



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

MEAS Assessment of EAS in Ghana's FTF ZOI

Assessment of Extension and Advisory Services in Ghana's Feed the Future Zone of Influence

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Acronyms

ACDEP	Association of Church-Based Development Programs
ADVANCE	Agricultural Development and Value-Chain Enhancement Project
ADRA	Adventist Development and Relief Agency
AEA	Agricultural Extension Agent
AGRA	Alliance for a Green Revolution in Africa
APFOG	Apex Farmers Organization of Ghana
ATT	Agricultural Technology Transfer Project
BSc	Bachelors of Science
CARD	Center for Agriculture and Rural Development
CARD	Community Aid for Rural Development
CDFATD	Canadian Department of Foreign Affairs, Trade, and Development
CIDA	Canadian International Development Agency
CSIR	Council for Scientific and Industrial Research
CSO	Civil Society Organization
DA	District Assembly
DANIDA	Danish International Development Agency
DAO	District Agricultural Officer
DDA	District Director of Agriculture
DDO	District Development Officer
DAES	Directorate of Agricultural Extension Services
DHRDM	Directorate of Human Resource Development and Management
DPPME	Directorate of Policy, Planning, Monitoring, and Evaluation
EWB	Engineers Without Borders Canada
FASDEP	Food and Agricultural Sector Development Policy
FBO	Farmer-Based Organization
FtF	Feed the Future
FONG	Farmers' Organization Network in Ghana
GAP	Good Agricultural Practices
GFAP	Ghana Federation of Agricultural Producers
GNAFF	Ghana National Association of Farmers and Fishermen
GIZ	German Federal Enterprise for International Cooperation
HND	Higher National Diploma
ICT	Information Communication Technologies
IFDC	International Fertilizer Development Center
IMS	Information Management Specialists
INGO	International Non-Governmental Organization

M&E	Monitoring and Evaluation
MAFA	Masara N'arziki Farmers Association
MAP	Methodist Agricultural Program
MEAS	Modernizing Extension and Advisory Services Project
MEDA	Mennonite Economic Development Associates
METASIP	Medium-Term Agricultural Sector Investment Plan
MoFA	Ministry of Food and Agriculture
NABOCADO	Navrongo-Bolgatanga Catholic Diocesan Development Office
NGO	Non-Governmental Organization
NSAICU	Northern Sector Agricultural Investment Coordination Unit
ORGIIS	Organization for Indigenous Initiatives and Sustainability
PAS	Presbyterian Agricultural Services
PFAG	Peasant Farmers Association of Ghana
PTD	Participatory Technology Development
RADU	Regional Agricultural Development Unit
RELC	Research Extension Linkage Committee
SARI	Savannah Agricultural Research Institute
SEND	Social Enterprise Development Foundation
SMS	Subject Matter Specialists
SNEDIP	Savelugu-Nanton Extension Delivery Improvement Project
SNV	Netherlands Development Organization
UDS	University for Development Studies
USAID	United States Agency for International Development
WIAD	Women in Agricultural Development
ZoI	Zone of Influence

Introduction and Background

Background on Study Area

In 2009 the United States Agency for International Development (USAID) began the Feed the Future (FtF) initiative to address global poverty and hunger, and selected Ghana as one of 19 target countries (Feed the Future, n.d.). Overall, Ghana has shown annual GDP increases of 4% to 8% and a reduction in overall poverty from 52% to 28% in the last decade (CIA, 2015). Agricultural development has been the primary driver of economic growth and poverty reduction in Ghana, making it the focal point of the country's FtF strategy (Feed the Future, n.d.). The Ghanaian agricultural sector provides 21.5% of GDP and employs 56% of the labor force (CIA, 2015).

However, economic growth and reductions in poverty have been much lower in northern Ghana. Recent estimates show that poverty rates in Ghana's three northern regions are twice that of Ghana's southern regions. Instances of stunting and wasting and indicators of acute food insecurity are also considerably higher in northern Ghana as compared to the rest of the country (Feed the Future, n.d.). As a result, the FtF initiative prioritized three regions (Northern Region, Upper West Region, and Upper East Region) as the Zone of Influence (ZoI) for its operations in Ghana.

Like the rest of the country, smallholder agriculture is the main source of employment, income, and food security in the ZoI (MoFA, 2010). However, farmers in northern Ghana face a number of challenges in agricultural production and food security. The ZoI is characterized by challenging conditions for agricultural production. The area is dry, arid, and compromised by water scarcity due to a short, three-month rainy season followed by extended drought that limits farmers to a single growing season. Strong winds also create a bi-modal Harmattan season that impacts cropping systems (FAO, n.d.). Consequently, farmers struggle to produce traditional staples of maize, rice, and yams but also vegetables, cash crops, and tree crops (CIA, n.d.; MoFA, 2010).

Under-development of the three northern regions further compromises production and food security. The ZoI lacks agricultural infrastructure (e.g. irrigation systems, processing/storage facilities) and poorly developed transportation infrastructure. Low production is also attributed to farmers' lack of access to and unfamiliarity with modern inputs and agricultural technologies, such as certified seed, agrochemicals, inoculants, and improved production techniques (Wood, 2013).

Addressing this gap in improved technology usage reinforces the need for effective agricultural extension and advisory services to northern Ghana. Indeed, the impact of agricultural extension in the ZoI has been largely positive. Access to information and extension services were found to significantly influence farm household's likelihood of adopting modern production technologies (Akudugu, Guo, & Dadzie, 2012). These changes in farmer behavior were linked to improved production and increased food security. Therefore, in order to address food insecurity and increase household incomes in northern Ghana, a vibrant and effective extension service should play a central role.

Previous and Current Research

As a result, the Modernizing Extension and Advisory Services (MEAS) project has explored existing agricultural extension services in Ghana's ZOI. MEAS conducted a rapid scoping assessment of Ghana's pluralistic extension and advisory system in 2012 and found positive aspects as well as some significant weaknesses and deficiencies. The report identified included several examples of effective programming and good extension practices in public sector and NGO-based extension programs, including the utilization of key approaches (e.g. market-oriented extension, ICT innovations) that have been proven effective in other countries.

However, the study also illustrated a critical need for improved performance from public sector extension to better serve Ghanaian farmers and address contemporary agricultural needs. For example, the MEAS report found that governmental extension, through the Ministry of Food and Agriculture (MoFA), was heavily focused on production-centric extension methods and yield enhancements, while lacking adequate market-orientation along with the up-to-date technical information and requisite skills to address rural income development. There was also insufficient emphasis on other important factors such as nutrition and gender equity that have other implications on household wellbeing.

Since 2012 considerable attention has been paid to addressing agricultural development and to improving extension services to farmers in the ZOI. A follow-up study was required to track progress and provide an updated picture of extension in northern Ghana.

In January and February of 2015, a team of two researchers from MEAS and one researcher from the Ghanaian University for Development Studies (UDS) conducted a comprehensive scoping mission within the three northern regions that comprise the Feed the Future ZOI in Ghana. As a team, the researchers met with key stakeholders engaged in providing extension services. Because MEAS is largely focused on strengthening public extension systems, the main emphasis of this study was regional- and district-level MoFA extension personnel. Representatives from local NGOs, INGOs, private sector companies, donors, and training institutions were also included. Additionally, progress made in decentralizing extension since the 2012 scoping mission necessitated the inclusion of District Assembly (DA) representatives, as these assemblies are now tasked with managing and financing public extension in their areas of jurisdiction.

Respondents were intentionally selected to include perspectives from all levels of extension hierarchies. For example, MoFA respondents ranged from regional administrators to district-level agricultural extension agents (AEAs). The final sample included 65 respondents representing all three regions and 12 districts. Greater detail on these individuals, their organizational affiliations, and their geographic distribution can be found in Appendix B.

Data were collected through semi-structured interviews that included a series of open-ended questions. Topic areas included programming and operational procedures, funding mechanism,

characteristics of extension personnel, collaboration with other extension actors, and challenges in service delivery. Interviews were audio-recorded and field notes were taken by members of the research team. Analysis was then conducted to identify emergent themes using a method of constant comparison (Merriam, 2009) and data triangulation within the research team (Flick, 2009).

The purpose of this study was to update current knowledge on the status of extension service delivery, organizational capacity and performance capabilities, and pluralism in the Feed the Future ZOI, ultimately to identify opportunities for MEAS to provide strategic support needed to improve service delivery. The following sections describe the emergent themes and discuss potential opportunities for addressing gaps found through the 2015 scoping mission. Text represents findings from interviews as well as information from prior research.

Description of Current Extension Service Providers

Governmental Extension

Public Extension System:

The provision of public extension and advisory services falls under the umbrella of the MoFA. MoFA is the largest single provider of extension services in Ghana, in terms of personnel numbers and geographic coverage. Governmental extension offices and personnel operate in all 10 regions and are present in all 216 districts, including newly-created districts from the 2012 rezoning (Ghana Districts, n.d.).

Structurally, MOFA is divided into eight directorates: crop services, plant protection and regulation, animal production, veterinary services, fisheries, agricultural engineering, women in agricultural development, and agricultural extension (MoFA, n.d.). The Directorate of Agricultural Extension Services (DAES) is directly tasked with providing public extension and advisory services in Ghana. While the Directorate of Policy, Planning, Monitoring, and Evaluation (DPPME) creates extension policy, DAES is responsible for the implementation of these policies through operational planning, the coordination of extension activities, and provision of direct technical support to Ghanaian farmers. DAES also coordinates with other MoFA directorates, primarily the Directorates of Animal Production and Crop Services, in the provision of agricultural extension services.

At the regional level, Regional Agricultural Development Units (RADUs) perform supervisory roles over programming in agriculture (MEAS, 2012). RADUs comprise personnel from all directorates, include information management and monitoring and evaluation specialists, and are managed by the Regional Director of MoFA. In terms of extension, RADUs oversees the extension activities of districts within the region, provides operational support to district offices, facilitates training and resource dissemination, and manages region-wide data and reporting (MoFA, n.d.).

RADUs are also involved in coordinating NGO and private-sector agricultural development and extension programs, though their effectiveness in this role differs across regions examined in the recent scoping mission. In the Northern Region, with support from the Alliance for a Green Revolution in Africa (AGRA), MoFA has formed the Northern Sector Agricultural Investment Coordination Unit (NSAICU) to synchronize activities and promote partnership among extension providers. The Unit is expected to extend its activities to the other regions.

Despite a range of competing responsibilities, RADU administrators value and prioritize the importance of agricultural extension. In the recent scoping mission, regional RADU directors in the Northern, Upper West, and Upper East Regions all demonstrated a thorough understanding the activities and conditions within their regions that closely matched responses from district-level respondents. This synchronism suggests that effective communication mechanisms do exist between district and regional levels. For example, bi-weekly meetings occur between the RADU director and all district-level MoFA directors. One such meeting was attended in the Upper West Region as part of the 2015 scoping mission.

RADU offices also emphasize and demonstrate capacity in information management. All three regions in northern Ghana employed Information Management Specialist (IMS) officers and Monitoring and Evaluation (M&E) officers. When asked, these officers provided access to comprehensive rosters of extension personnel and their characteristics, up-to-date lists of NGO projects active in the region, and thorough regional evaluation reports.

At the district level, agricultural programming is managed by individual MoFA offices, now called Departments of the Ministry of Agriculture or just Departments of Agriculture under the decentralized system. Ghana's districts are termed metropolitan (population over 250,000), municipal (population over 95,000) or ordinary district (population 75,000 and over). Within USAID's ZOI in northern Ghana, Northern Region is composed of 26 districts (one metro and two municipal), Upper West Region contains 11 districts (zero metro and one municipal), and Upper East Region includes 13 districts (zero Metro and two municipal). Districts are further divided into operational zones (typically four) composed of number of communities. Extension staff numbers generally represent the farming population of each district.

The Department of Agriculture in a district consists of the District Director of Agriculture (DDA), subject matter specialists (SMSs) called District Development Officers (DDOs), field officers, and support staff. District-level officers are divided into District Agricultural Officers (DAOs) and Agricultural Extension Agents (AEAs). DAOs are divided into three subcategories and AEAs into three categories based on seniority and ascension through the MoFA hierarchy. By design, extension personnel start as AEAs and move from Assistant Agricultural Officer to Agricultural Officer to Senior Agricultural Officer before becoming DAOs and moving from Assistant Director to Deputy Director to District Director and potentially to higher roles within the central MoFA office. Promotion is scheduled for every three years, though promotion procedures seldom occur as planned.

Generally speaking, higher positions at the district level are held by DAOs. These individuals serve as operational zones coordinators, while less established AEAs are assigned to specific operational areas and perform general extension functions. Most AEAs primarily possess backgrounds in general agriculture and operate on a broad range of topics. AEAs are also frequently seconded out to INGOs projects active in their respective operational areas.

Despite the operational structure, the 2015 scoping mission found that, due to low staff numbers, virtually all DAOs are required to perform field extension functions along with the AEAs they supervise. In the three regions observed, coverage gaps, high numbers of farmers, and low availability of field-level AEAs necessitated more senior DAOs to perform both field activities and administrative roles to adequately serve farmers. These issues will be discussed in subsequent sections.

DAO-level subject matter specialists also operate at the district level and represent the eight directorates of MoFA. All districts visited during the 2015 study included DAO-level M&E and Women in Agricultural Development (WIAD) officers. However, not all districts had specialists in all areas, as the agricultural context and the needs of farmers differed. For example, veterinary service officers were present in Savelugu-Nanton district representing the Directorate of Animal Production but were not found in other districts examined. Still, the majority of extension officers in most districts represented DAES and had roles and titles relating to extension.

District-level MoFA offices also employ a range of support staffs that includes drivers, secretaries, security officers, and general laborers. Most district offices also employ one or more informal staff members as Market Surveyors, who track crop and livestock price trends in local markets.

Agricultural Research:

One of the primary roles of the central MoFA office is to provide technical backstopping to RADUs for dissemination to district-level Departments of Agriculture. As such, MoFA supports agricultural research conducted in-country and designed to represent the agricultural context of Ghana. Public agricultural research is conducted by two groups of actors, (a) agricultural research institutions and (b) universities and other educational centers.

Ghana hosts the integrated Council for Scientific and Industrial Research (CSIR), which combines 13 research institutes focusing on different aspects of agriculture. For the Feed the Future ZOI, the Savanna Agricultural Research Institute (SARI) is the most relevant. SARI operates in northern Ghana with a specific mandate to provide farmers in the Upper East, Upper West, and Northern Regions with appropriate technologies to increase their food and fiber crop production. The institute prioritizes sustainable production systems through the maintenance or increase of soil fertility, use of low-input means to address diseases and other plant maladies, and promote water conservation in farming. SARI's main facility is located in Nyankpala, Northern Region and the institute has branches in Bawku, Upper East Region and Wa, Upper West Region respectively.

Universities and other educational centers also provide research services to MoFA and the larger agricultural sector. The University for Development Studies is one of eight public universities in Ghana located in the north. Its Nyankpala campus is dedicated to training students in agriculture and extension, includes lab-based and field-based research with farmers and other agricultural stakeholders as part of its curriculum, and shares human resources with neighboring SARI. Scientists of UDS and other universities across the country also disseminate their research findings to MoFA but also directly to farmers through on-farm research and demonstrations.

Agricultural and extension-related research conducted by the public sector is intended to be demand-driven and based on the needs of both extension providers and Ghanaian farmers. At the regional level, Research Extension Linkage Committees (RELCs) function to link research institutions such as the SARI to MoFA extensionists and farmers. These quarterly RELC meetings serve to generate research priorities and guide efforts by researchers but also to disseminate research findings to practitioners and end-users.

The RELC model was established in each region as a part of the World Bank funded National Agricultural Extension Project in the early 2000s. However, the RELCs have struggled to effectively serve their functions following the end of initial funding. The 2015 study found that agricultural research in the ZOI relied heavily on donor funding, which reoriented the foci towards donor-driven rather than locally derived objectives. Both SARI and UDS reported dependence on winning donor-sponsored proposals to carry out studies due largely to the inability of the Ghanaian central government to fund their research. Furthermore, low funding had compromised the ability of RELCs to subsidize farmer involvement in the RELCs, potentially limiting the ability to directly respond to farmer's needs.

Funding has also affected dissemination of research findings (Aseido-Darko, 2013, p.13). Donor-funded research is often proprietary and not available for general dissemination to MoFA and farmers. Instead, RELCs have pushed for more demonstration-based, on-farm research that incorporates MoFA extensionists and farmers right from the beginning of research and as such allows learning through experience. Institutes like SARI have also been involved in building trainings (for AEAs and farmers) into their proposals, thereby providing direct extension services that simplify findings to the level of their audience to better disseminate results.

Agricultural and Extension Training Institutions:

Agricultural universities, colleges, and technical schools also have a central role in public extension because these institutions are tasked with training students in agricultural and extension-related topics and preparing graduates to serve farmers as extensionists. Formal training in agriculture begins at the very basic level in primary school and progresses through to the Senior High School level. However, agricultural extension agents require degrees at the diploma, certificate, or Bachelors of Science (BSc)

level to gain employment, meaning virtually all pass through higher-level academic institutions in some capacity.

Various training institutions admit students for specialized agricultural training and several institutions are responsible for preparing Ghanaian extensionists. Traditionally, most public-sector extension workers were products of MoFA-operated agricultural colleges and/or farm institutes. In order to fulfill the human resource needs for the Ministry of Food and Agriculture and to ensure proper pre-service technical training of field-level staff the Directorate of Human Resource Development and Management (DHRDM) of MoFA manages five agricultural colleges and three farm institutes located across the country (Table 1). Damongo Agricultural College was visited as part of the 2015 scoping mission.

Table 1: Agricultural Colleges and Farm Institutes Managed by the Ministry of Food and Agriculture

Name of Institution	Location	Year of Establishment	Level of Training
Kwadaso Agricultural College	Kwadaso- Kumasi (Ashanti Region)	1952	Diploma and Degree in Extension for MOFA Staff
Ejura Agricultural College	Ejura (Ashanti Region)	1963	Certificate
Ohawu Agricultural College	Ohawu-Abor (Volta Region)	1964	Certificate And Diploma
Damongo Agricultural College	Damongo (Northern Region)	1968	Certificate
Animal Health and Production College	Pong-Tamale (Northern Region)	1960	Certificate And Diploma
Asauansi Farm Institute	Cape Coast (Central Region)		Field Practicum
Adidome Farm Institute	Adidome (Volta Region)		Field Practicum
Wenchi Farm Institute	Wenchi		Field Practicum

	(Brong-Ahafo Region)		
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Source: MoFA, 2015

In the past, all MoFA agricultural colleges provided certificate programs, except for Kwadaso Agricultural College, which also provided BSc degrees. In the last decade however, these colleges have developed in terms of staff and infrastructural capacity and have thus added diploma programs. Both certificate and diplomas programs run for a three-year period, with the curricula serving as the difference.

MoFA-operated agricultural colleges also provide trainees with a monthly allowance and daily feeding as incentive. As a result of these factors, the expansion of programming, and the potential for employment following graduation, enrollment in these institutions is increasing. However, the Ministry is struggling to absorb all qualified graduates of these programs, leading many to seek opportunities in other sectors.

Apart from these agricultural colleges and farm institutes which are directly under the control of MoFA, there are several public and private universities that offer courses in agriculture-related fields and produce graduates who go on to work in extension. Most of these universities have the capacity to award certificates and degrees up to the PhD level in specialized agricultural fields including extension. The Nyankpala campus of the University for Development Studies located near Tamale in northern Ghana is one example.

Another important segment of institutions that train field-level extensionists for the agricultural sector are Polytechnic Institutes. Every region, including the three northern regions that comprise the Feed the Future ZOI in Ghana, has a polytechnic, which supplies technical manpower in specific areas, including general agriculture. For example, the Tamale Polytechnic serves the Northern Region, the Bolgatanga Polytechnic serves the Upper East Region, and the Wa Polytechnic serves the Upper West Region. Currently, most polytechnics award a Higher National Diploma (HND) to their trainees upon successful completion of a three-year program. The Ghanaian government is currently looking at the feasibility converting these polytechnics into technical universities.

NGOs and Project-Based Extension

Non-Governmental Organizations, both domestic and international, play a significant role in the extension and advisory services available in Ghana. NGOs are broadly grouped into three categories, (a) donor-funded projects representing government-led initiatives from developed-world countries, (b) international NGOs with independent funding streams, and (c) domestic NGOs who often partner with donor and/or INGO projects.

Several governments support agricultural development in northern Ghana. As discussed, USAID through the Feed the Future initiative is heavily active in the area. The main USAID project is Agricultural Development and Value-Chain Enhancement Project (ADVANCE) II, which has a significant presence in the three northern regions and works with a number of the NGOs interviewed. This project focuses on developing value chains in soya, maize and rice. ADVANCE utilizes a technology transfer and modified Farmer Field School approach centered around out-growers, or model farmers that employ and train smaller farmers to expand production of specific crops. ADVANCE II provides improved seeds, inputs, mechanization services, and market access, and is also supported by the Agricultural Technology Transfer (ATT), which provides donor-led extension services.

Other donors were also involved in supporting value chain development in northern Ghana, including the Danish International Development Agency (DANIDA), the Netherlands Development Organization (SNV), and AGRA. These donor-led projects work on similar crops and value chains, but provide a greater emphasis on post-harvest handling and storage as well as access to credit. In general, donor-led projects were found to run on three- to five-year cycles.

A range of INGOs are active in northern Ghana, including Care International, World Vision, Action Aid, and Catholic Relief Services amongst others. Domestic NGOs were far more common, and a very high number of domestic NGOs operate in northern Ghana. For example, the Community Aid for Rural Development (CARD), ProNet, Social Enterprise Development Foundation (SEND)-Ghana, and the Organization for Indigenous Initiatives and Sustainability (ORGIIS) were consulted for this report.

Trax Ghana and Trias Ghana represent two innovative NGOs. Trax Ghana's approach focuses on sustainability and climate-sensitive approaches to agriculture, such as composting, tree growing and manure usage for soil improvement. Trax also utilized some non-traditional sources of funding from donors with specific concerns for the environment, such as Comic Relief. Trias Ghana, based in Bolgatanga in the Upper East Region, is focused heavily on ICT usage to promote extension messaging. The organization operates mobile extension units that include video projection screens mounted on motorcycles. This allowed them to travel to remote communities and present videos with farm production instructions. Other services offered by Trias include microcredit and micro insurance products offered in collaboration with agricultural banks.

Many of the most active local NGOs in northern Ghana are church-based. The Association of Church-based Development Program (ACDEP) network brings many of these NGOs together. ACDEP's membership currently stands at about 40 organizations. According to its Executive Director, the current role of the network is to support its members through training and access to agricultural innovations, and to facilitate linkages to Government and other partners in northern Ghana. ACDEP also implements its own programs in geographical areas that its network members do not cover. Within ACDEP, the Navrongo-Bolgatanga Catholic Diocesan Development Office (NABOCADO) operates a Farmer Training Center in Upper East region. Presbyterian Agricultural Services (PAS), with its national office located in Tamale, runs four long-standing agricultural training programs at different

locations in northern Ghana deemed underserved by MoFA. Both NABOCADO and PAS focus on vegetable production and low-input farming. Other church-based organizations contacted include the Methodist Agricultural Program (MAP) and the Adventist Development and Relief Agency (ADRA). Faith-based organizations tend to have deep grassroots ties with communities and longer-term programs

Both INGO and NGO offices in the north typically have between five to ten field staff and operate in 10-15 districts. INGO staff are usually very well qualified and commonly possessed bachelor's or master's degrees in agriculture-related fields, while NGO staff often possess diplomas or BSc degrees at the administrative level. INGOs personnel are provided access to training that allows high knowledge of modern techniques and keeps their skills sharp. NGO personnel are often trained by international partners but are generally behind their INGO peers in accessing up-to-date technical knowledge and possessing modern extension skills.

NGO projects also tended to have a few common approaches. First, virtually all worked primarily with groups, either existing FBOs or by forming new ones for the project. Second, NGOs prioritized participatory, hands-on, and demonstration-based extension approaches. Demonstration plots were the most common teaching tool utilized among both INGOs and NGOs. Third, these organizations worked with lead farmers. Many respondents described methods used to identify farmers who were seen as having influence and leadership in their communities and the corresponding training given to these individuals to position them as informal extensionists. Fourth, while donor-led projects focused heavily on staple crops and grains (e.g. corn, rice, maize), NGOs were more diverse in their crop focus and emphasized those consumed by project participants to a higher degree. Finally, NGO-based projects tended to have longer time-frame than donor-led initiatives. INGOs often had projects in the five to ten-year range, domestic and faith-based NGO timeframes were open-ended (depending on funding).

Private Sector Extension

Privatized extension services are a key topic of discussion for Ghana. At the national level, the Directorate of Agricultural Extension Services is exploring the potential of private providers to serve Ghanaian farmers and lessen the burden on the public system (MoFA, n.d.). However, considerable challenges are still cited that limit the potential of the private sector to address the larger goals of improved yields and enhanced livelihoods to smallholder farmers in Ghana. Still, increased privatization of extension and a growing number of private sector providers is expected in coming years.

Most metro and municipal areas have a multitude of small-scale, private input dealers that serve farmers. Shops selling chemical fertilizers in particular were observed in most districts over a certain size. However, these actors do not provide education or training to farmers beyond advice regarding

the application of inputs sold. Without a formal component of their business dedicated to providing information to farmers, these actors are therefore excluded from the discussion of private extension.

Instead, a limited number of private sector extension service providers currently exist in northern Ghana. In the Northern Region, both Yara International and Wenco (Ghana) Ltd. are active providers of extension services to farmers. Yara Ghana is the largest fertilizer supplier in Ghana and partners with stakeholders throughout the agricultural value chain to provide education regarding its products (Yara, 2015). Yara Ghana uses farmers' forums to engage farmers, provided direct trainings to AEAs, utilizes Farm Radio to promote its products and usage details, and operates several demonstration sites with corresponding field days. Yara also provides product and usage information to the aforementioned small-scale input suppliers active in northern Ghana.

Wenco (Ghana) Ltd. specializes in the importation of agrochemicals and supplies farmers with inputs designed to increase productivity of Ghanaian farmers. Wenco's model involves aggregating smallholder farmers into groups and providing inputs on credit (Wenco, n.d.). The company has formed two large-scale producers' associations in Ghana.

Masara N'arziki Farmers Association (MAFA) is a co-venture between Yara Ghana and Wenco (Ghana) Ltd. serves maize farmers in the northern three regions but primarily in the peri-urban areas of Tamale in Northern Region. MAFA acts as a separate entity under the Wenco umbrella, but devotes resources to "education and training" to promote adoption and usage of fertilizers, high yielding varieties, and Good Agricultural Practices (GAP) skills. Masara conducts workshops and field demonstrations to educate farmers using a technology transfer approach to extension. The organization employs a staff that includes 18 extension officers, 12 men and 3 women, and requires all extensionists to possess agricultural degrees at the bachelor's level or higher (MAFA, 2015).

A third example of private extension is the Center for Agriculture and Rural Development (CARD) in Tamale, Northern Region. CARD operates as a domestic NGO but with a private sector component that funds its activities. The center forms farmers into Farmer-Based Organizations (FBOs), conducts workshops on grain production, and provides cashless microcredit in the form of inputs and seeds. Farmers then repay this investment with grain, which a CARD subsidiary wholesales and sells to fund the organization, refresh the lending fund, and pay salaries. The center therefore uses a pseudo-private model and does not necessarily represent private extension in northern Ghana.

Although few examples exist, private sector extension in northern Ghana was observed to have a few key characteristics. First, private services are primarily provided as a component of a business strategy, not as a public good. Once farmers are trained in the use of inputs and tools sponsored by the companies, no further skill development is emphasized. Likewise, partnership with MoFA and/or other NGOs is pursued to expand the reach of products among farmers, and not through any strategic mandate to build MoFA and local NGO/CSO capacity.

Also, private extension providers possessed the capacity to operate mostly autonomously and did not seek partnership with MoFA or local NGOs. Both Yara and Wenco have the resources to conduct their own research, and therefore did not partner with domestic research institutions (e.g. SARI) or participate in the RELC meetings. The organizations also create their own curriculum and training materials for extension, utilizing Ghanaian personnel to create trainings that are culturally appropriate and in local languages. Relationships between the private sector and INGOs occurred when agendas aligned but was not otherwise pursued. For example, MAFA and the Agricultural Technology Transfer project of USAID interacted closely because the two organizations had similar agendas and operating models.

Cross-Cutting Themes

The recent scoping mission identified several themes that cut across interviews and stakeholders consulted. These themes are as follows:

Policy and Strategy

Decentralization:

Decentralization in Ghana was set in motion in the Fourth Republican Constitution of 1992. The process of implementation has been fitful since then and is still incomplete. In 1997 the Ghanaian government transferred some authority to the Regional and District offices in a move to “deconcentrate” power from the central government (Swanson, 2002, p.5). Over a decade later the government adapted the Ghana National Decentralization Action Plan in 2010 to “accelerate” the decentralization process and provide clarity for the functional roles of different levels of local government (MoFA, 2010, p. 3). It was determined that District Assemblies would assume responsibility for delivering a number of public services including education, primary health care, environmental hygiene, transportation, waste management and agricultural extension. At the time of the 2012 MEAS scoping mission these changes were in the process of being implemented.

During the 2015 study it was clear that some progress towards decentralization had been made between 2012 and 2015. Respondents indicated that substantive changes due to decentralization had only begun to occur in 2013. This policy shift that repositioned extension personnel at the regional- and district-level under the Ministry of Local Government had been operationalized by converting district-level MoFA offices into District Departments of Agriculture, under the jurisdiction of their respective District Assemblies.

The recent study showed each district Department of Agriculture has its own office, with a Director and complement of DAOs, AEAs, and extension staff. Extension personnel are technically employees of the District, although salaries continue to be paid by central MoFA. By design, operational funding for fuel, equipment, and other expenses is sent from MoFA to District Assembly, where funding to

extension is allotted from District Assemblies' discretionary budget. Regional Offices are also responsible for providing in-service training and implementing national priorities under decentralization policies. District offices are also responsible for reporting progress to District Assemblies (to justify operational funding), Regional agricultural offices (for monitoring and evaluation purposes), and central MoFA (for M&E and to justify operational funding and salaries).

In order to have a successfully decentralized extension system, it is important for stakeholders to be aware of how decentralization is expected to work and be invested in its success. However, the perspectives of various players in the pluralistic system suggest a lack of clarity on how decentralization should be operationalized, new roles of MoFA and District Assemblies, and how new policies and procedures will impact the overall extension system and service delivery to farmers. For example, respondents from MoFA struggled with dual accountability to local government and central MoFA, and felt the District Assemblies did not fully understand their role in the management of the extension processes and shaping programming and needed to be more active in setting priorities and managing District Agriculture offices. Respondents from District Assemblies also struggled to integrate extension into an expansive list of development priorities, including infrastructure development, healthcare provision, and education, while expecting greater contribution by MoFA in agenda-setting through governmental agricultural sub-committees.

The next several years promise to be a pivotal time for the organizational development of the Ghanaian agricultural extension system given the current transition to decentralized government services. Many respondents expressed displeasure with decentralization as applied to extension, preferring a more centralized model despite the potential benefits of more localized agenda-setting and programming. The aforementioned challenges and wavering support may cause public sector agricultural extension services to either improve or worsen in the future may as a result of the decentralization process. Influencing the path of decentralization and building the capacity of local-level MoFA and governing Assemblies should therefore be a priority at this critical juncture.

Demand-Driven Services:

Recent agricultural and extension policy has repositioned extension to be more responsive to the needs of farmers and other end-users. The second Food and Agricultural Sector Development Policy (FASDEP) lists enhancing demand-driven services provided to farmers as a specific objective (MoFA, 2007). The Medium-Term Agricultural Sector Investment Plan (METASIP) outlines similar goals (MoFA, 2011).

USAID's Feed the Future initiative also advocates for "demand-driven" solutions to agricultural development, food production, and hunger alleviation (Feed the Future, 2010, p. 10).

This rhetoric was repeatedly voiced by respondents from with the public and NGO sector during the 2015 scoping mission. However, operationalization of this philosophy did not seem to match statements. Few avenues were discussed or observed to include farmer input and enhance farmers'

ability to shape the services delivered to them. In general, this was caused not by lack of intent but rather by the low capacity of the extension system to be responsive to farmer demands in both public sector and NGO extension services.

A range of constraints prevented MoFA from including farmers in the development of operating plans, and further constraints meant that these plans were seldom followed anyway. Similarly, the capacity of RELCs to elicit and integrate demand-driven input into research agendas is also limited. While farmer input is solicited into many of the donor-funded and NGO-led extension efforts, this effort typically occurred as part of monitoring and evaluation procedures rather than program development. As a result, the ability of farmers to influence development agendas and affect the crop of emphasis or other dimensions of the extension program appeared limited.

The process of decentralization, as well as the NSAICU initiative underway in the Northern Region, presents an opportunity to reorient extension service provision to be more accommodating and responsive. Still, these transitions appear to be happening slowly and require resources to be properly implemented.

Market Orientation:

A shift towards value chain development and market-oriented extension is another fundamental component of recent policy (MoFA, 2007), donor strategy (Feed the Future, 2010), and private sector investment (MAFA, 2015; Yara, n.d.). In response, MoFA has tasked its extension personnel with helping farmers improve their capacity to view and conduct agriculture as a business rather than simply an informal livelihood activity. The focus has shifted from programming directed exclusively at production to include cooperative/FBO formation and management, production planning, financial management and record-keeping, agricultural marketing, and to a limited extent storage, processing, and value addition. However, the technical capacity of extension workers to train in these areas is limited. Coupled with low institutional resources to reach farmers needing this information, the impacts of market-oriented extension within MoFA are minimal. These factors will be discussed in subsequent sections.

One area where MoFA is creatively utilizing its resources to enhance the market-orientation of its services is through market price analysis. Each district Department of Agriculture hires one or more Market Surveyor to track the prices of staple crops in the local markets. They also track the quantity of goods sold and alongside rainfall data. This information is included in the district M&E templates and is part of the reports sent to the Regional Office and ultimately to the central MoFA office in Accra. The data is also intended to be disseminated by AEAs to farmers to help guide planting, storage, and sales decisions. However, it is unclear how these market data were actually utilized by AEAs in working with farmers, especially given that AEAs struggle to visit farmers on a regular basis.

Feed the Future also strongly advocates for a market-driven approach to agricultural development extension in northern Ghana. USAID's ADVANCE II project has a significant presence in the three

northern regions and a number of the NGOs we interviewed were playing a role in the project as subcontractors. This project focuses on developing value chains in soya, maize, and rice through an out-grower model which emphasizes the development of commercial production hubs. A large-scale central farmer contracts and provides loans to smaller-scale farmers to grow a single crop that is then aggregated and sold, with profits being distributed through the out-grower system. The approach is supplemented by extension services provided by the Agricultural Technology Transfer (ATT) project of USAID, in partnership with the International Fertilizer Development Center (IFDC). ATT provides technical training in technology and input usage, and also provides improved seeds, inputs, mechanization services, and facilitates market access. Other ADVANCE II partners were beginning to roll out a mobile phone-based extension platform developed by Esoko that connects farmers to production, marketing, and weather information presented in their local language. Other funders such as the CDFATD, AGRA, and the German Federal Enterprise for International Cooperation (GIZ) also support projects that similarly focus on value chain development, support for access to finance, inputs, and technical information, and promote aggregation and market-development but smaller in scope.

Advocacy

As part of shifts towards demand-driven services and market-oriented agriculture, actors in agricultural development and extension have prioritized the formation of farmers into groups, or farmer-based organizations. While group formation is designed to increase the capacity of farmers to engage in markets and access inputs, financial assistance, and extension services (World Bank, 2012), creation and strengthening of FBOs has also increased the capacity of farmer's to advocate for their needs and influence local and national policy.

In Ghana, recent agriculture policy initiatives, such as the METASIP and FASDEP II, have placed an emphasis on capacity building of farmer organizations to give them greater bargaining power and negotiating power (Anaadumba & Gallet, 2014, p. 3). As a result, MoFA and several donor organizations have assisted to promote farmer advocacy. Currently, the focus is on helping individual farmers transition into farmer-based or civil society organizations where they can engage in advocacy and influence policy decisions in the agricultural sector. Groups receive adequate training get to register as a primary FBO with the Cooperative Department and become certified as formidable business entities. The primary FBOs are then aggregated at the district level to into secondary-level FBOs, further adding to their political influence, and to better take advantage of economies of scale when dealing with buyers of produce and input marketers. Finally, to further enhance the advocacy capacity of farmers, FBO networks were formed into five national-level farmer organizations in 2009:

- Ghana National Association of Farmers and Fishermen (GNAFF)
- Peasant Farmers Association of Ghana (PFAG)
- Ghana Federation of Agricultural Producers (GFAP)

- Farmers' Organization Network in Ghana (FONG)
- Apex Farmers Organization of Ghana (APFOG)

Interactions with APFOG and GNAFF showed that, while these associations were committed to providing a voice to Ghanaian farmers, they faced operational and funding challenges after receiving initial donor support that affected their long-term viability. APFOG was undergoing a transition period with staff and leadership turnover while GNAFF struggled to provide services to members. Both sought opportunities to collaborate with donor-funded projects to continue operating, which could be an issue that limits their long-term capacity to provide a robust forum for farmers' voices to be incorporated in agricultural development and extension at the national level.

At the district level, some domestic NGOs were actively engaged in promoting farmer advocacy that built off of decentralized governance mechanisms. Both SEND Ghana in Northern Region and Trias Ghana in Upper East Region had programs designed to educate farmers about their rights and means of advocating for themselves but also to provide opportunities for farmer input to be included in District Assembly session. The impact of these programs is still inconclusive, due mainly to their relative newness.

Pluralism and Collaboration

The Ministry of Food and Agriculture has encouraged pluralism in the delivery of extension service delivery, including explicitly stating this objective in the FASDEP II policy. By design, pluralistic extension includes multiple actors but also promotes collaboration and partnership between extension providers that leverages relative strengths and weaknesses to best serve farmers (World Bank, 2012). Effective pluralistic systems include information and resource-sharing, synchronized priorities and extension approaches, and often position governments as facilitators and monitors of other actors. A range of extension providers serve Ghanaian farmers, but respondents indicated that the benefits of pluralism are not maximized.

Public Sector and NGO-Sector Interaction

Due to its reputation as a peaceful, democratic developing country with high agricultural potential yet high need for development, many donors and international NGOs are active in Ghana. Respondents were split on the level of partnership between MoFA and the international community in regards to agendas in agricultural development and extension. While both the public and NGO sectors agree on the larger policy objectives of demand-driven, market-oriented extension services, specific strategies and operational philosophies appeared to differ considerably.

The core agenda of MoFA and their AEAs is to provide a wide range of services to address the need of farmers in crops and animals production within a decentralized pluralistic system in Ghana. They are tasked with serving a large number of farmers and discuss extension as a public good that addresses

core needs of food security and rural livelihood development. Efforts to serve all districts and all operational areas

In principle, international and local NGOs work to complement the efforts of MoFA to serve farmers. However, many donor agencies, recognizing the challenges facing MoFA in delivering services, often choose to bypass regional- and district-level operational planning and pursue independent development strategies based on independent needs assessments and externally derived agendas. For example, while individual district MoFA offices might prioritize production and marketing of locally consumed staple crops, INGO projects may concentrate on high-value industrial or export-based crops such as soya, sorghum, or cotton that has high potential within the district. Similarly, while MoFA might work with FBOs representing all districts in a region, the ADVANCE II project uses a localized and intensive out-grower model with a much smaller number of participant farmers. The alignment of extension agendas bears further investigation, especially as it relates to the actual delivery of extension services.

At a more local level, respondents felt that differing agendas were complementary rather than competing. MoFA in particular acknowledged and supported the role that the NGOs are performing in the respective districts. One Regional Director of MoFA stated, “We see the work of NGOs in extension as something that complements our work at a time that we alone cannot provide service to all farmers in our various districts”. The NGO sector was less positive about the role of MoFA, often dismissing their efforts due to funding and transportation constraints that made their operations and extension programming minimal.

Building on complementarity, more direct interaction between the public sector and NGO sector also affects the delivery of extension services. While donor- and NGO-led projects are abundant, especially in the northern parts of the country, they are often lightly staffed with high-level administrators that coordinate activities. Instead, these perceived well-resourced INGOs feel reluctant to recruit and employ field-level staff to perform day-to-day extension functions. Rather, they prefer to sub-contract activities and collaborate with local NGOs and MoFA to implement their programs. Similar arrangements were found between domestic NGOs and MoFA. These NGO projects tended to have five to seven permanent field staff but with mandates to cover multiple districts with thousands of farmers, and could therefore not cover their area of focus with internal personnel only.

Functionally, MoFA extension agents are seconded out to assist with NGO-sector projects. Generally this is done on a case-by-case basis depending on which communities projects intend to serve. Where the collaborations are formalized, terms and conditions are specified and signed in a memorandum of understanding between the district MoFA office and the project organization. More commonly, projects contact and develop terms of reference with individual AEAs, often without the knowledge of district-level MoFA administrators. Projects usually provide some form of compensation, either in the form of per diem or operational expenses, along with support for fuel and training materials.

The relationship is considered mutually beneficial in many ways. Collaboration with MoFA allows these organizations to build off of AEA's long-term relationships with recipient farmers so that projects can better gain access to communities, more effectively identify lead farmers, better conduct extension programming, and more successfully distribute resources to farmers. In some cases, NGOs even rely on MoFA technical expertise for implementation, either through formal or informal training. Relying on MoFA officers also reduces costs to INGOs and decreases the need for hiring field staff, which allows funds to put into other operational areas.

District Departments of Agriculture and individual AEAs also benefit. Participation in these projects provides an opportunity for MoFA to overcome its operational and transportation constraints and get out in the field to interact with farmers they otherwise could not reach. Project support is usually flexible so that, as long as project activities are conducted and objectives met, field time can also be used to complete other elements of district-level MoFA's operational plan. For example, AEAs who work on INGO projects also try to carry out their originally planned activities while out in the communities, which would not have been possible without this collaboration.

Additionally, INGOs and NGOs with specialized knowledge in particular subject areas also provide training for MoFA staff. MoFA AEAs are commonly training in technical skills related to specific projects, which provides professional development and capacity building opportunities that would otherwise not be available and at no cost to MoFA. For example, ACDEP offered training on value chain development and Participatory Technology Development (PTD) to MoFA staff because that was an area of relative strength but also need for MoFA. These factors provide considerable incentives for MoFA to pursue these arrangements.

However, respondents indicated that this collaboration is not without its challenges. INGO respondents discussed the challenges in utilizing AEAs to conduct projects. Many AEAs lacked the technical knowledge and skills to carry out specific activities, which necessitated training and close monitoring to ensure objectives, were met. Furthermore, project effectiveness was tied to the efforts of an already overstretched public extension system. AEAs faced competing time commitments between involvement in potentially multiple projects and their other responsibilities with MoFA. This constraint, plus bureaucratic procedures within MoFA, was cited as problems from the perspective of donor-led projects.

MoFA also had concerns about interactions with and over-reliance on projects. In particular, district-level MoFA administrators resented being bypassed by projects that directly contacted their AEAs for contract work. Not only was this "disrespectful" but it pulled personnel away from activities derived from district development objectives and MoFA operational plans. Distribution of extension services also tended to focus on NGO priority areas, meaning some districts are over-served while others remain under-served. For example, Savelugu-Nanton, a peri-urban district outside of Tamale in the Northern Region, had dozens of active projects; Nadawli district in the Upper West Region had only two ongoing projects.

AEAs found it difficult to judge how to best spend their time when faced with competing requests for their time and attention. While projects allowed operational funding and opportunities to reach farmers, some AEAs ended up focusing too much time on projects and neglecting their other duties. AEAs also expressed concerns that the trainings they received did not provide substantial benefits to their overall capacities. Instead, trainings were geared towards specific projects and did not develop skills that could be replicated elsewhere in their work.

Public-Private Partnerships

Despite voiced interest in public-private partnerships by MoFA at the regional level, little direct interaction appeared to be occurring. Overall, the role and influence of private extension providers is still being developed in northern Ghana. Some projects, including the ADVANCE II out-grower model and Masara N'arzuki Farmers' Association, provide private extension services to producers. In general, these projects act independently of MoFA, and partnerships with the public sector are not near-term objectives. As a result, respondents expressed serious questions about the feasibility of private extension to replace or even supplement public services moving forwards. Poor relationships and uneven power dynamics between the private sector and MoFA may require policy creation or revision. Furthermore, mechanisms must be determined to ensure the private sector is aligned with capacity building strategies that enhance the livelihoods of smallholder farmers and other audiences not producing crops targeted by the private sector. Still, the role of private extension will continue to evolve in coming years.

Forums and Networks:

Effective pluralism is buoyed by knowledge sharing across extension service providers (Swanson & Rajalahti, 2010). Creating an avenue to share experience and learn from the strengths and weaknesses of each other is an important step towards enhanced delivery of service to clients. Within MoFA, each district holds weekly knowledge-sharing meetings to discuss AEAs' experiences and receive direction from supervisors. In some cases, these meetings also serve as informal training sessions, especially on specialized or new innovations. At the regional level, similar bi-weekly forums were also observed that allow District Directors to meet and share ideas and experiences.

Mechanisms to bring together MoFA and the NGO sector were largely absent during the 2015 scoping mission. However, many respondents from donor agencies and NGOs discussed the need to form and belong to an association for the purpose of sharing ideas and experience during their meeting. One positive effort in this direction is the formation of the NSAICU, which will hold monthly meetings that include stakeholders from the public, NGO, and private sectors. Similar forums were being created in the Upper West and Upper East Region, based on the experiences of the NSAICU.

Funding Levels, Mechanisms, and Impacts

The most influential factor affecting extension delivery in northern Ghana was funding. The public sector, INGOs, CSOs, and private sector all experienced different levels and dynamics of funding that affected all other areas of their operations. Generally speaking, donor funding to projects and INGOs was relatively stable during the 2015 scoping mission. Respondents from domestic NGOs described funding as a constant concern that limited expansion, but felt that current partnerships with INGOs adequately provided the capacity to conduct projects and serve farmers. In contrast, funding to public extension was described as “crippling” and was repeatedly cited as the primary constraint to operations and effectively serving farmers at the regional and district level.

As discussed, prior to decentralization MoFA personnel at the district level received direct funding from the central office for both salaries and operational expenses. However, under decentralization MoFA personnel were reassigned to fall under the umbrella of the District Assemblies. Salaries are still paid through the national MoFA office while operational expenses are sent quarterly from MoFA at the national level to the District Assemblies general fund. The assemblies then decide how much to allot to different sectors (e.g. agriculture, education, health) based on work plans submitted by the District Agriculture offices. Due to the prevalence of agriculture in northern Ghana and the percentage of people deriving livelihoods from the sector (estimated at 70%-80%), agriculture is consistently listed as a priority by assemblies.

Unfortunately, this system has failed to operate properly and respondents overwhelmingly indicated that district Department of Agriculture offices had not received their budgetary allocations for operations. The funds, which are supposed to be received quarterly, were in arrears of more the four quarters. Regional and departments of MoFA at the district level report that operational funds for agriculture are actually delayed by two years. To clarify, the last receipt of operational funding occurred in Q1 of 2014. Furthermore, the funding received in 2014 was the allotment for Q1 of 2013. Fortunately, administrative, AEA, and other local extension staff salaries were still being paid directly by the national level of MoFA.

The specific reasons for these delays are unknown. Some respondents placed blame on the poor economic climate in Ghana. Others cited the unwillingness of District Assemblies to release funding for extension, although respondents representing these assemblies also described being late in receiving their own operational funds from the central government. Another potential factor may be changes in the provision of donor funding to MoFA. The Canadian Department of Foreign Affairs, Trade, and Development (CDFATD), formerly the Canadian International Development Agency (CIDA), has provided budgetary support to MoFA through the Agricultural Budget Support Fund. This support ended in 2013, at approximately the time the last quarterly operational funding was provided to district-level offices, while the CDFATD determines how to allocate this money to agriculture through the Ministry of Local Government under newly-decentralized procedures. While the CDFATD has indicated they are committed to continuing their support for agriculture and are developing a proposal

for a new budget support program targeted specifically for extension and advisory services, this plan has yet to come to fruition.

The result of delayed and unavailable operational funding is that extension activities at the district level are reduced significantly. MoFA officers still produce full annual work plans complete with trainings, farmer interactions, and other activities, yet largely lack the capacity to implement these plans. While district-level officers continue to identify training needs and do have plans to offer trainings, support for training materials, inputs for dissemination, and other needed resources failed to arrive. Respondents indicated that in previous years most districts had the capacity to conduct monthly trainings with regional subject area specialists, which included print materials and often multimedia presentations. This situation was no longer the case in all districts visited in 2015.

Another major constraint relates to transport. Respondents reported that for a long time MoFA, which used to support AEAs with transportation needs, had not supplied motorbikes, allowances for fuel, and funding for repairs of existing motorbikes. As a result, most MoFA agents no longer even attempt to organize such trainings. At best, extension services are delivered sporadically and to ad hoc groups which then do not receive consistent visits from public extension providers. The lack of sustainable funding is therefore a limiting factor in providing responsive and demand-driven public extension services.

General office operation also suffered, further reducing productivity. One main infrastructural constraint facing most of the newly created districts in particular is the lack of office space. Other district offices struggled to pay for electricity while personnel lacked money for mobile phone usage.

District Departments of Agriculture have been forced to take measures to maintain their operational viability. In order to carry out any of the activities stated on their work plans in the midst of financial constraints, district-level MoFA extension officers reported that they sacrifice their own salary to pay for operational costs (e.g. fuel, training materials) with the hope of being reimbursed when budgeted subventions are eventually received.

District-level MoFA also focuses only on conducting essential activities at the field level. Because district offices are expected to submit monthly, quarterly, and annual reports to the regional office, monitoring and evaluation activities are prioritized over programming with farmers. To address transportation constraints, AEAs use personal motorbikes for official duties. However, AEAs feasibly only visit communities and FBOs close to the central office to reduce personal fuel costs. AEA respondents were also cautious to take these motorbikes to more remote rural areas where roads may not be suitable, especially without the capacity to pay for repairs.

Funding is also strategically allotted for essential facilities maintenance and operations. One district office reported power outages for three weeks of each month, as funds were not made available to pay for electricity except when reports needed to be written. With regards to office space, some districts lack the capacity to rent their own facilities and instead share with other government offices.

In the case of Wa West and East districts, MoFA staff are occupying office spaces at the regional level and commute to their districts for work. Similarly, the Kassena-Nankana district is sharing a rented office space with other organizations.

More significantly, district-level MoFA extension pursues support through collaboration with donor-funded projects, INGOs, and NGOs. As discussed, projects frequently provide operational support to AEAs that can help reduce overall costs incurred by MoFA offices. In all districts observed, MoFA officers receive some operational support, mostly fuel allowances and logistical expenses, from projects operating in their assigned communities.

This practice has its drawbacks however. First, respondents acknowledged that, without collaboration with a project or INGO, district-level MoFA offices and AEAs generally do not have adequate means to provide effective service delivery. This created a dependency on well-funded INGOs and projects that left respondents within MoFA disempowered in priority setting for their districts and communities. This imbalance is feared to result in the NGO sector taking the lead in extension delivery and skewing extension away from the agendas and audiences prioritized by MoFA at the regional- and district-level.

Furthermore, project objectives and agendas were often tied to short-term cycles, leaving districts reliant on INGO money to constantly adjust to meet the needs of their benefactors rather than pursue longer-term programming. Short-term project cycles also meant that funding levels fluctuated from year-to-year, which affected planning and operations. The long-term viability of this model was also questioned.

MoFA respondents also felt that overall NGO projects and accompanying funding had been declining in recent years. This trend was a concern due to the dependence on donor funds to conduct extension services, and the government's inability to cover any shortfall. In contrast, NGOs suggest that Feed the Future and other larger initiatives were increasing involvement in the region. These trends bear further examination.

Coverage and Access to Extension Services

Coverage of extension services is severely limited in northern Ghana. MoFA offices in particular are significantly understaffed. Respondents cited a World Bank report which provided guidelines for the number of officers per district, with numbers ranging from the low 20s to high 30s. Unfortunately, most districts surveyed had less than 10 AEAs.

District realignment has also added to coverage challenges. Ghana has split existing districts three times in the past decade, in 2006, 2008, and 2012. In each instance the numbers of field-level officers has been diluted. The most recent split (in 2012) created 46 new districts. In districts split into two (e.g. Talensi-Nabdam in the Upper East Region), existing district MoFA officers were spread among the two offices. Both districts now operate with fewer than five officers.

Poor coverage and low field-level extensionist numbers are caused primarily by attrition and lack of replacements. In all districts and regions, the number of MoFA officers had declined in the past five years. Attrition is caused primarily by resignation, retirement, and death.

Retirement in particular is a significant concern for field-level offices. Respondents indicated that most district-level AEAs fit into bi-modal age demographic groups. In one group were older officers hired during a nationwide push to expand the extension workforce in the 1970s. The majority of these officers had moved up to the DAO level in district-level administration. However, older officers are anticipated to retire in the next five years. The second group was composed of younger extensionists hired in the recent years and with limited field experience. Few districts reported significant numbers of personnel at the mid-career level.

At the same time, vacated positions were not being filled. A hiring freeze is in place, yet replacement of personnel who retire, die, or otherwise leave MoFA should be occurring. However, replacement of officers has not occurred. One Regional Director explained that replacement requests had to be submitted and processed at the national level within the same year that an individual staff member departed. Slow bureaucratic procedures meant this seldom happened on time and therefore the window for replacement closed. As a result, bureaucratic and financial constraints have basically eliminated replacement, so numbers continue to shrink. Many older officers even defer retirement to preserve existing operational levels.

Faced with extremely low staff numbers and very high farmer-to-officer ratios, MoFA has taken steps to address coverage as best possible. District Development Officers (DDOs), or subject matter specialists, are forced to do field work to address personnel shortages rather than focus on their administrative responsibilities. Even with this “all-hands-on-deck” approach, farmer-to-officer ratios still remain between 2000:1 to 7000:1. For instance, the Talensi District in the Upper East Region has only five AEAs who are expected to serve an estimated 70,000 farmers.

In order to address coverage issues, respondents also indicated that they worked with farmers in groups/farmer-based organizations. Both MoFA and NGOs try to work with either already existing groups or form new groups where they did not exist. In principle, MoFA group formation is more deliberate and designed for long-term operation. For many NGOs, groups were formed specifically for a project. Such groups tended to be weaker and rarely lasted beyond the project cycle. In order to maintain groups, projects provided small incentives to farmers for their participation. This is not an ideal model for farmer group development and creating avenues for farmers to advocate effectively for themselves and their community, although it does allow for small NGO project teams (staffed primarily by AEAs) to better cover farming communities.

MoFA has also placed a greater emphasis on information-communication technologies to reach farmers. Respondents indicated that Farm Radio has been used with good success in several districts. Educational and call-in programs led by AEAs or SMSs have effectively engaged local farmers, even in

remote operational areas. Unfortunately, Farm Radio is tied directly to donor funding is set to be discontinued later in 2015.

Additionally, mobile extension units provided by NGOs (Trias Ghana and AGRA specifically) are being used to help with coverage in the Northern and Upper East regions. These units are made from a motorized tricycle that contains a projector and screen, and are operated by AEAs. The units show short educational videos and are stocked with print materials for dissemination. Respondents from both MoFA and the NGO sector cited the effectiveness of mobile extension units to quickly reach large groups of farmers. However, in most cases these mobile units are now owned by MoFA, which creates issues as MoFA generally lacks the fuel to operate them or money to maintain them.

A similar approach used by an NGO called Literacy Bridge uses a “talking book” to disseminate pre-recorded educational messages to farmers. The tape-recorder-sized device is brought to several communities each evening where farmers are gathered. AEAs are often present to play the message and address any questions that arise from farmers in the audience. This model was used heavily in the Upper West region with reportedly positive results.

Gender in Public and NGO Sector Service Delivery

Addressing gender disparities in agriculture and extension is a priority for the Ghanaian government. The Ministry of Gender, Children, and Social Welfare has worked closely with MoFA to address the economic empowerment of women farmers through extension services. Recent agricultural policy (e.g. FASDEP II) has specifically identified improving services to female farmers as an objective of extension. Similarly, as a programmatic focus, gender remains a priority area for many MoFA and NGO programs. MoFA's administrative structure includes personnel specifically dedicated to WIAD. Each district employs WIAD officers, who are overseen by the regional WIAD office, headed mainly by women to handle that specialized element of service delivery. The WIAD office is responsible for incorporating gender into policy formulation and ensuring the implementation of policies is beneficial to women farmers and processors in the rural, suburban, and urban communities.

Efforts to address gender starts with the characteristics of extension providers themselves. The challenge, however, is that the MoFA has not been able to attract and retain women as AEAs in the various districts of northern Ghana. As a result, women are heavily underrepresented in extension. Less than 14% of MoFA officers in the Upper West Region were females, and similar numbers were found in the Northern and Upper East regions. Similarly, only one District Director was female in the Northern Region, while no female directors existed in the other two regions.

This inability to attract and retain women in extension does not only affect MoFA but also NGOs. INGOs tended to be more deliberate about hiring female extension personnel, and had the resources to attract the best women involved in extension. Local NGOs were similarly interested in incorporating

female extensionists, but struggled to identify qualified and committed candidates. Overall, respondents report less than 40% female involvement within the NGO sector.

Respondents from both the public and NGO sectors described various reasons for these low numbers. First, extension providers struggled to identify employable females with skills in agriculture and extension because the supply of women entering the field of agriculture and extension was insufficient for available positions. Low enrollment at agricultural training institutions was found. For example, the principal at the Damongo Agricultural College in Northern Region stated that less than 10% of his institution's graduates were female. Similarly, another respondent from UDS described that agricultural programs at UDS had less than 10% of women enrolled in any given year. Second, respondents indicated that women did not view extension work as rewarding and attractive as a means of employment, preferring office work in urban settings.

Retaining female extensionists also was reported as challenging. Women who are employed in extension face cultural and safety factors that impact their longevity. First, extension work is perceived to be risky for women who have to ride motorbikes on bad roads for long distances and in remote areas. Many women are therefore assigned closer to district offices or to more developed communities. Second, cultural factors cause women to leave positions in extension. Respondents described high attrition due to the birth of children and the cultural practice of married women following their husbands who move to different locations for their jobs.

The impacts of low female involvement in extension affect delivery to farmers. With a predominately male workforce, cultural factors make it difficult for extension officers to work with female farmers. Male officers (who make up the vast majority of AEAs) cannot work one-on-one with female farmers. Husbands must provide permission and even then remain jealous, leading to problems. Instead, women are often served in single-gender groups. When possible they are trained by female officers, but more commonly male officers conduct trainings. Respondents suggested that working in groups removed the social stigma and jealousy associated with cross-gender training.

Still, questions remain about the effectiveness of men training women versus women training women, especially given the cultural context of northern Ghana and the use of participatory extension approaches. Studies have shown that women are more likely to participate in and benefit from extension programming when taught by female officers (Meinzen-Dick et al., 2011). However, when asked directly, MoFA respondents did not believe that the gender of the trainer had any impact on the outcomes experienced by female farmers.

Additionally, MoFA indicated the challenges of working with female-only farmers groups. In many communities male farmers did not understand the rationale of working exclusively with women and resented being excluded from projects or interventions that brought perceived benefits to communities, even if programs focused on traditionally-female aspects of agriculture (e.g. marketing,

value adding, vegetable production, livestock). Consequently, MoFA most commonly provided extension services in mixed gender groups.

The impact of working with mixed groups on female farmers is also unclear, especially since many MoFA respondents were unable to differentiate between women attending a training and women participating and/or benefitting from said training. More evidence of knowledge gain, attitude changes, and empowerment may be needed to justify this approach.

The NGO sector (including INGOs, local NGOs, and CSOs) was somewhat more effective at serving female farmers. First, these organizations generally employed a higher number of female officers. They were also given more flexibility in targeting specific audiences. INGOs in particular had better success working directly with farmers. Officers representing foreign projects (even if officers were Ghanaian) better avoided jealousy issues. Similarly, these projects lacked some of the cultural pressures to serve all farmers (and not exclude men in programming) faced by MoFA.

However, better-resourced projects that provided resources to participants did face significant male interest in involvement, which required diplomacy and creativity in implementation. One respondent from a local NGO reported that field-level trainers individually ask permission from the husbands of potential participants before any training commenced. Measures such as these seemed to help bridge cultural barriers and generate male support of female involvement in extension programs.

Capacities and Training

The majority of extension officers in northern Ghana are products of agricultural training institutions. Graduates generally obtain a degree in General Agriculture, with a programmatic focus on agricultural sciences and technical skills. One respondent indicated that extension curriculum was limited to one class on Rural Sociology and one class on Extension, where models and approaches to working with farmers are taught. In recent years agricultural colleges have been including a year of practicum. This is particularly common in veterinary programs, especially within the Pong-Tamale Veterinary College in Savelugu-Nanton district of the Northern Region.

Respondents indicated that the average educational levels differed between extension officers within MoFA and the NGO sector. Respondents indicated that most NGO extensionists held at least a BSc degree (or “first degree”). In fact, the INGOs and well-established local NGOs required a BSc at a minimum for employment. In comparison, MoFA required only a certificate degree from the agricultural colleges as a minimum requirement for employment. Still, due to recent difficulty in finding positions within MoFA, younger and more recently hired AEAs were more likely to hold a BSc than their older peers.

Nonetheless, both MoFA and INGOs asserted that new graduates were largely unprepared to work with farmers despite their educational qualifications. Orientations are common to familiarize new

field-level workers with operational procedures and expectations, but also to address training gaps related to extension methodologies and client-interaction skills.

MoFA offices provide orientation on extension skills to all new officers during an annual training conducted either at the regional or district level. Topics usually include community entry, mobilization, formation of farmers groups, and facilitation skills. Senior extension officers are typically utilized as trainers. INGOs provide a more comprehensive orientation to their own field workers (if applicable) that includes similar skills. Local NGOs also conduct orientations for new personnel. For example, Community Aid for Rural Development in the Upper West Region had built a training program with its donor partners that is being adopted by other NGOs in the region.

Beyond orientation, the public and NGO sectors also emphasize in-service training to keep personnel up-to-date on new techniques and technical information. As stated earlier, MoFA struggles with resource constraints that limit its ability to provide in-service trainings to personnel. More commonly, INGOs are the ones providing in-service trainings to MoFA officers, but usually only those engaged in their projects. These trainings do not provide general skills in extension, but instead only technical skills directly related to the implementation of the specific project. Well-funded agencies are able to provide trainings that involve formal workshops, demonstrations, and include print materials for participating AEAs.

Generally, training content is drawn from within individual INGOs and their network of partners. When skills are needed from outside of the NGO itself, external partners are brought in. Respondents indicated that SARI was utilized heavily as a training resource for INGO projects. Providing training to INGOs is an essential funding mechanism, and is justified in that trainings developed for INGO projects are ultimately delivered to MoFA officers, thus fulfilling SARI's mandate. However, trainings prepared and conducted by SARI are often more beneficial in implementing short-term projects rather than developing longer-term skills in priority areas determined by MoFA (or SARI).

This focus on project-specific skills leads to training gaps that persist within extension providers in northern Ghana. These gaps include knowledge and skills in modern production techniques, use of inputs and mechanization, FBO management and strengthening, agricultural marketing and business development, climate change adaption, and utilization of ICTs. Additionally, many district MoFA Directors and some NGOs expressed a critical need for more training in marketing and business development, especially given shifts towards market-oriented extension. Many opportunities still remain to improve the capacity of field-level extensionists in these priority skills, even with collaboration with donor-led or NGO-managed value chain development projects.

Monitoring and Evaluation

The ability to track progress and impact is essential to effective extension services in northern Ghana. Indeed, respondents from public, NGO, and private extension providers all discussed a strong

commitment to monitoring and evaluation. However, the capacity to conduct M&E differed significantly between MoFA, INGOs, CSOs, and the private sector.

MoFA has heavy emphasis on M&E built into its operational structure and planning. Dedicated M&E officers (often called Information Management Specialists) operate at the district level, as overseen by a regional supervisor. All field-level AEAs produce monthly, quarterly, and annual reports. These are compiled by district-level IMS officers and sent to the regional officer for further compilation. Resulting regional-level reports present the status of indicators, as differentiated by district.

At the district level, officers spent a considerable amount of time and resources conducting M&E activities, largely because submitting these reports is a prerequisite for receiving funding (e.g. salaries) from central MoFA. The need to focus attention on M&E and away from field work was concerning for several MoFA respondents, who felt their priorities should be to serve farmers. Nonetheless the consequence for not submitting thorough reports on time was possible termination, which made M&E a top priority at the district offices.

Despite the prioritization of M&E, MoFA personnel received little formal training and lacked strong capacity in M&E. One district-level IMS officer described a regional training on database use, but most suggested that monitoring and evaluation skills were learned informally from the experiences of senior officers. These trainings were sometimes supplemented by M&E training that accompanied specific INGO projects, though this was not common.

As a result, MoFA officers have only a basic understanding of how to conduct M&E activities. IMS officers lacked capacity in a range of M&E skills, including indicator development, creating data collection tools, collecting data, using computer programs to aggregate data, data analysis and interpretation, and report preparation.

More basically, MoFA personnel did not understand the intent behind “monitoring” and “evaluation” as distinct methodologies. From an operational standpoint, “monitoring” means checking that field officers have conducted the activities outlined in their work plans. District M&E specialists and Directors travel to communities and contact stakeholders in each AEAs’ operational area to verify that communities were visited, trainings were conducted as reported, total people served was accurate, and other similar claims made in reports are true. Monitoring does not include any measure of effectiveness, knowledge gain, or intention to adopt. Furthermore, monitoring efforts do not provide data to allow for programs to be modified in-stream, as intended (Rossi, Lipsey, & Freeman, 2004).

Per respondents, “evaluation” means looking at “impact”, which is quantified through yield increases and income growth self-reported by farmers. MoFA also uses success stories to provide anecdotal evidence of impact, including testimonials about how increased incomes have changed their lives. Pictures of farmers with new houses and stories of purchasing new bicycles or greater ease in paying school fees are commonly cited as impacts. Again, virtually no data about knowledge gain or adoption is gathered to confirm farmer recall.

INGOs had better success with monitoring and evaluation. Most of these organizations spent time and resources developing and vetting M&E plans. Instruments and indicators were more comprehensive and better suited to track impacts (e.g. knowledge and behavior changes). Often this work was done above the project level at organizational headquarters. For example, the Mennonite Economic Development Associates utilized instruments and indicators developed by the central office in Canada.

Furthermore, INGOs invested greater resources and time in training their own field staff to conduct M&E and collect data. This strategy exists because many permanent staff are anticipated to work on multiple projects during their tenure with an INGO, and therefore require broader skills in M&E.

When MOFA staff are used, less emphasis is placed on building capacity in M&E for two reasons. First, MOFA staff start with lower overall capacity and therefore require greater effort to adequately train. Second, INGO personnel are responsible for data cleaning, analysis, and report preparation, so there is less need to prepare AEAs in this area. As a result, many INGOs provide only basic and project-specific training and resources (e.g. fuel, technologies) to AEAs for data collection. Even if poor data results, INGO staff address any gaps. While this model benefits INGOs, MoFA staff who work with INGOs fail to develop other needed skills in monitoring and evaluation (e.g. instrument creation, report preparation), which represents a missed opportunity for capacity building in M&E.

INGOs provide better training and support in monitoring and evaluation to their local NGO partners. Most INGO partners provide formal and comprehensive M&E training and instruments for NGOs part, with the goal to develop the NGOs own capacity to evaluate their programs. In most cases the NGOs are given a boilerplate M&E plan to implement. Some input is provided by the NGOs themselves, but the majority of M&E planning is done by the INGOs. For example, the INGO MEDA developed the instruments and procedures used by local NGO TUDRIDEP. Still, with greater emphasis on training the NGO, respondents interviewed demonstrate a higher understanding and capacity to conduct M&E as a result of these partnerships. They still struggle to conduct their own M&E when INGO support and funding is removed, but the training received does seem to develop their capacity in the process.

During the 2015 scoping mission there was limited interactions with private sector extension providers, which therefore revealed little about their M&E operations. As with other inquiries, the Masara N'arziki Farmers Association and CARD were both hesitant to discuss their evaluation practices. However, both organizations stated that they relied heavily on data collection and analysis to guide operations, and appear to have sophisticated and effective M&E procedures.

Recommendations

Extension in northern Ghana is clearly very important to the development of the agricultural sector, improvement of food security, and enhancement of rural livelihoods. As described in the preceding sections, the scoping mission found several successful elements of extension service delivery in

northern Ghana but also several remaining challenges. To build off of existing strengths and address gaps, the following presents several recommendations and areas for support.

Recommendations

While extension service delivery in northern Ghana has many successful and innovative elements, targeted support can further enhance the ability of extension to improve food security and rural livelihoods. First, extension services can be strengthened through improved efforts to better operationalize policies and sensitize key actors to their roles. Decentralization in particular is a policy that has significant impacts on extension yet has been slow to take hold. Capacity building exercises with regional- and district-level decision-makers (e.g. District Assemblies) could help these individuals understand and fill their new roles in a decentralized system. A pilot project between MEAS and Engineers Without Borders Canada (EWB) is ongoing in Savelugu-Nanton District. Other measures to increase interactions between District Departments of Agriculture and District Assemblies, either through regular meetings or higher MoFA participation in agricultural sub-committees, could also improve the implementation of decentralization policies.

Likewise, support should be provided to enable greater opportunities for farmers to participate in district-level agricultural agenda-setting and planning. Efforts in farmer advocacy that are currently the domain of largely-underfunded local NGOs could be reinforced by MoFA and INGOs. Also, farmers unions, especially those initiated by donor funding, may require more long-term support or at least capacity development in promoting paid membership and financial management to remain viable and active.

Second, actions to improve interaction between NGO-led extension efforts and MoFA are recommended. One important step is to strengthen and replicate regional-level stakeholder forums such as the NSAICU. Organizations with experience and capacity in organizing and operating these forums could support MoFA's efforts, and also help promote active participation from donors, INGOs, and the private sector. The benefits of functioning regional extension forums can help address many of the current issues in northern Ghana. Further expansion of these meetings to the district level could also be beneficial.

If done effectively, these meetings can allow for knowledge sharing that will improve efficiency and foster an effective work environment. The forums could also help align development and extension strategies, and reduce some of the friction that competing agendas currently cause. For example, many respondents complained about how projects that come to communities with "handouts" undermine the work of other actors to build capacity. Discussing this concern through open dialogue could potentially mitigate this issue. Interaction between extension providers can also help maximize resource efficiency and avoid duplication and over-saturation within certain districts or around specific value chains. There are times that same FBOs are served by different NGOs, which results in competition for

attention of farmers and duplication of services. It is therefore recommended that forums be better utilized to promote a better level of complementarity.

Beyond forums, support may be required to create more formal collaboration guidelines, perhaps developed through a collaborative process with stakeholders from the public and NGO sectors, at the district level. As discussed, the NGO sector and most projects operate outside of collaboration with MoFA administrators, even while they employ AEAs to conduct field-level work. Normalizing procedures for projects to access AEAs through district-level administrators could improve the clarity and cohesiveness of partnerships, while the creation of formal Memorandums of Understanding can ensure different roles and responsibilities are appropriate and adhered to, thereby improving the outputs of these collaborative partnerships. Also, this arrangement would reposition MoFA as more of a monitor/facilitator to better fit their capacity in a pluralistic system. Funneling funds from NGO to district-level offices rather than direct to AEAs could also help promote more equal distribution to farmers, more strategic use to address MoFA needs, and avoid oversaturation in certain communities.

Support to build public-private partnerships is also recommended. The constraints faced by the private sector (low coverage, small extension staff) align closely with the strengths of the public sector. The development of incentives for the private sector to interact with MoFA could help increase coverage but also potentially help build capacity in areas where MoFA is deficient, producing a mutually-beneficial arrangement that also positively impacts farmers.

Third, MoFA is recommended to actively seek opportunities that will improve its long-term funding situation. Support through a renewed arrangement with the CDFATD, even if monies travel through the Ministry of Local Government, would help immensely. However, increasing funding may prove very difficult. Instead, MoFA should focus on improving resource efficiency.

Investing in ICTs can be a way to reduce transport costs while still addressing coverage. MoFA is currently seeking ways to become more proficient in ICT usage. However, donors and INGOs may have to provide support for text-message-based innovations like Esoko, increased and sustained use of Farm Radio, and improved access to mobile units. Another cost-saving measure could be to reduce or streamline monitoring and evaluation responsibilities, which would not only save money but would also free up officers to work with farmers. Existing tools exist to help with this, including Farmbook, as piloted by MEAS in Kenya.

Fourth, targeted support is recommended to improve individual and institutional capacity in extension. Efforts to build public sector capacity may be most impactful, as these individuals will likely continue in the field after shorter-term projects commence. Building these capacities requires a deliberate and collaborative process. The first step is for MoFA to determine what to measure and track AEA capacities in new competencies, such as farmer-based organization strengthening, market-oriented extension, monitoring and evaluation, and other areas. Next, MoFA should actively identify partners or outside interventions needed to address any particularly problematic gaps. This should occur at the district

level, especially given the larger degree of autonomy these Departments of Agriculture currently possess under decentralization. It will also be necessary to provide appropriate incentives to INGO or NGO partners who provide this training. Scaling up of the Savelugu-Nanton Extension Delivery Improvement Project (SNEDIP), a district-level strengthening program coordinated by MEAS in norther Ghana, could help address these gaps. More information on this project is available upon request.

Also, across the three regions assessed, respondents described how graduates of agricultural colleges lack skills in key aspects of modern extension. By assessing and identifying these skills gaps through comprehensive research, training institutions can be approached with specific curriculum recommendations in priority areas. Efforts can also be made to facilitate partnership with other educational institutions to assist in curriculum development.

Finally, extension providers from all sectors should invest more effort into developing means to increase female participation in extension and retain existing personnel. Investigation or research could be done to identify existing and other potential motivations for women to participate in extension. Perhaps these findings can lead to simple but influential procedural shifts, such as promoting greater flexibility in accommodating childbirth and facilitating moves to follow a spouse, that can increase the appeal of and longevity in extension roles.

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APPENDIX A - Itinerary and Meeting Schedule

January 22	Austen Moore and Oliver Ferguson arrive in Accra
January 23	Meeting with USAID Mission Agriculture Policy Support Project
January 24	Travel to Tamale
January 25	Meet with Agricorps
January 26	Savelugu-Nanton District Municipal and District Agriculture Offices ATT Project
January 27	Victor Lolig joins the team in Tamale
January 27	Tolon District Municipal District Agriculture Office International Institute of Tropical Agriculture Presbyterian Church of Ghana Agricultural Services Association of Church Based Development NGOs International Fertilizer Development Center
January 28	Savelugu-Nanton Municipal District Agriculture Office Engineers Without Borders
January 28	Team Travels to the Upper East Region
January 29	Talensi Municipal District Agriculture Office Association of Church Based Development NGO's – Upper East Office Bolgatanga Municipal Agriculture Office Trax Ghana Trias Ghana Navrongo-Bolgatanga Catholic Diocesan Development Organization
January 30	Navrongo District Municipal Agriculture Office Paga District Municipal Agriculture Office Upper East Regional Agriculture Office
January 31	Oliver Ferguson travels to Tamale

February 1	Oliver Ferguson travels to Accra Austen Moore and Victor Lolig travel to Upper West Region
February 2	Ministry of Food and Agriculture – Chief Directorate, Accra Tumu District Municipal Agriculture Office Tumu Deanery Integrated Development Programme Jirapa District Municipal Agriculture Office Ghana Agricultural Associations Business and Information Centre Methodist Agriculture Programme
February 3	Canadian International Development Agency Mennonite Economic Development Associates Community Aid for Rural Development Pro Net
February 4	Upper West Regional Department of Agriculture Apex Farmer Organization of Ghana Gonja District Municipal Agriculture Office Damongo Agricultural College Partners in Participatory Development Oliver Ferguson returns to United States
February 5	Social Enterprise Development Foundation – Ghana Community Aid for Rural Development Adventist Development and Relief Agency Masara N'arziki Farmers Association Austen Moore and Victor Lolig travel to Tamale
February 6	Savelugu-Nanton District Assembly Savanah Agricultural Research Institute Northern Sector Agricultural Investment Coordination Unit
February 7	Austen Moore departs

APPENDIX B – Respondent List

RESPONDENT LIST

Blaze Currie	Executive Director	AgriCorps
William Boakye-Acheampong	Regional Director	MOFA - Northern Region
Isaaka Basintale	Municipal Coordinating Director	Savelugu-Nanton District Assembly
Francis Neindow	Municipal Director of Agriculture	MOFA - Savelugu-Nanton District
James Humu	District Extension Officer	MOFA - Savelugu-Nanton District
Alhassan Dramani Philip	District Extension Officer	MOFA - Savelugu-Nanton District
Brian Kiger	Deputy Chief of Party	IFDC/ATT Project
Hawa Musa	District Director of Agriculture	MOFA - Tolon District
Amina Hada	District Extension Officer	MOFA - Tolon District
Kosmos Sniaf	District Extension Officer	MOFA - Tolon District
Abdul Rahman Nurudeen	Research Associate	IITA
Dan Kobilla	Director	Presbyterian Church of Ghana Agricultural Services
Malex Alebikiya	Executive Director	ACDEP
Cletus Achaab	Seed Advisor	IFDC/ATT Project
Imori Brannick	Vet AEA	MOFA – Savelugu-Nanton District
Baaku Abdullahi	MIS Director	MOFA – Savelugu-Nanton District
Esther Amoako	Project Coordinator	EWB

Edward Agumah	MIS Officer	MOFA - Talensi District
Sylvester Ngpali	Regional Manager	ACDEP - Upper East
Samuel Abuja	MIS Officer	MOFA - Bolgatanga Municipal
Joseph Adjadui	Municipal Extension Officer	MOFA - Bolgatanga Municipal
Vincent Suppey	Director	Trax Ghana
Ebenezer Matey	Microfinance Advisor	Trias Ghana
David Azupoua	Director of Livelihoods and Advocacy	Farmers' Training Center/NABOCADO
Joseph Ayembilla	Development Coordinator	NABOCADO
Michael Beah	Project Manager	NABOCADO
Diana Akumanye	Municipal Crops Officer	MOFA - Navrongo Municipal
Adunau Vasco	AEA	MOFA - Navrongo Municipal
Kasim Salif	MIS Officer	MOFA - Navrongo Municipal
Roland Atarah	District Extension Officer	MOFA - Navrongo Municipal
Ibrahim Alido	District Extension Officer	MOFA - Paga District
Julius Awaregyu	Director	ORGIIS
Bernard May-Issah	Regional Director	MOFA - Upper East Region
Samuel Akueth	District Extension Officer	MOFA - Tumu District
Francis Moro	District Extension Officer	MOFA - Tumu District
Albert Kaguah	District Extension Officer	MOFA - Tumu District
Martin Gbevillah	Field Officer	TUDRIDEP

Mandela Adajakse	Field Officer	TUDRIDEP
Allansah Kuzie	District Director	MOFA - Jirapa District
Martin Jatoe	Program Manager	Methodist Agriculture Programme (MAP_
Livinus Balog	Program Coordinator - GROW Project	Mennonite Economic Development Associates (MEDA)
Alhassan Hudi	Executive Director	Community Aid for Rural Development (CARD)
Aldullai Arimeah	M&E Officer	Community Aid for Rural Development (CARD)
Ivy Nayiri	Assistant Director - GROW Project	Pro Net
Samuel Faasob	Field Officer	Pro Net
Joseph Faalong	Regional Director	MOFA - Upper West Region
Lord Andrews Niyoro	Field Officer	Partners in Participatory Development
Maria Fuseni	Accounts Officer	Partners in Participatory Development
Robert Ayamua	Principal	Damongo Agricultural College/MOFA
Francis Nuotaba	District Director of Agriculture	MOFA - West Gonja District
Alfred Baso	Director	Center for Agriculture & Rural Development (CARD)
Bed Kolio	Program Officer	Center for Agriculture & Rural Development (CARD)
Raymond Avatim	Director	SEND Ghana
Michael Mensah	Office Manager/M&E Assistant	ADRA

Isaac Kankam-Boadu	Director	ADRA
Luuc Smits	General Manager	Masara N'arziki Farmers Association
Jennifer Bamuna	Assistant Director	Savelugu-Nanton District Assembly
Janet Chigabati-Agama	Coordinator	Northern Sector Agric Investment Coordination Unit (NSAICU)
James Kombiok	Principal Research Scientist	Savannah Agricultural Research Institute (SARI)
Majed Mohammed	Development Officer	High Commission of Canada
Nevin Orange	First Secretary	High Commission of Canada
Edward Ametepe	Executive Secretary	Ghana Agricultural Associations of Business & Information Centers
Kweku Boateng	Executive Director	Apex Farmer Organization of Ghana
Joseph Boamah	Chief Director	MOFA

APPENDIX C – Information on NGOs

SAVELUGU NANTON MUNICIPAL AGRIC DEV'T UNIT

INFORMATION ON NGOs INVOLVED IN THE CROP SUB SECTOR.

Name of NGO	Activity involved (e.g. crop production, credit schemes, planting materials)	Type of Crop	Operational Districts	Contact information (Postal Address. Mobile No & Email Address)	Year of Start of Operations
URBANET	Training of farmers on vegetable production, conduct of vegetable crop demonstrations and micro credit support to women	Tomatoes, pepper, Onions, Cabbage, lettuce, Garden eggs and Carrots.	Savelugu-Nanton Municipality	Mr. Basit (0266774386) Mr. Rashid (0244407627)	
World Vision	Crop production support services, Small ruminant support schemes	Maize and Soybeans	Savelugu-Nanton Municipality	Mr. Michael (0266624789)	2002
Masara N'arziki	Crop production demonstrations, in-kind crop production credit schemes e.g. seeds, fertilizers and pesticides.	Hybrid Maize Varieties	Savelugu-Nanton Municipality	Luuc Smiths (0372023194) (0544351455)	-
CARD	In-kind crop production credit schemes/micro finance institution	Maize and Soybeans	Savelugu-Nanton Municipality	Naresh Sukula (0244716849)	2001
BUSAKA AGRI-BUSINESS CENTRE	Input credit services e.g. tractor services, seeds, fertilizers, pesticides Crop production demonstrations, Extension, fumigation and storage services	Maize, Rice and Soybeans	Savelugu-Nanton Municipality	(0243621383) (0208758951) (0242314036) (0266538566)	2010
INTC	Gushei	Grafted Mangoes	Savelugu-Nanton Municipality		2010

APPENDIX D -

IMPLE- MENTING AGENCY	Name of Project	Donor Agency	TYPE OF INTERVENTION	LOCATION/OPERATION AL AREA	Contact Person	Mobile No.	Email
ADRA	INTAPIM	AGRA	1. Train Volunteer Extension Workers 2. Provide agricultural extension services to FBOs 3. Collaborate with seed companies to produce certified seeds (using drought-tolerant varieties from SARI) 5. Value chain linkages – inputs and output markets, and sources of credit 6. Capacity building – Technical officers, FBOs, SMEs, etc. 7. Partnerships - Work closely with all partners to avoid duplications and create synergies	Bole, Zabzugu, Central Gonja, East Gonja, Sawla-Tuna-Kalba, West Gonja, West Mamprusi, Yendi	Isaac Kankam-Boadu	024-4177870	isaackankan@yahoo.com
GGC		AGRA/USAID	1. Warehouse certification and licensing 2. Warehouse construction 3. Post-harvest management 4. Inventory financing 5. Advocacy: -promotion of Grades and Standards 6. Market Information Systems; -Price information dissemination	Karaga, Gushegu, Savelugu, Yendi, Chereponi, Nanumba North	Felix Apeti	024-4894064	fapeti@ghanagrainscouncil.org
NATHAN Associates	Ghana Market Development (MADE)	DFID	Strengthening selected markets by addressing 3 elements of the market system. 1. Supporting functions e.g. Financial services. 2. Rules e.g. through Traditional authorities, GOG ETC. 3. Core market players, e.g. Marketers, input dealers etc.	Northern Savannah Ecological Zone (NSEZ)	Augustine Adongo	020-2110368	augustineadongo@gmail.com

IFDC	Agriculture Technology Transfer (ATT)	USAID	<ol style="list-style-type: none"> 1. Building the capacity of farmers in Seed and ISFM technologies. 2. Building research capacities to produce demand driven breeder seeds 3. Introducing the use of labor saving technologies. 4. Support to local seed companies. 5. Linking actors to sources of finance e.g. FINGAP 	Northern Savannah Ecological Zone (NSEZ)	Edo Lin	026-40735608	elin@ifdc.org
IFDC	Agriculture Value Chain Mentorship Project (AVCMP)	DANIDA/AGRA	<p>Improving Entrepreneurial and technical skills of FBOs, agro dealers, small and medium sized enterprises in the following areas:</p> <ol style="list-style-type: none"> 1. Training in group dynamics. 2. Establishment of demonstration farms. 3. Facilitation of bulk purchase of inputs. 4. Facilitation to output markets 5. Linkages to credit sources. 	Tamale Metro, Savelugu-Nanton, Gushiegu, Karaga, Yendi, East Gonja, Kpandai, Tolon-Kumbungu, Saboba, Chereponi, Nanumba North, Nanumba South, Bunkpurugu-Yunyoo, West Mamprusi, East Mamprusi, Central Gonja	Afua Ohene-Ampofo	026-4573328	Aohene-ampofo@ifdc.org
Presbyterian Agric Services	Farmers Organizations in Agric Value Chains (FOAVC)	AGRA	<ol style="list-style-type: none"> 1. Training in group dynamics and business skills 2. Establishment of demonstration farms. 3. Facilitation of bulk purchase of inputs. 4. Facilitation to output markets 5. Linkages to credit sources. 6. Skills training in organizational management 	East Gonja, Tolon, Tamale Metro, Savelugu-Nanton	Buutmang Nunifu	024-4765079	pcagricservices@yahoo.com

SNV	Agricultural Support program	Directorate General for International Cooperation of the Netherlands (DGIS) and IFAD through NRGF	1. Value Chain Development in promoting production, utilization and marketing of sesame 2. Value Chain Development in promoting local rice production and consumption 3. Value Chain Development in promoting the identification, production & utilization of shea, baobab, moringa 4. Increasing access to structured demand market structures opportunities of Procurement Governance for Home Grown School Feeding Project (PGHGSFP) and promoting favorable procurement practices on the part of public institution & private sector	Chereponi, Bole, West Mamprusi, Central Gonja, Tolon, Savelugu, West Gonja, Garu-Timpani, Bawku West, Kasena-Nankana West, Builsa North, Lambussie, Nandom, Talensi-Nabdam, Karaga	Zakariah Issahaku	020-9105146	izakaria@snvworld.org
ACDEP	Resilient and Sustainable Livelihoods Transformation in Northern Ghana (RESULT) Project	CHF	1. Improve skills and knowledge in appropriate sustainable crop, animal and aquaculture management practices. 2. Promote and support gender equality. 3. Environment/climate change adaption. 4. Disaster risk mitigation considerations.	Ten Districts in the Northern Region Jirapa and Lawra districts in the Upper-West region Bongo and Talensi districts in Upper-east Region	Gail Mosti/Malex Alebikiya	023-6768612 0244785305	gail.mosti@resultproject.org amalex@acdpep.org
MEDA	Greater Rural Opportunities for Women (GROW)	DFAT-D	Work in progress	Currently in UWR, Yet to start Activities in Northern Region	Catherine Sobrevega	054-3445431	csobrevega@meda.org
SEND/ CCA/ CUA	Cooperative Credit Development (CCA)		1. Building Community Based Institutions 2. Credit Unions 3. Agriculture Cooperatives and engagement of District Stakeholders.	East Gonja, Kpandai, Nanumba South, Nanumba North	Lucie Tremblay	054-3445431	Lucie.Tremblay@coopscana.coop
Integrated Development Center (IDC)	Rural Agricultural Development	SADA	1. Provision of Tractor services to farmers. 2. Facilitating bulk purchases of seed.	Saboba, Kpandai, Nanumba South	Kenneth Wujanji	024-4628829	kwujanji48@yahoo.com
TRIAS	Innovative Extension Project	AGRA	Extension services and FBO Development	Savelugu-Nanton and West Mamprusi Districts	Rex Asanga	020 8247 156	rex.asanga@triasngo.be

TRIAS	Quality Rice Project	AGRA	1. Formation and profiling of FBOs in rice production, processing and Marketing. 2. Building capacity of FBOs in group dynamics 3. Getting them registered as legal entities under the Ghana Cooperative Law	Kumbung, Tolon districts	Rex Asanga	020-8247156	rex.asanga@triasngo.be
Ministry of Food and Agriculture (MoFA)	Ghana Commercialization of Agriculture (GCAP)	World Bank and USAID	1. Improving access to secured land for investment 2. Establish or expand nucleus out-grower schemes in the SADA zone Facilitate business development through the provision of grants to strengthen the capacity of eligible farmer's organizations, input dealers, mechanization centers, processors and other agricultural service providers along the value chain. 3. Strengthening out-grower, contract farming systems 4. Finance the rehabilitation and construction of agricultural storage infrastructure and processing facilities in the SADA zone	Northern Savannah Ecological Zone (NSEZ)	Stephen Debre	024-3925219	sjdebre@yahoo.com
WFP			Post-Harvest Mgmt., Markets and Capacity building of SHFs	Tamale, Sagnerigu, Tolon, Kumbungu	Kaz Fujiwara	050-100759	Kazuyuki.Fujiwara@wfp.org
Canadian Feed The Children-Ghana	Food Security Projects (one out of other projects)	Canadian Feed the Children	1. Training in Climate Change Resilient agricultural technologies. 2. Grassroots capacity building in sustainable use and management of natural resources	Savelugu-Nanton, Mion, West-Gonja, Bolgatanga, Kasena-Nankana East, Bongo, Sissala East	Edward Akapire	020-8493339	ekapire@canadianfeedthechildren.ca
World Vision International	Food Security Projects (one out of other projects)	Canada	1. Building the capacities of women extension volunteers on improvement of Agric, Nutrition and Sanitation activities in selected communities 2. To build the capacities of households to advocate for women access to farm land for Agric activities in Tolon	Tolon Kumbungu	James Asedem	026-1614006	james_asedem@wvi.org

IITA	Africa Research in Sustainable Intensification for the next Generation. (Africa Rising)	USAID/FtF	<ol style="list-style-type: none"> 1. Community analysis 2. Multi-stakeholder partnerships – R4D platforms 3. Crops and cropping systems 4. Ruminant production 5. Rural poultry production 6. Rural pig production 7. Nutrition education 8. Technology dissemination 	Savelugu-Nanton, Tolon, Kumbungu	Akakpo D. Brain	024-4129380	debrainy@yahoo.com
Ministry of Food and Agriculture (MoFA)	Northern Rural Growth Program (NRGP)	GOG/IFAD/AfDB	<ol style="list-style-type: none"> 1. Strengthening Farmer Based Organizations (FBO) 2. Establishing District Value Chain Committees (DVCCs) 3. Development of Value Chain Organizations 4. Establishment of Productivity Investment Fund 5. Small scale irrigation development 6. Marketing infrastructure Development 7. Capacity Building of Financial Institutions, Financial NGOs 8. Matching Grants 9. Credit Delivery and Administration 	Northern Savannah Ecological Zone (NSEZ)	Roy Ayariga	020-2110000	rayariga@yahoo.co.uk felixdaramani@gmail.com
MoFA/ACDEP/EPA/UDS/CSIR	Community Life Improvement Programme (CLIP)	DANIDA	<ol style="list-style-type: none"> 1. Crop-livestock integration 2. Crop diversification 3. Dry and wet season vegetable production 4. Fish farming 5. Promotion of climate change resilient technologies and practices. 6. Demonstration on improved crop varieties 	Yendi, Mion, Karaga	Lukeman Yussif	024-4889962	nbangbaspecies@gmail.com

ACDI/VOCA	Agriculture Development and Value Enhancement Project 2(ADVANCE 2)	USAID/FtF	1. Business Services 2. FBO Development 3. Trade and Marketing 4. Agriculture Production Services-Input, technologies 5. Policy and Advocacy	Northern Savannah Ecological Zone (NSEZ)	Emmanuel Dormon	054-4334090	edormon@acddivocaghana.org
Ministry of Food and Agriculture	RTIMP	IFAD	Technology Dissemination, marketing	Northern Savannah Ecological Zone (NSEZ)	L. Dandeebo	024-4608680	ldandeebo@yahoo.com
Ministry of Food and Agriculture	Rice Sector Support Project	AfDB	1. Land Development 2. Access to Credit 3. Support to Adaptive Research 4. Stakeholders Capacity Building	Central Gonja, Savelugu-Nanton, Tamale, Tolon, Kumbungu, Yendi, Nanumba north and south, East Gonja, Sanerigu, West Mamprusi, Gushegu and Karaga	Richard Twumasi	0506320 058	rickytwumasi@gmail.com
RAINS	Integrated Community Empowerment Program (INCOME)	Canadian Feed The Children	1. Train Community level facilitators and MoFA AEAs on Climate Vulnerability and Capacity Analysis (CVCA) process 2. Organize and Train Community Extension Agents (CEAs) 3. Provide financial support to farmers 4. Establishing demonstration farms	Northern Savannah Ecological Zone (NSEZ)	Hardi Tijani	024-4571226	harditijani@gmail.com
World Food Program	Purchase for Progress (P4P)	DFATD Canada	1. Capacity Development and Supply-side Partnerships 2. Support to Emerging Structured Trading Systems (warehouse receipt systems) 3. Support Small and Medium Traders 4. Developing Local Processing Capacities		Kaz Fujiwara	050-100759	Kazuyuki.Fujiwara@wfp.org
GRAMEEN Ghana	Rice Sector Support Project/ SHEA Project	AfDB/ KIVA	1. Formation and capacity building of community actors such as FBOs, MBOs, PBOs and VMCs. 2. Facilitate community actor's access to tractor service, agro inputs and credit. 3. Advocacy through community sensitization	Yendi, Mion, Karaga	Mumeen Musah	024-2114717	musam03@yahoo.com

AMSIG Resources	Quality Rice Project	AGRA	1. Post-harvest management 2. Processing of grain rice 3. Marketing to premium markets	Kumbungu and Tolon districts	Gina Odartefio	024-4625646	naaoye@zoho.com
Innovation for Poverty Analysis (IPA)	Disseminating Innovative Resources and Technologies (DIRTS)	USAID	1. Extension Services 2. Inputs Supply Services 3. Insurance Services	Central Gonja, Karaga, Mion, Saboba, Savelugu-Nanton, Tamale, Tolon, Kumbungu, Yendi, Zabzugu, Tamale	Xorla Adzoyi	024-6429666	fadzoyi@poverty-action.org
SARI	Quality Rice Project	AGRA	1. Access to quality seeds 2. Building capacity of farmers on GAP 3. Creating awareness on ISFM	Kumbungu and Tolon districts	John Kanburi Bidzakin	020-8489461	bidzakin22@gmail.com
CONCERN UNIVERSAL	The Sorghum Value Chain Development Project	AGRA	1. Increase sorghum productivity using improved and appropriate inputs 2. Reduction of transaction cost for smallholder farmers and aggregators through collective action and better integration of value chain. 3. Increased in Financial Services	Nantong and Chereponi	Confidence Emmanuel Abotsi	0208231964, 0501285712	Confidence.Abotsi@concern-universal.org
CARD	Input Credit Program	SADA/AGRA, Private resources	1. Credit Facilitation 2. Marketing 3. Warehousing & Grain Preservation 4. FBO Development 5. Farmer Registration	Savelugu-Nanton, Tolon, Kumbungu, Yendi, Mion	Naresh Shukla	024-4716848	cardghana@yahoo.com
Heifer International	Livelihood Program		1. Support for Small Ruminant production 2. Shea processing	Bole, Sawla-Tuna-Kalba	Ebenezer	024-4292861	-
Local NGOs							
Jaksally Youth Group	Agricultural Technology Transfer, Value Chain Development	USAID/ ATT, ADVANCE II, PLAN Ghana, CARE	1. VC Facilitation, 2. Value chain financing (VSLA), 3. Technology Demonstration, 4. extension	Bole, Sawla-Tuna-Kalba, West Gonja, North Gonja, Central Gonja, East Gonja	Jeremiah Seidu	024-4409552 050-7778800	jereseidu@hotmail.com
Northern Empowerment Association	Agricultural Program		1. Gari processing, 2. Tilapia farming, 3. Maize production	Bole	Ampem Noah	027-4761765	-

Partners in Participatory Development	Agroforestry and Environmental Conservation		1. Afforestation and River basin conservation, 2. Capacity Development of Farmers, 3. Extension	Bole, Sawla-Tuna-Kalba	Eddie Telly	024-4723498	eddiety@yahoo.com
Concern Stakeholders for Educational Development (CSFED)	Value Chain Financing and Marketing	Internally Generated Funds	1. Value Chain Financing (VSLAs), 2. Gari processing, 3. Maize Production, 4. Market linkages for Shea pickers	Bole, Sawla-Tuna-Kalba	Kapori	020-3262674	kapoabota@84@yahoo.co
Kachito Community Development Centre (KODEC)			1. Credit (both cash and inputs) for maize production, 2. Shea and gari processing, 3. Extension provision 4. capacity development of farmers	Central Gonja	Moses	020-3528726	mosesja2003@yahoo.com
COMMFED	Sustainable Agriculture Program		1. Promotion of least chemical use in farming 2. Extension	Central Gonja	Francis Tella	026-9406233	commdef@yahoo.com , telfranc@yahoo.com
Tuna Women Development Project (TUWODEP)	Livelihood Program		1. Small ruminant production, 2. Support to shea processing groups 3. Extension	Sawla-Tuna-Kalba	Raphael	020-5246842	tuwodep@yahoo.com
Private Sector							
Bunwuloso One-Stop Rural Bank	Agricultural Financing	Deposits from clients	1. Production Credit 2. Equipment Credit	West Gonja, Central Gonja, Bole, Sawla-Tuna-Kalba	Abdul-Aziz Shiraz	020-9416245	honorableabdulazizshiraz@yahoo.com
Kintampo Rural Bank	Agricultural Financing	Deposits from clients	1. Group/individual credit for production and equipment finance	Central Gonja	Aboagye Antwi Adjei	024-4021627	aboagyeeaa9@gmail.com
Abusuma-Kutere Savings and Loans	Agricultural Financing	Deposits from clients	Credit for both group and individual farming	Central Gonja	Domere Joseph	020-1768511	
Dabo Investment	Agricultural Production and Marketing	NRGP	1. Maize, rice, soya and butternut squash production and marketing. 2. Support to out-growers	Central Gonja	Dramani Abass	024-2345725	dabbinvestlimited@gmail.com