so that they can get access to do the farming. To make it easy for them to farm."
KT03	"It is not easy to find fertilizer. It is not easy unless you have coupons. If you have coupons, the price of the fertilizer is cheap, but if you don't it will be high for you to buy. Some of the things are there when you go to the shop. No, it is not possible to get everything that you need in the shop."
KT04	"Most of the inputs I get them myself from my elder brothers. Mostly I take the surplus from them. I don't have the financial to get these things. So most of the time, I use the manure. I cultivate with the manure. During the raining season people here they suffer a lot, to get a tractor is very difficult for them and the fertilizer too. So if they open this office here, when you have the money you can go and get them and also if the price is also low. If the price is also reasonable, it can also help us."
NA01	"Previously we used to get it at our doorsteps but now it's not readily available we have to travel all the way to Savelugu or Tamale for them. You can get but it's only the cost of these things which is a problem. It is just the inputs and some tractor services and fertilizer and other few things we need to farm [to improve the situation]."
NA02	"Yes but hybrid seeds very expensive so I am not able to get them."
NA03	"It is not that easy to get the inputs it's all about the money, they are not affordable to us."
NA04	"We can also get some inputs at GANOMA agriculture store. But in Northern Region, it's in only three constituencies Savelugu-Nanton district, Tolon-Kumbungu district, and Gushiegu-Karaga district."
NA05	"It's not easy because there are no funds especially to employ the services of a tractor. Lack of funds is preventing me from using improved seeds."
NA06	"The seed and fertilizer companies should also consider setting up stores in Nanton for the poor farmer to have access to them, which can improve the situation for us."
SV01	"Not that alone, I am looking our pockets, I am looking at the pockets because nowadays farming is not work for handicap people, farming is being done by rich people, if you are not rich you cannot farm. We the farmers suffer to get fertilizer for our cause."
SV02	"All inputs are difficult for me to get. The NGOs don't give you the other things. They only train you how to do but they don't have power to give you input."
KP01	"No sometimes it is not easy, but sometimes you can need something from the shops in Savelugu and Tamale and when you go you will get it easy, sometimes you will not get it easy. Not all the time everything is there. The same story if you go today, maybe you can get, maybe you cannot get. From before [pre FASDEP] and now it is the same thing."

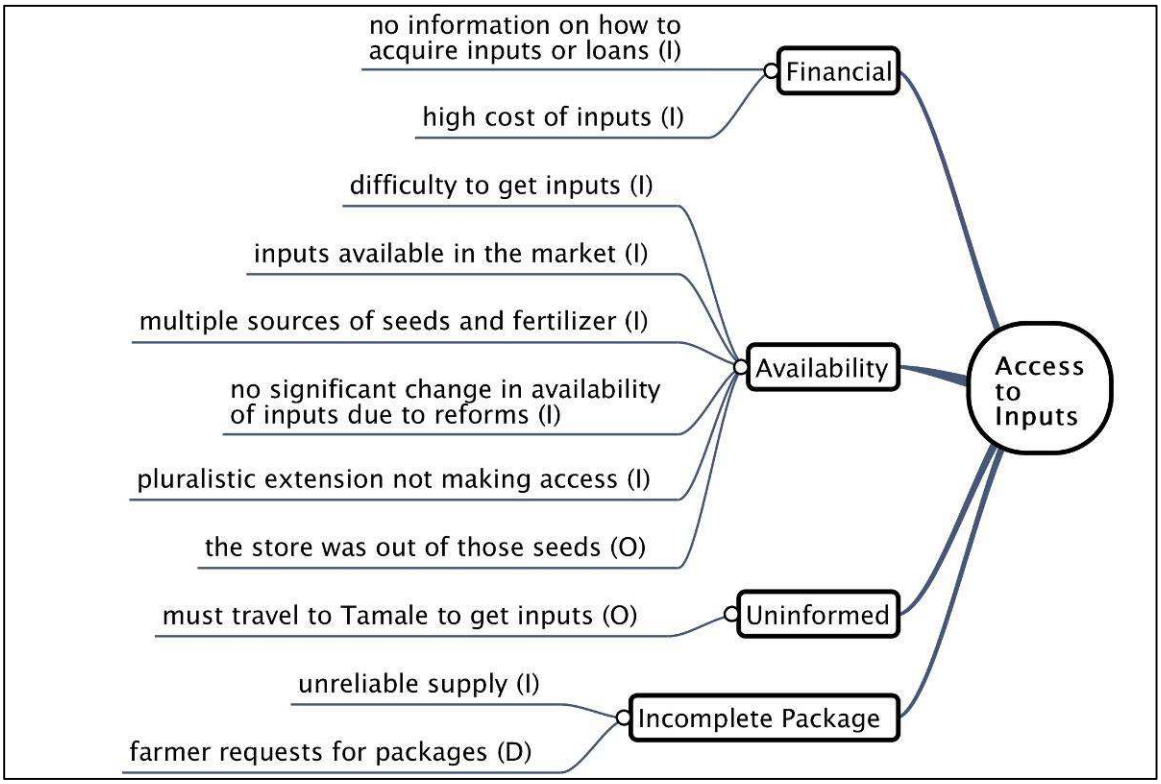

Figure 5. Derivation of the theme of access to inputs.

Access to Machinery

In this study, machinery was considered as a farm input, but it was deemed more appropriate to present the results on access to machinery as a separate section from other inputs because participants made particularly strong references to the unavailability of farming machinery. In essence, setting aside the consumable farm inputs such as fertilizer, improved seed, weedicide, and pesticide ("soft inputs") shone an even brighter light the role of machinery in subsistence farming. Machinery and non-consumable farm inputs are "hard inputs."

Access to a tractor during the farming season was a primary problem discussed when the topic turned to machinery. The interviewees made a strong correlation between

not being able to access tractor services to plow their farms and their poor yields. There was generally a sense of hopelessness when they discussed not being able to plow their farms because, when it was time to plow, they did not know how and when access to a tractor might be possible. They also believed that even if the tractors became available to rent, the cost to plow an acre was not affordable because of price increases.

Two participants shared narratives of experiences of when they were able to access machinery for their farming operations. The context in which these positive experiences occurred made their situations unique from those of the general subsistence farming population. Most subsistence farmers are not trained to operate heavy vehicles or to drive tractors. Machinery requested by the second interviewee was a truck to transport bags of maize to the warehouse in Busaka. Trucks can be rented easily because they are used for a wider range of services than a tractor; unlike tractors, trucks are not limited to use in agriculture-related activities.

Farmers at the public meeting discussed the potential to access a tractor for plowing services during the raining season. They asked whether anyone at the meeting had knowledge of a tractor service and, if so, to share the information. One farmer indicated that although he was able to secure a tractor during the previous farming season, the tractor broke down soon after it arrived on his farm and he could not get a replacement, underscoring the dire need for tractors in the district. Public documents reviewed in the Busaka office revealed that farmers cited poor yields to not being able to plow their farms during the farming season as the reason for not being able to pay off their debts or make exchanges for services rendered. Comments expressed in the

interviews are presented in Table 11. Figure 6 reveals the derivation of the theme of access to machinery.

Table 11

Theme 5: Access to Machinery

Partici-pant	Farmers' comments
KT01	"Help that we need is like when they provide the agriculture inputs like tractors and fertilizer and other things they will be cheaper, it will be made cheaper for the farmers so that they can get access to do the farming. To make it easy for them to farm."
KT03	"This year, we did not cultivate early due to lack of tractors."
NA01	"It is just the inputs and some tractor services and fertilizer and other few things we need to farm. If they [MOFA] can help with the tractor services to improve the situation. Yes it will help a lot if there were tractor renting services."
NA02	"MOFA should put things in place such that, when for example a tractor is allocated to assist farmers it should be made to reach the peasant farmers in villages. These tractors that they say has been allocated for farmers we do not know where they are because I cannot get one to assist me on my farm."
KT04	"During the raining season people here they suffer a lot, to get a tractor is very difficult for them. So if they open an office here, when you have the money you can go and get them and also the price is also low. If the price is also reasonable, it can also count."
NA04	"Inadequate funds has compelled me reduce my farm size, previously, a tractor service was between 5 Ghana Cedis ($1.30 USD) and 15 Ghana Cedis ($3.83 USD) per acre but now an acre is ploughed for 55 Ghana Cedis ($14.00 USD)." "The peasant farmers association has even provided ploughing services and even supplied seeds but just that their services are not consistent due to inadequate funds to hire a tractor, if they can find one, or to buy the seeds."
NA05	"It's not easy because there are no funds especially to employ the services of a tractor. Lack of funds is preventing me from using improved seeds and getting a tractor to plough my farm."
NA06	"You can't get any available tractor at this time of the season. It was much easier then [pre FASDEP]. If there could be an easy access to farm machineries at Nanton, farmers would have been able to grow more crops because the little money that could have been used to buy fertilizer is often used to get tractor services from Tamale [15 miles from Nanton]."
SV01	"Yes it is easy to get machinery from Busaka when they have it, the last season when I harvested my corn and I needed a truck to bring it here to their warehouse for storage, I came to consult them, and they say that I should bring fuel for the truck so that the machine would help me to bring it. So I bought the fuel and they were able to give me the machine and I was glad that way.
SV02	If I could get help that would be good for me, because the land that I have, I could have extended it and make a bigger farm. I do not get the help then I do not have anything to do. Help like a tractor to plough the farm. Everything from the work to the seeds and a tractor."
KP01	"I am a driver when I am not farming. If it is the raining season, I use the tractor to farm, I use it to plough my farm before I get my assignments. That way, I am able to get a tractor to plough my farm."

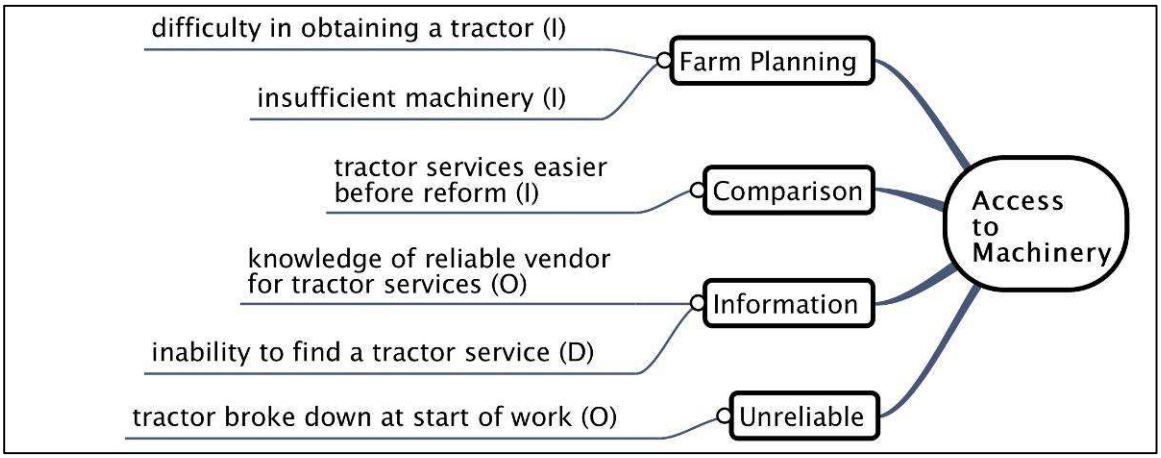

Figure 6. Derivation of the theme of access to machinery.

Meeting Needs of Farmers

Participants indicated there were avenues through which some of the farmers' needs were met. Their narrated experiences revealed that assistance received from an NGO or MOFA, such as training in best practices to preserve and retain soil moisture and planting methods, had been beneficial. Other narrated experiences reflected instances when farmers' needs had not been met, resulting in difficulty in farming operations. Difficulties expressed by the farmers are linked and related to other themes, including access to credit and cronyism. The discussions brought to light potential root causes of why farmers' needs were not met even when there were service providers available. Reasons given included inability of service providers to sustain their operations, transportation problems faced by agriculture extension officers, geographic locations of service providers, limited scope or mandate of the NGOs, and timing in the delivery of the services. Comments related to the theme of meeting the needs of farmers are

presented in Table 12. Figure 8 reveals the derivation of the theme of meeting the needs of farmers.

Table 12

Theme 6: Meeting Needs of Farmers

Participant	Farmers' comments
KT01	"It will not be easy to find a solution if I have a problem in the farm."
KT03	"The problem comes from the directors, the board of directors inside there, the problem comes from them. Those [farmers] who can who cultivate large acres they give all the coupons [for fertilizer] to them. Those who cultivate the big [farm] size they give them, giving the coupons to those who cultivate the largest ones."
KT04	"Busaka also teaches how to do your crop, how to get high yield. They teach us how to apply fertilizer, how to weed your crop so you can get high yield. At times MOFA comes but not much."
NA01	"The extension officers] come once a while. I think it's because of the transportation problems. MiDA was here about three years, but we only saw them for a year before they left. I think it was an agreement or when the contract ends they leave. No veterinary services here, not that I know of, but the veterinary officers from another town help us which is far from here."
NA02	"I think we as peasant farmers, if there is any help to farmers we should be considered insert of only focusing on the bigger farmers or even allocating to people without knowledge in agriculture. So MOFA should put things in place such that, when for example a tractor is allocated to assist farmers it should be made to reach the peasant farmers in villages."
NA03	"It [agriculture extension] is more helpful than before."
NA04	"The peasant farmers association has ever provided ploughing services and even supplied seeds but just that their services are not consistence due to inadequate funds. It [poor bank service] is even increasing such that any time you try accessing something at the bank they keep telling you the network is down making their services even poorer. When organizations want to train farmers they should come early such as May and June so that they can have time to learn and practice it when the season starts."
NA05	"MOFA is helping with improvement a little bit."
NA06	"The loans were given to us with a condition of growing a specific crop but at the time of disbursement of the loans, it was late to plant that particular crop. But we were still compelled to grow the crop which is soybeans. The crop was also a long maturity plan which could not get enough rains before the rains stopped."

(*table continues*)

Partici-pant	Farmers' comments
SV01	"I could remember some years ago he [agricultural extension officer] asked me to mobilize a group that he would help us so finally we mobilized the group and unfortunately the help was not able to be done. Another time, I even went to one of the officers who is registering the farmers and he said actually they are helping farmers in mixed farming and other things. Those who are rearing animals and at the same time farming, so not for those of us doing just corn. Actually to my mind, if we the farmers could have get different training, doing the technical aspects so that it can be helping us the farmers during the dry season, you can be doing the technical work before the farming season. You can get money to go to your farming. Yes actually when I say training not for the technical or vocational alone. You know we are having women who are working with rice, extracting of rice and the sheanut all these kind of things. Secondly too, you know these animals too, to train how to raise animals is also good. After coming out from farm you can be taking care of your animals so getting to the farming time, if you don't have money, the animals that multiply you can sell some to go to farm." "The last one I harvest my corn and I need machine to bring it here [Busaka], I came to consult them, they say that I should look for fuel and so that machine would help me to bring it. So I look for fuel. They were able to give me the machine and I was glad that way."
SV02	"The new weedicide that have come it does not let the ground do well again. When you don't join the company [NGO], you could not get advice through training, when you do this you would get good yield, if you don't do this, you don't get good yield. But the company itself doesn't have capital or money to help the farmers."
KP01	"For example like seeds, you can go to the agricide and buy seeds when you go and sow it, it won't germinate. So when it does not germinate at that time you are at loss you won't get anything because you have to plow again. That is the mostly problem, the most problem about that side is their things is not good. And mostly they have been using rubber for their seeds so that is not good for the seeds. The way I am storing my seeds, only in the cocoa sack (jute sack) if I am to store my seeds because sometimes I am reusing. So anything cannot destroy it. And if you want air to be good for the seeds it will get in." "MOFA trained and helped us, when a rain fall we now know how to plough our farm so that it can be preserving water. That is what MOFA helped us with. MOFA showed us how to sow in a line. That was also good for us."

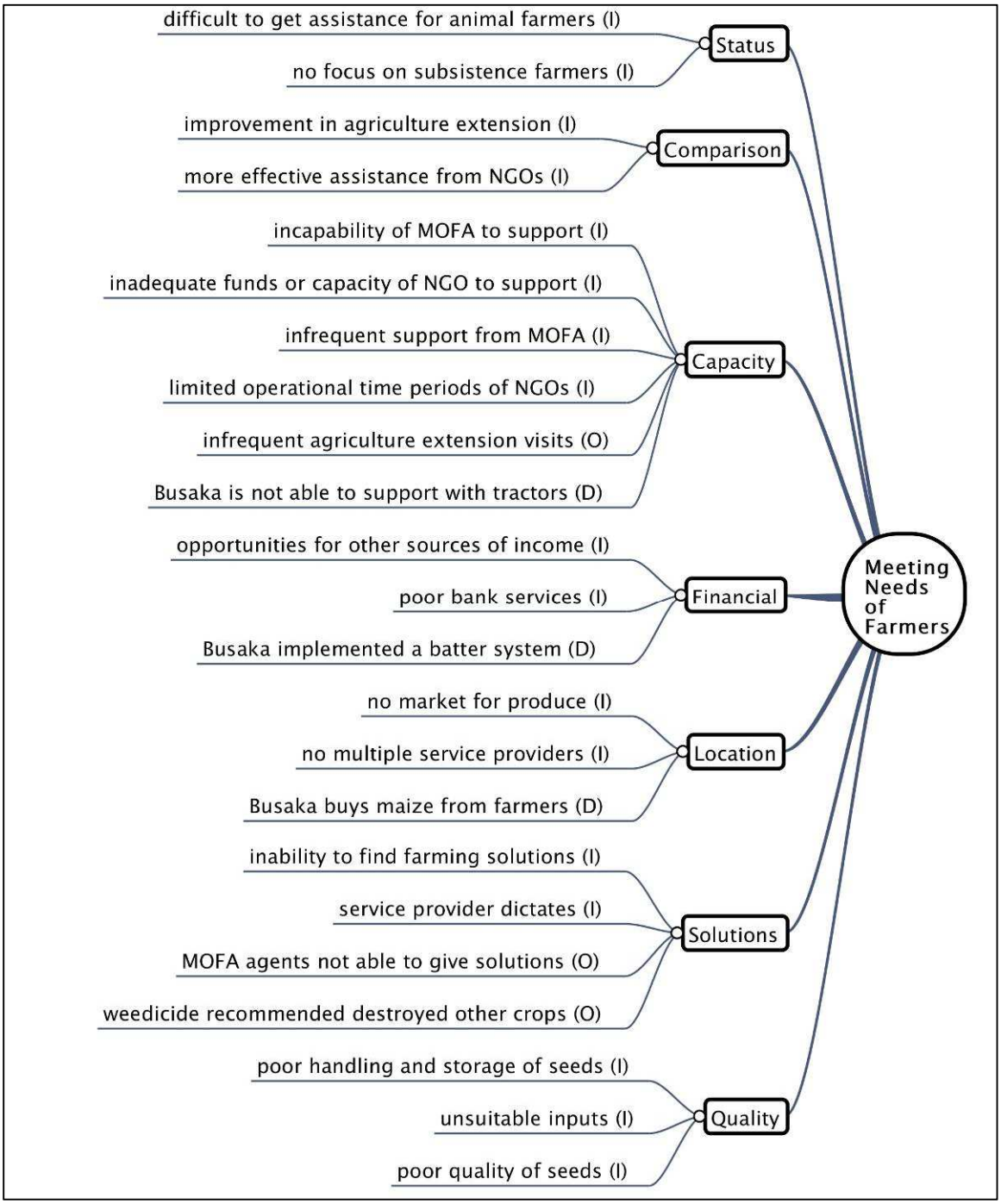

Figure 7. Derivation of the theme of meeting the needs of farmers.

Evidence of Pluralistic Extension

In the interviews, participants from Nanton and Kpachelo made comments indicating there had been an increase in the presence of multiple service providers from which they could obtain some of their inputs within the last 4 years, as shown in Table 13. The farmers also indicated assistance was available from agriculture extension-related NGOs in Savelugu, Nanton, and Pong-Tamale. What little assistance the subsistence farmers received was unsatisfactory; the assistance they received was not as promised or the expected outcomes of assistance were not realized. Some of the farmers spoke about a situation in which the NGO had made plans for assistance, but had not delivered completely according to the plan. In Nanton, one of the participants recounted a positive experience with an NGO that provided valuable assistance. Comments related to the theme of evidence of pluralistic extension are presented in Table 13. Figure 9 reveals the derivation of the theme of evidence of pluralistic extension.

Table 13

Theme 7: Evidence of Pluralistic Extension

Partici-pant	Farmers' comments
KT01	"We have never had any NGOs during the farming time with my parents. No NGOs, no MOFA, nothing. It was just the last year that the Busaka came. But their intention was that they are going to help people who are doing domestic farming [subsistence]. But at long last we couldn't hear from them, we were calling the project manager and he was just giving unnecessary excuse so finally we just get our farm and continue our own things. It was just last year that we just started with them. The NGO came last year. They come, we started everything together and actually finally, and finally, they did nothing. They couldn't help."

(*table continues*)

Partici-pant	Farmers' comments
NA01	"At the moment one goes to the seed company and tells them what you want and the variety and they ask the acres you want to use it and you buy it. Because the seeds are all over in shops and agro based company. It is not readily available here we have to travel all the way to town for them. About 3 or 4 years back, an NGO called MIDA. They came and formed groups for training about 50 participants and we were trained about one week or two weeks and were given incentive packages like maize. That was their support. Each farmer in the group had a package like 1 acre of maize that they can sow. They gave out cutlasses, wellington boots, fertilizer and so many things as packages for participating. That was MiDA. It was good, it help us because within that acre the time, application and methods they taught us really made us gain about 12 bags per acre. We were taught to use farming as a business and not only for feeding. Now MiDA is gone. They handed us over to Busaka. But Busaka haven't helped us yet, they [Busaka] come to educate us, but if there is any support coming, they [Busaka] link us with them [potential sources of assistance] for help or grants, so we develop on our farm activities."
NA04	"Now it [companies selling seeds] is better because previously the land was very fertile with a good rainfall pattern but now if you don't go in for improved and early maturing seeds, the rainfall pattern is not as good as previously, and so we are compelled to adopt this new technology to avoid low yields and crop failure."
NA06	"If I go to buy seeds, they do show me the various types of seed and their prices but often, I do buy the seed with the lowest price or I reduce the quantity for a high cost seed."
SV01	"For actual fact I have worked with them for almost two years and they helped [worked with] me for only one year. The help that they gave, you know before we go to contract, what we planned was not done to us. Because according to we and them, they said they are going to plough with us, to us and give us fertilizers , chemicals , weed chemicals so finally when the farming reach their also complain of the help so they only ploughing to us only ploughing. Apart from that they did not help us with anything. They told us that first they went and owed some company last year and they are not able to recover the debt "
SV02	"I only know these two NGOs Massara and Busaka. I started with the Massara company, through Massara, I found farmers that could help me and through that I came to join Busaka. After hearing that Busaka is a good company to help me."
KP01	"[Referring to presence of seed providers] this has changed. It is better. More than before."

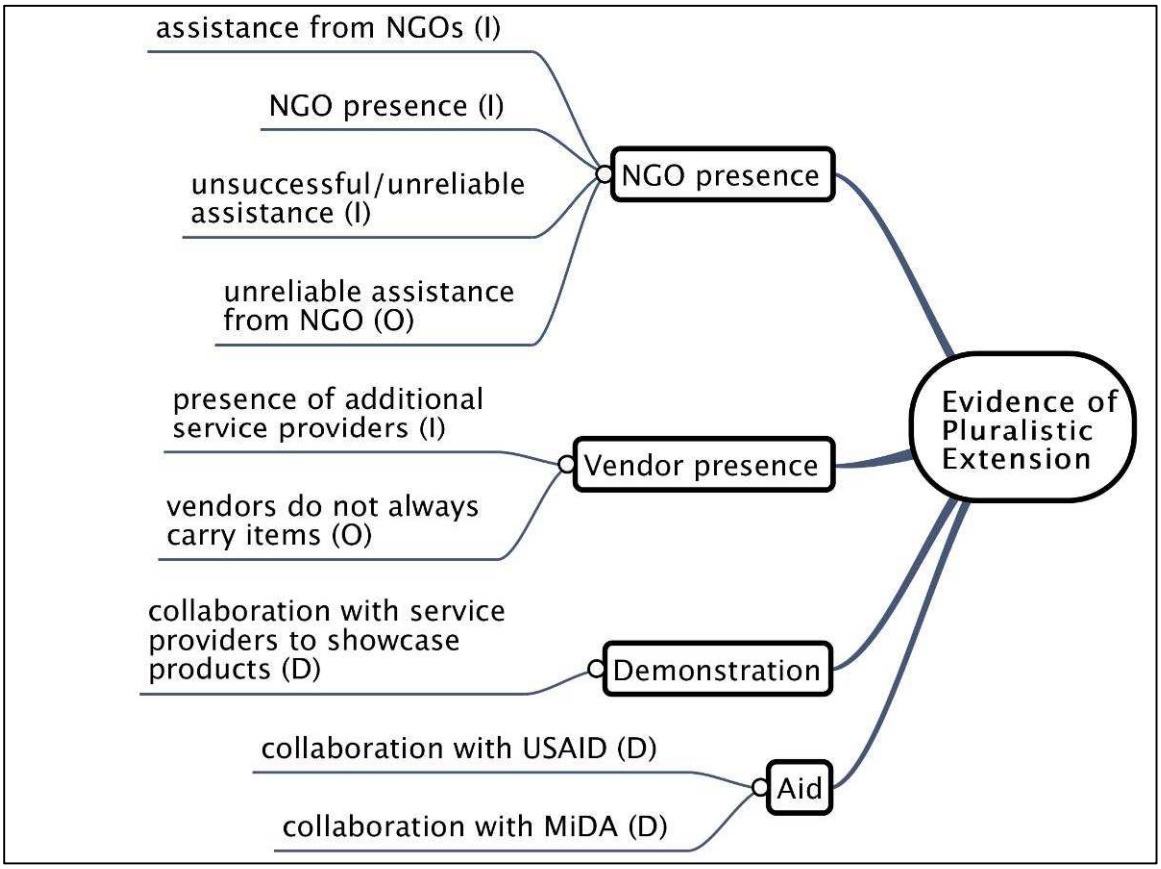

Figure 8. Derivation of the theme of evidence of pluralistic extension.

Summary

Chapter 4 included a presentation of the results and analysis of the data collected through unstructured interviews of 12 subsistence farmers, an observation of an informal meeting of farmers, and a review of documents representing operations of Busaka. The results addressed the research question of how subsistence farmers in SND perceive the effectiveness of MOFA FASDEP II strategies and policies in implementing pluralistic extension. There were no predetermined codes or themes used in the study. Seven themes emerged from the data analysis that were common among the three sources of data. All

three sources of data were in agreement with coding that supported the themes. None of the three sources of data had any themes that were not relevant to the research question.

The interview data included discrepant cases that were explained by other factors, such as easy access of the participant to a tractor through other means. Although there may have been an increase in accessibility to some farm inputs, such as improved seeds, fertilizer, and agrochemicals, farmers continued to face difficulty in accessing these inputs due to high costs and cronyism. Analysis of collected data indicates pluralistic extension in the decentralized agricultural system in Ghana has not been effective in focusing on subsistence farmers. Subsistence farmers still perceive that the system is more beneficial to large-scale farmers than to their own small-scale needs. There were no discrepant cases in the observation of the public meeting or during the review of documents provided by Busaka. Participants at the public meeting were in agreement with their colleagues and offered no comments that suggested different experiences than those shared by their colleagues from which the themes emerged.

Chapter 5 covers the following topics:

- a brief summary of the purpose of the study,
- interpretation and discussion of how the results reflect the performance of pluralistic extension in a decentralized agricultural extension system in the theoretical framework of collaborative advantage,
- a discussion of the positive social change implications of the study,
- recommendations for action derived from the results, and
- suggestions for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this ethnographic case study was to explore Ghanaian subsistence farmers' perceptions of the effectiveness of MOFA FASDEP II strategies and policies in implementing or facilitating pluralistic agricultural extension within the framework of decentralization. The data to answer the research question consisted of unstructured interviews of 12 subsistence farmers, observation of a public meeting of farmers, and a review of documents on assistance to farmers provided by Busaka.

Findings of this study indicated that subsistence farmers do not perceive the policies and strategies of FASDEP II facilitate pluralistic extension in addressing their needs to promote increased agricultural productivity. Although pluralistic extension is present, the seven emergent themes discussed in Chapter 4 indicated a lack of collaboration among the service providers. The lack of collaboration resulted in poor performance of the pluralistic extension in meeting the needs of subsistence farmers in SND, Northern Region, Ghana. Farmers continue to encounter barriers in accessing farm inputs and services in their farming operations.

The following seven themes emerged from the study:

- access to credit,
- environment and climate change,
- cronyism,
- access to inputs,
- access to machinery,

- meeting the needs of farmers, and
- evidence of pluralistic extension.

Interpretation of the Findings

Analysis of the data indicated that the current extension system does not included the multiple service providers required to address the needs of the subsistence farmers. It appears that many of the barriers and difficulties faced by subsistence farmers that prompted the revision of agricultural extension policy from FASDEP I to FASDEP II remain. No studies have been conducted to date on pluralistic extension throughout Ghana, but pluralistic extension failed to address the needs of farmers in other African countries, such as Malawi (Chowa et al., 2013, p. 162). Poor coordination and collaboration among service providers and farmers were primary reasons for failure of the pluralistic extension effort. In Ghana, performance of pluralistic extension was expected to improve in a decentralized agricultural extension system under the revised polices and strategies of FASDEP II. With few exceptions, the interviews, public meeting observation, and document review conducted for this study lead to the conclusion that all efforts to improve the performance of pluralistic extension have been less than successful, echoing the situation in Malawi.

Collaborative Advantage Theoretical Framework

The themes that emerged from the data are interrelated and are not mutually exclusive. Unreliable availability of farm inputs from service providers disrupts subsistence farmers' plans to implement recommended agricultural practices for increased agricultural yield. In cases when the inputs were available, the costs were

prohibitive and beyond the reach of subsistence farmers. Credit services to subsistence farmers were not easily accessible, thus eliminating a potential source for subsistence farmers to finance the implementation of produce-increasing projects. In situations where a subsidy program is in place, the farmers believed that cronyism in the extension program restricted their access to the subsidy.

The net quality and integration of these services, as perceived by the farmers in this study, did not meet the expectations of pluralistic extension. Instead, this study revealed factors of persistent poverty levels among small-scale subsistence farmers in SND that resulted from service providers not working together to provide for the farmers' needs. It was expected that there would be different motivations for each of the service providers in SND to be part of the pluralistic extension system. Huxham and Macdonald (1992, p. 51) suggested that such motivations could result in service providers becoming competitors rather than collaborators in presenting the farmers with comprehensive solutions if each provider sought to satisfy its own motivations without considering how those actions might affect other organizations in the extension system and, ultimately, the individual farmers.

Upon analysis of the themes, it appears that collaborative advantage is not present within the pluralistic extension system in SND, Northern Region, Ghana. There is evidence of pluralistic extension, but it appears that most of the service providers act in isolation. There is no visible collaboration among private sector, NGOs, and MOFA to deliver complete packages to the farmers. NGOs such as Busaka and others before them organize demonstration farms and activities, but the vendor for the product being

showcased does not provide affordable access through the showcasing partner. Farmers who wish to implement the demonstrated products must make additional efforts to find the products on their own, without any assistance. The lack of collaboration among the service providers is also evidenced by the inability of the pluralistic extension system to meet farmers' needs. Although there were instances in which NGOs met some of the needs of the farmers, the service had not been sustainable, resulting in a closure of programs.

Capacity of Service Providers

Mandates of the NGOs do not provide effective continuation of projects through other partners when the involvement of an NGO concludes. All three streams of data indicated that NGOs that have operated in SND in the past, including Busaka, do not have the capacity to deliver the services needed by subsistence farmers. NGOs usually are able to provide some services for approximately 2 years, and then will close down operations without leaving behind any support mechanisms for the farmers in their care. Another NGO appears without any reference to the work already accomplished by the previous NGO. Organizations such as the Adventist Development and Relief Agency and Engineers Without Borders were involved in agricultural activities and projects in SND through 2013, but they were not in operation during the fieldwork for this study. There was no indication that Busaka continued with the work and projects predecessor NGOs had initiated. It is clear that once NGOs have completed their specific projects, they leave without coordinating follow-on services with providers remaining in the community.

Likewise, there is no clear mechanism to ensure adequate support to the NGOs to continue their assistance to farmers when faced with dwindling funds and resources. When the funding is gone, the NGOs pack up and leave. When there has been public assistance support, the support has been sporadic and uncoordinated, resulting in ineffective support and failure of the NGO to deliver the expected support to farmers. In the same manner, when there has been public support directly to farmers, the support has not been reliable in terms of frequency and substance due to other barriers that MOFA might encounter in delivery of service.

Effective collaboration has been absent from pluralistic extension in SND, as can be inferred from analysis of the data collected in this study. The theory of collaborative advantage would have manifested in achieving one of the objectives of FASDEP II of focusing on improving the economic situation of subsistence farmers by meeting the needs of farmers through inputs, credit, and market access. Subsistence farmers I interviewed and observed indicated they had to find the inputs needed, particularly improved seeds and agrochemicals, through their own efforts. Farmers must procure inputs from the market, without any form of technical support from vendors or manufacturers. Credit services, when available, were late and restrictive, requiring farmers agree to engage in specific farming operations that were not suitable for that time of year, indicating a lack of coordination between lenders and providers knowledgeable of agriculture best practices. Farmers were not able to sell surplus produce easily without going through Busaka, the NGO that graded and bought their surplus grain at market value before selling it in bulk to consumer companies.

Achieving effective collaboration among actors in the agriculture extension system is worth the effort to subsistence farmers, as the study data indicates. Farmers' narratives portrayed circumstances in which the farmers' outcomes would have been vastly different if the various actors worked together as a team. For example, lenders did not take into account the critical timing for farming operations for which a loan was needed. Because the loan was late, the yield for that crop was poor. The process to remedy the lack of coordination can be initiated by a review of FASDEP II by representatives of MOFA, the private sector, DADUs, and farmers to point out conflicting policies and strategies for revision.

The findings of this study are consistent with those of Mabe, Nketiah, and Darko, (2014, p. 41), who found that climate change has always plagued farmers in SND. Mabe et al. (2014, p. 41) reported that all 100 SND farmers surveyed were willing to pay for rainfall information. The survey Mabe et al. (2014, p. 40) administered used a hypothetical scenario in which farmers could obtain localized weather information and interact with the company providing the information. Farmers in Mabe et al.'s study expressed that access to weather information would be valuable in their farming operations, confirming the current structure of the extension system is missing essential pieces of information for farmers. Mabe et al. (2014, p. 35) also pointed out that smallholder farmers considered the provision of weather information was the responsibility of the government through the Ghana Meteorological Agency (GMA), the organization with a mandate to analyze weather data and provide information to farmers, research institutes, private, and public agencies.

Farmers' comments regarding environment and climate change are indicative of ineffective collaboration between MOFA and GMA. According to the concept of pluralistic extension, MOFA is expected to coordinate all the actors, but GMA has not been involved in extension activities. Crucial information generated by GMA is not readily available to farmers, even if they are willing to pay for the information. The private sector can also provide the service by processing and aligning weather information to the needs of farmers and still generate revenue. Payments from the farmers can be in the form of cash or produce, as in the case of operations of Busaka, the only NGO in operation in SND when fieldwork was conducted for this study.

The present study confirms previous findings that pluralistic extension is essential for improving agricultural productivity of subsistence farmers and contributes additional evidence that suggests that collaborative advantage is key in effective pluralistic extension. Empirical findings of this study provide insight into some of the challenges faced by subsistence farmers in accessing the anticipated benefits of policies and strategies developed with a focus on them. The study can serve as a baseline for future studies that will explore these challenges and their contextual linkages to facilitate poverty reduction in poor regions through improved agricultural productivity of subsistence farmers.

Limitations of the Study

For the present study, interview participants were recruited from four farming communities in SND: Savelugu, Nanton, Pong-Tamale, and Kpachelo. The four communities are located in the southern half of SND. Geographical factors may have

affected the results, but the population of the region is concentrated in the southern part of SND (see map of SND in Appendix C). Triangulation of data collected through interviews with data from observation of a public meeting of farmers in Dipale, which is located in the northern half of SND, and the review of operational documents provided by Busaka confirmed and corroborated the results and findings of the interviews.

Most households in SND supported by subsistence farming are led by men rather than women (13,113 or 89.4% and 1,556 or 10.6%, respectively; Mustapha & Abubakari, 2014, p. 22). No women participated in the interviews, observed public meeting, or informal gatherings, which largely reflects the proportion of male subsistence farmers to female subsistence farmers in SND. Other agriculture-related studies conducted in Savelugu-Nanton Municipality confirm equally weak participation by women; only 15% of Mabe et al.'s (2014, p. 39) 100-person study of farmers were women.

The absence of women from the study is a limitation. Data from female farmers might reveal other themes that are not common to the general population and might be addressed in the future in a study that targets female subsistence farmers in SND. A review of data conducted by researchers for the World Bank and IFPRI found significant gender inequalities in access to extension services in Ghana, Ethiopia, and India. The survey data from Ghana showed that less than 2% of female head of household and female spouses has contact with extension agents compared to 12% of their male counterparts (Peterman et al., 2014, p. 8).

As part of the present study, I examined the public documents of the only NGO, Busaka, that was operating in Savelugu at the time of the field study. Although farmers'

perceptions of pluralistic extension under the theoretical framework of collaborative advantage were captured and explained, the study has some limitations in terms of the number of NGOs whose public documents were available. A review of documents from additional public NGOs might reveal additional ineffective collaboration among actors in the pluralistic extension.

I was concerned that my role as a researcher would influence the interview data. To counteract this possibility, I engaged in data triangulation by collecting and comparing data from two other sources: observation of a public meeting of farmers and a review of documents to verify the validity of data from the interviews (Stake, 2005). Subjectivity of interpretation of the data was addressed by multiple line-by-line reviews and comparisons with the codes and themes in their context across all three data sources. Because the inference in an ethnographic study is about what people do and say (Hammersley, 2006), the research questions and follow-up questions were designed to encourage interview participants to delve deeper and to provide rich, thick descriptions of their experiences with subsistence farming and pluralistic extension.

Although the sample size of 12 participants for the interview is small compared to the population of farmers in SND, conducting the study with a small sample allowed me to have adequate time to effectively interview participants and to pay attention to each participant to obtain true and complete opinions. I am confident of the findings and trustworthiness of this study.

Recommendations

Economic development of subsistence farmers is critical to addressing extreme poverty in developing countries and can be achieved through effective agricultural extension (Al-Hassan & Diao, 2007, p. 19). The present ethnographic case study explored the effectiveness of the revised policies and strategies of FASDEP II in accomplishing agricultural extension through the perceptions of subsistence farmers in SND within the theoretical framework of the theory of collaborative advantage. Results of the interviews, observation of the public meeting, and the review of operational documents provided by Busaka enabled the development of a number of recommendations.

Public Policy Recommendations

Findings of this study indicated that collaborative advantage was absent among the service providers who were present in the pluralistic system. It would be beneficial to understand which incentives might promote collaboration among service providers. FASDEP II appears to fall short of promoting effective collaboration. Policy intervention is needed to adjust the mission goals of FASDEP II and thereby promote collaboration among service providers, especially the private sector represented primarily by NGOs.

The data indicated poor performance of the voucher program for fertilizer provided by MOFA. The voucher program has several advantages that include creating competition among service providers and targeting subsistence farmers and women, but this program is a public sector funded contract and, as such, is plagued with political interference and corruption (Feder, Birner, & Anderson, 2011, p. 36). NGOs are better suited to execute the voucher system because their performance indicators are more

aligned with meeting the needs of subsistence farmers rather than maintaining political commitment and funding in the public sector (Feder et al., 2011, p. 36). Active involvement of NGOs in administering extension services that are vulnerable to political influences and justifications would eliminate the weak incentives offered to public-sector actors to meet the needs of farmers (Feder et al., 2011, p. 37).

FASDEP II was intended to strengthen partnerships among the ministries, departments, and agencies of the Ghana government and private industry in the delivery of effective agriculture extension, with MOFA operating in the role of coordinator. An in-depth investigation of the barriers faced by MOFA relative to this task in a decentralized agricultural extension system likely will uncover factors that can enhance the effectiveness of MOFA as a coordinator in the implementation of FASDEP II policies. When the private sector—NGOs—are given major roles within the pluralistic extension, MOFA must strengthen its performance as coordinator to ensure that companies do not focus their attention on areas of higher potential, higher value crops, or on farmers who are doing well and are not considered subsistence farmers. As demonstrated in the present study, when any of these three pitfalls are encountered, the needs of subsistence farmers to improve their economic status are not met and the program fails to contribute to poverty reduction (Feder et al., 2011, p. 37).

Future Study Recommendations

Although there are female subsistence farmers, they were absent from the gathering places where participants were recruited, and none were present at the public meeting. As such, the perceptions of female subsistence farmers were not captured. The

needs of this population might be different from those of male subsistence farmers. Therefore, an exploration of the challenges faced by female subsistence farmers through the lens of society and cultural norms in northern Ghana is suggested. Understanding these challenges could lead to development of programs that will result in an inclusive agricultural extension system.

This study was related to the performance of pluralistic extension in agriculture, but one can argue that service providers in the system need not be strictly agricultural. A goal of addressing agricultural productivity is to improve the economic condition of subsistence farmers. One way to complement the efforts of agriculture extension is through the development and training of subsistence farmers and their families in non-farming activities in agriculture-related industries; this recommendation was made by a participant (SV01) in the program, who stated,

> Actually, when I say training, not for the technical or vocational alone. You know, we are having women who are working with rice, extracting of rice and the sheanut, all these kind of things, so you can train these women to do something with these things. The income that you get, you can use in your farm. Secondly, too, you know these animals, to train how to rear animals is also good. After coming out from farm, you can be taking care of your animals so when it gets to the farming time, if you don't have money, you can sell some of the animals that have multiplied for money. Which is all part of the farming situation and part of the agriculture situation.

Industries and programs other than traditional subsistence farming, such as the extraction of sheanut and processing of rice, are typical examples of non-farming activities in agriculture-related industries. Non-farming industries can be conducted during the off season to supplement the incomes of subsistence farmer families. Further research to explore the optimal setup for training in non-farming activities will contribute to the improvement of subsistence farming households.

A replication of the present study conducted in a farming community in southern Ghana could provide additional perspective of the performance of FASDEP II in facilitating pluralistic extension in Ghana. As explained in Chapter 1, southern Ghana has more tree cover and receives more rainfall than northern Ghana. Rainfall amount is tied to productivity because subsistence farmers operate rain-fed agricultural systems (Al-Hassan & Diao, 2007, p. 2). The findings of a study conducted in southern Ghana compared to the findings of this study can help identify other factors that may be influencing the status of pluralistic extension in SND.

If findings of a study conducted in southern Ghana are similar to those from northern Ghana, indicating that subsistence farmers in the southern regions of Ghana face similar challenges as those in SND, the findings of the present study can be generalized to a wider population. Similarities in results between the two disparate settings would imply that environment and location do not have significant influence on the plight faced by subsistence farmers in Ghana. Instead, the similarities would highlighting the need to address the shortcomings of the strategies and policies of FASDEP II.

If the findings are not similar, the implication is that environment and location do have significant influence on the economic status of subsistence farmers in northern Ghana. The findings would confirm the social injustice of poor persons in the south being able to access resources easier. They would also validate the contention among subsistence farmers in SND regarding the FASDEP II policy of investment and allocation of scarce resources to the south, with the private sector (NGOs) choosing to work with farmers who do not fall into the category of subsistence farmers.

Social Change Implications

The results and findings in this study can be used as empirical evidence of the performance of policies and strategies aimed toward improving the economic wellbeing of the poorest people in northern Ghana. Policies and strategies developed and implemented to date reflect the findings of studies that have been prescriptive (Juma, 2011) and without strong empirical evidence from the beneficiaries, the subsistence farmers. Evidence of the lack of effective collaboration among actors in the pluralistic extension will enable policymakers to address this critical context for future revisions to ensure that the policies and strategies are effective in achieving poverty reduction among subsistence farmers.

Improving the financial conditions of the poorest persons in SND will contribute to efforts of economic development of the district and will initiate a positive social change. Other researchers and research organizations such as World Vision Ghana, Ghana Danish Community Project, Simli Aid, and Technoserve are exploring ways to

facilitate poverty reduction. These organizations can adopt the findings of this study to improve the quality of life for the poorest persons in Ghana.

In the process of conducting the field study, the participants echoed their frustration of their feeling of being abandoned; it became apparent in the narration of their experiences that the service providers are not working together to help them and are just out to make money. I believe that after explaining to the farmers with whom I interacted the concept of an effective pluralistic extension, one exhibiting collaborative advantage, they are better educated on how the extension strategies and policies are supposed to work for them.

Conclusion

In conducting the fieldwork, I realized that my study was just a small part of the struggles encountered by subsistence farmers in SND. Their problems have multiple root causes, indicated by the wide range of their experiences, from financial, political, socioeconomic status to the forces of nature on their farming operations. Solutions that will have a significant impact on the economic wellbeing of this population are most likely to be a complex mix of policy initiatives, political interventions, and development programs aimed at the subsistence farmer. Efforts to improve the economic conditions of subsistence farmers through reforms of agriculture extension policies and strategies are hindered by a lack of effective collaboration among the actors. Therefore, a crucial element in efforts toward poverty reduction in Ghana is missing.

There is a strong correlation between an increase in staple crop production and poverty reduction, based on several economic models run using different poverty

reduction trends (Al-Hassan & Diao, 2007, p. 19). Poverty rate simulation figures in Northern Region were 88.2% in 1998; these rates decreased in 2015 to 43.8% and 73.1% for staple crops and export crops, respectively (Al-Hassan & Diao, 2007, p. 13). Al-Hassan and Diao (2007, p. 13) concluded that growth in staple crops has a more significant impact on poverty reduction, as much as 50%, than growth in export crops at the national level, and particularly so in poor regions such as Northern Region, Ghana.

In SND, an estimated 97% of the workforce is engaged in subsistence farming of staple crops. Among farmers of food crops, there is a poverty rate of 46%. If efforts to bring these farmers above the poverty line were successful, there would be significant progress in poverty reduction.

While FASDEP II has made some progress in improving agriculture productivity of farmers in general, the anticipated results have not been realized. The purpose of this ethnographic case study was not to evaluate the policies and strategies of FASDEP II. Rather, the purpose of this study was to explore subsistence farmers' perceptions of the policies and strategies in facilitating pluralistic extension under the contextual framework of decentralization and the theoretical framework of collaborative advantage. Findings demonstrated that ineffective collaboration among service providers hinders an effective pluralistic extension that is expected to address the needs of subsistence farmers as part of poverty reduction efforts.

From a positive social change perspective, improving the agriculture productivity of subsistence farmers is the most effective contribution to poverty reduction; subsistence farmers are the poorest persons in SND. There is also an element of social justice in that

FASDEP II was implemented with a focus on the resource-poor farmer, the subsistence farmer. The subsistence farmers in SND in Northern Region, Ghana, do not have equal access to nationwide subsidies and incentives because administering actors are more likely to invest in the resource-rich regions in the southern half of the country. The study highlights the challenges in a agriculture extension system that blocks effective pluralistic extension. The findings of this study should drive policy development to eliminate these challenges.

Studies conducted to date on agricultural development with pluralistic extension have been prescriptive rather than descriptive, with empirical data that take into consideration the contextual backgrounds and environments for implementation. Ineffective collaboration among the agriculture extension service providers blocks the policies and strategies of FASDEP II to reduce poverty by improving agriculture productivity among the poorest of people in Ghana, subsistence farmers.

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Appendix A: Interview Protocol

Participation in Effectiveness of Food and Agriculture Sector Development Policy (FASDEP II) in Facilitating Pluralistic Extension

Time of Interview: _____

Date: _____

Place: _____

Interviewer: _____

Interviewees: _____

Translator: _____

Project Purpose

The purpose of this study is to determine subsistence farmers' perceptions of the effectiveness of the strategies and policies of FASDEP II in the implementation or facilitation of pluralistic agricultural extension services in SND. FASDEP I was revised into FASDEP II to focus on resource-poor farmers who have not been able to participate and implement the programs under FASDEP I. Obtaining this information will enable the Ministry of Food and Agriculture in the Republic of Ghana (MOFA) to target areas and policies that may be lacking in facilitating an enabling environment for factors that support improved agricultural productivity, thus contributing to poverty reduction in Ghana.

Project Description

I am seeking feedback from the primary beneficiaries of revision of the policies of FASDEP I into FASDEP II on how they perceive the revisions implemented. The

revisions were prompted by reports that resource-poor farmers were not able to participate and benefit from the policies and strategies of FASDEP I. My goal is to explore, from your perspective, how the revisions have affected you and understand your thoughts on the revisions implemented.

Interview Questions

1. How long have you been farming?
2. What kinds of crops have you grown in that time period and are you growing now? [Follow-up: If the crops changed, why did they change?]
3. How big is your family and where do you all live?
4. What are your sources of income? [Follow-up: Which source is the primary source?]
5. What kind of help have you received from MOFA or any of the non-governmental organizations (NGOs) in the area?
6. How has the assistance changed over the years?
7. How do you obtain the inputs for your farm, such as seeds, pesticides, fertilizers, and machinery, if any?
8. How easy is it for you to find or acquire inputs? [Follow-up: How is the ease of finding or acquiring inputs different today than it was in 2002 to 2006?]
9. Do you have a bank loan for the farm?
10. How did you get the loan? [Follow-up: Did you receive any assistance in obtaining the loan?]

11. How was the loan process different from the previous years? [Follow-up: How was the process different? What made the process more difficult or easier?]
12. What do you think of the pluralistic extension system now? [Follow-up: How has the pluralistic extension system affected the operation of your farm? How is the system helping you to solve issues on your farm? What could be done differently if you had your way?]
13. How do you see yourself farming in the near future? [Will you still be using the agricultural extension system?]

Final Comments and Thanks:

- Thank the interviewee for their willingness to share their experiences and thoughts.
- Assure them that their responses are confidential.
- Mention to them that they will have the opportunity to review a copy of the interview transcript.
- Confirm that there may be a need to come back for a follow-up interview and confirm their willingness to do so.
- Reiterate that they are able to drop out of the study with no consequences.

Appendix B: Public Meeting Observation Guide

Subsistence Farmers' Perceptions of Pluralistic Agriculture Extension in Northern Ghana

Background Information

The purpose of this study is to explore and understand how subsistence farmers perceive the effectiveness of the current policies and strategies that Ghana Ministry of Food and Agriculture (MOFA) has implemented in promoting and supporting pluralistic agricultural extension within the framework of decentralization through FASDEP II to help subsistence farmers.

The dissertation research study is being conducted by Amos Baah, who is a doctoral student at Walden University. No known conflicts of interest exist with respect to this research study.

I am attending a publicly held meeting organized by farmers in Savelugu-Nanton District to discuss agriculture-related issues.

Procedures

- Inform the local chief or custodian of the region and the organizer of the meeting so that they are aware of my presence and activities in the region and also to explain my presence in the town and at the meeting to avoid any anyone feeling uneasy at the meeting.
- Conduct observations by attending a public meeting of farmers.
- Record the meeting date and time (start and end times)

- Listen to the issues raised by the farmers and identify themes in the issues raised by the farmers.
- Avoid interpretation of the comments made during the note taking of issues raised.
- Describe only what happens rather than form an explanation of why something happened.
- Summarize the themes identified in the issues raised; avoid mention of any specific details of who, what, or where of the related event in the summary description of the theme identified.

Payment

No compensation is being offered to any of the meeting participants or the organizers of the meeting.

Privacy

Any information provided by farmers or meeting attendees will be kept confidential. Neither I nor Walden University will use your personal information for any purposes. I will not include the names of any of the meeting attendees or organizers or anything that could be used to identify attendees or organizers in the study reports. No person's identity will be revealed or published at any time. All notes taken will be kept secure by me in locked files for a period of 5 years after the final research report has been accepted by Walden University.

Contacts and Questions

You may ask any questions you have now. If you have questions later, you may contact me via phone at [redacted] or e-mail at [redacted]. If you want to talk privately about your rights as the organizer of the meeting or the custodian of the area, you may call Dr. Leilani Endicott, who can discuss your concerns with you. The telephone number is +1-612-312-1210. The approval number for this study assigned by Walden University is 01-12-16-0201256 and approval expires on January 11, 2017.

Appendix C: Map of Savelugu District

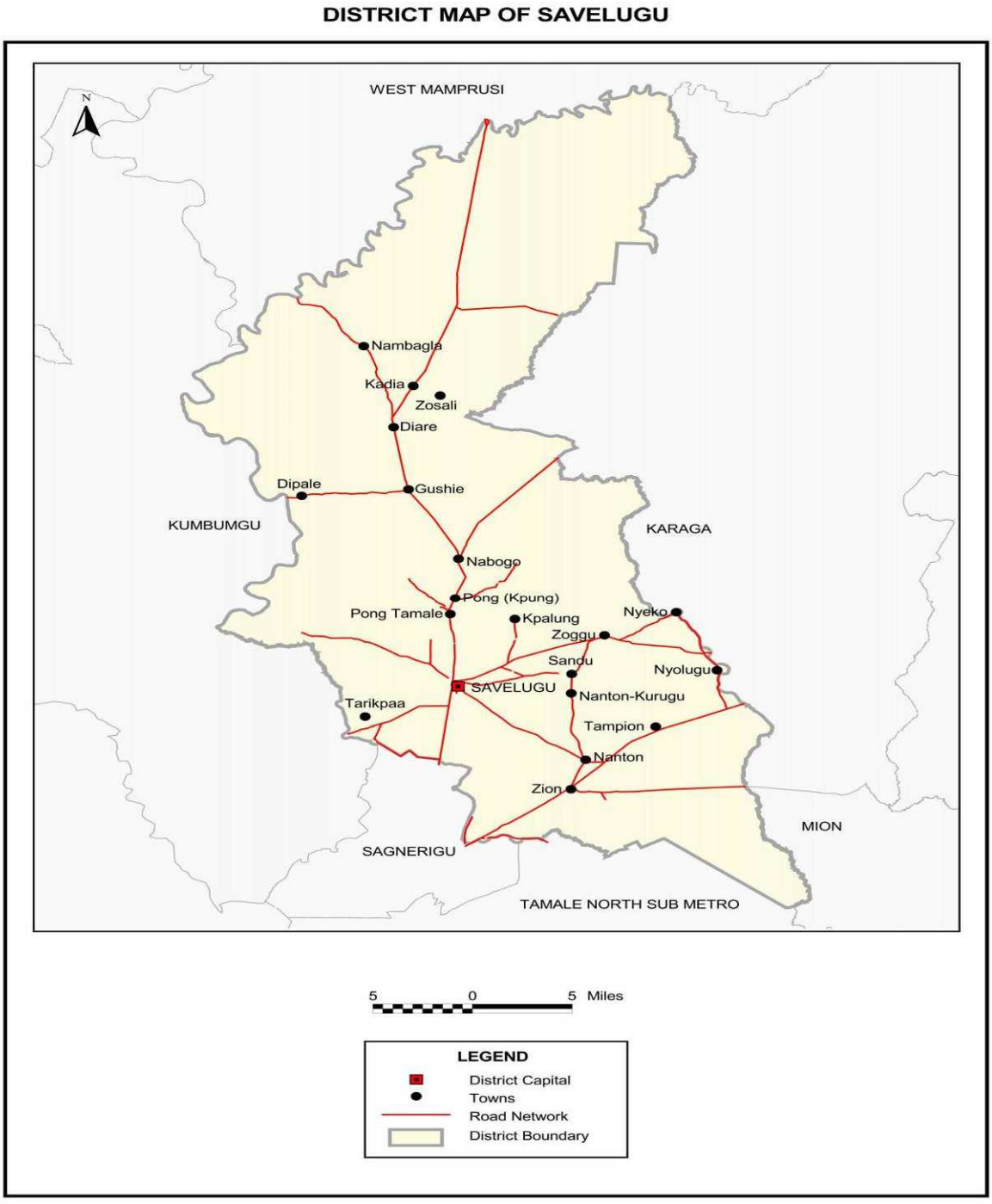

Figure 9. Map of Savelugu. Adapted from *2010 Population & Housing Census: District Analytical Report: Savelugo-Nanton District,* by H. Mustapha & M. Abubakari, 2014, p. 2. Copyright 2014 by Ghana Statistical Service. Adapted with permission.