

**A COMPARATIVE SWOT ANALYSIS OF THE NATIONAL AGRICULTURAL
EXTENSION PROGRAM ORGANIZATION TO DETERMINE BEST-FIT
PROGRAM MODEL: A CASE STUDY OF THE NORTH WEST AND SOUTH
WEST REGIONS OF CAMEROON**

A Dissertation

by

GWENDOLINE NA-AH NYAMBI

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2012

Major Subject: Agricultural Leadership, Education, and Communications

A Comparative SWOT Analysis of the National Agricultural Extension Program
Organization to Determine Best-Fit Program Model: A Case Study of the North West
and South West Regions of Cameroon

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ABSTRACT

A Comparative SWOT Analysis of the National Agricultural Extension Program Organization to Determine Best-Fit Program Model: A Case Study of the North West and South West Regions of Cameroon. (May 2012)

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Agriculture is crucial to the economic and social wellbeing of the Republic of Cameroon. A national need for increased productivity, farm incomes, food security and rural development requires more effective agricultural extension and advisory systems. The need is persistent. This study analyzed strengths, weaknesses, opportunities, and threats that existed within the current national extension program and examined how form, function, and policy influenced two regions in Cameroon. Analysis focused on 15-year time changes using a comparative case study design. Four regional focus groups and 28 individual interviews bounded 59 cases from four stakeholder groups of farmer leaders, non-governmental organizations, extension representatives, and governmental counterparts. Eighteen primary themes emerged with overlap of opportunities and threats among stakeholders. Incentives to program performance included staff competence and innovative technology transfer. Barriers included infrastructure, postharvest technology, market incentives, financial sustainability, and feedback. A lack of vision for

sustainability, inadequate government funding, poor collaboration and linkages, uncoordinated parallel programs, and ineffective management systems reduced program potential. Four themes framed recommendations for improved programs: government investment, trainings, market incentives, and management. Options to improve program sustainability included subsidies that benefit all farmers, more council and private sector engagement with extension, rural infrastructure development, price standardization, and fees for service. Medium and large-scale farmers were willing to pay for extension services when and if available whereas small-scale farmers relied heavily on subsidized services. Accessibility to markets, farm size, and cash crop production are associated with farmers' acceptance of fees for service. These findings highlighted areas where changes in the nation's agricultural extension service could improve its relevance in meeting performance targets. Stakeholders' recommendations for more effective agricultural extension and advisory systems included: 1) providing an autonomous extension service that focuses on specific needs and market opportunities and coordinates all support/parallel programs while collaborating among research and private advisory services; 2) implementing holistic government policies that integrate technology transfer, innovation, health, value-chains, and markets to benefit all farmers; 3) redesigning subsidies that equitably incentivize production and sound environmental practices that benefit all farmers; 4) increasing in-service trainings related to innovations; and 5) updating innovations and harmonizing program activities.

DEDICATION

This dissertation is dedicated to God Almighty for giving me the opportunity and strength to pursue graduate studies successfully and to my family that has contributed financially, morally, and spiritually to enable me to attain this goal. Thank you Lord for your Divine favor and abundant blessings granted me. My dearest grandma (Anna Yoseh Nasah), you inspired me to get this degree. You told me when I was in high school that you wanted me to be a Doctor. You actually meant a medical doctor. Unfortunately, I had no calling for the medical field. I hope I still made you proud “Ngondereh” and thank you for believing in me and for the endearments you always shower me with. Thank you my dearest Mama (Mrs. Josephine Bih Enow) for valuing and investing in my education. You made me what I am today. “You are the greatest mother in the world” and I shall forever be grateful for your sacrifices.

ACKNOWLEDGEMENTS

My sincere gratitude goes to my advisor, Dr. Shinn, for your enormous support and guidance throughout my graduate studies at Texas A&M University. As a true educator, you commended me when it was due and challenged me to give my best effort when necessary. You honed my academic development in the last three years in immeasurable ways and made me a better person professionally. Thank you for believing in me and inspiring me to be a better person.

I would also like to thank Dr. Briers, Dr. Murphy, and Dr. Runge for serving on my committee. Your feedbacks and support encouraged me to persist to the end. The depth and breadth of your insights and experience were very valuable.

This research would not have been possible without the collaboration of the participants who served as respondents in the research. My appreciation goes to the respondents from the various stakeholder groups: farmer leaders, extension representatives, agriculture authorities, non-governmental organizations representatives, and government development authorities from both the South West and North West regions of Cameroon including national extension representatives and research counterparts who took time off to give their valuable inputs for the success of this study.

My gratitude also goes to my colleagues and friends especially, to Connie Smith and Kevin Andrews who contributed through positive feedback and encouragement to enable me to complete this dissertation. Special thanks to you, Dr. Gwena Beatrice, for

being a loving elder sister to me. You spearheaded and encouraged me to achieve this milestone.

I give my sincere thanks to my uncle Mr. Nyambi Lucas Amah for filling-in as a father to me. You always encouraged me to pursue my dream and that gave me the inspiration to keep working hard.

Finally, this milestone job would not have started and finished successfully without funding. I am indebted to the Fulbright Program for granting me a fellowship to pursue graduate studies at Texas A&M University and to the Department of Agricultural Leadership, Education, and Communications and the College of Agriculture and Life Sciences for the funding to enable me complete this program. I pray the Fulbright Program grows from strength to strength, continues to foster cultural exchange and education, and grows its community worldwide.

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CHAPTER I

INTRODUCTION

Background of Study

A majority of Sub-Saharan countries' populations depend on agriculture for their livelihood as well as for foreign exchange earnings (Dewbre & Borot de Battisti, 2008). These countries are in various stages of the nation-building process and face monumental challenges to create sustainable, equitable, and prosperous systems that can provide for the needs of their citizens. Despite the lofty goals of the United Nations Millennium Development Goals (MDG), progress has been slow and highly variable across this region of Africa. In Cameroon, some MDG progress has been made, but an effective catalyst is needed to move forward. That catalyst has been suggested to be the extension of agricultural knowledge on improved technologies to farmers (Langcuster, 2011; Rola-Rubzen, Hardaker, & Dillon, 2001) that will eventually translate to increased productivity. Extension of agricultural knowledge to small landholder farmers was indicated as very crucial to attaining the MDG goals (Spielman, Davis, Negash, & Ayele, 2008).

This dissertation follows the style and format of the *Journal of International Agricultural and Extension Education*.

This research analyzed the national agricultural extension program organization and functioning in the North West and South West regions of Cameroon to determine how the functionality of the programs can be made better for sustainability to meet the future needs of rural Cameroonians for food security.

Agriculture is the main source of income to about 70% of the population in Cameroon and contributes about 20% to the country's GDP (Central Intelligence Agency [CIA], 2012). Cameroon is also one of the few sub-Saharan nations with substantial potential for growth, profitability, and sustainability in the agriculture sector (Dewbre & Borot de Battisti, 2008). The country has one of the best endowed primary commodity economies in Sub-Saharan Africa (SSA), but it still faces many of the problems that confront developing countries; the public service provider sector is the primary source of information and resources critical to small holders (Rivera, 2006; Spielman et al., 2008). Cameroon faces the challenge of efficient service delivery and managing equitable programs (Rivera & Cary, 1997). In addition, according to data, Cameroon's pledged objective of reducing its poverty from 53.3% in 1990 to 25 percent by 2015 is far from being achieved (International Fund for Agricultural Development [IFAD], 2007). An analysis of the country's agricultural sector reveals that agricultural extension services have received little attention or improvement over the past years. Fonjong (2004) posits that there has been a systematic neglect of the agricultural sector and its infrastructure in Cameroon, which has resulted in agricultural production that is below the country's potential.

Given the primordial role agriculture plays for many African countries, there is a general consensus among policy makers, based upon thorough needs assessments, that priority should be given to the agriculture sector and especially to the production of high-value food crops to meet the current market trends (Allahyari, Chizari, & Mirdamadi, 2009; Franz, Garst, Baughman, Smith, & Peters, 2009; New Partnership for Africa's Development [NEPAD], 2005; Soltani, Hosseini, & Mirdamadi, 2010; Swanson & Rajalahti, 2010). Although scientific and technological improvements are needed throughout the value-chain, the development of human capital, associated with agriculture through advisory/extension service delivery, has been shown to be an effective catalyst for sustainable growth (Allahyari, 2009; World Bank, 2000).

Most industrialized nations today were built from agricultural growth. Improving agricultural growth, and therefore economic growth through the extension services, has been the focus of many nations during the agrarian phase of development. The Hatch Act of 1887 which established demonstration experimental stations in Land Grant Universities and later the institution of the Cooperative Extension System through the Smith-Lever Act of 1914 were efforts aimed to develop agricultural production in the United States. Major strides were achieved in research on improved varieties that were adaptable to disparate environments. The Consultative Group on International Agricultural Research (CGIAR) and many research institutes were established thanks to agricultural development (Evenson & Gollin, 2003). Acquired technologies from Europe and the United States were later transferred in the 1950s to the developing world to strengthen the national public extension services to increase food production (Antholt,

1998). As a result of the adopted diffused adaptable technologies, food production increased and famine was abated for certain African and Asian countries like India. Improved technologies did not only increase yields, but also led to the transition of agrarian nations to industrialized nations (Todaro & Smith, 2006).

Qamar (2005) defined the function of agricultural extension as “. . . providing need and demand based knowledge and skills to rural men, women and youths in a non-formal, participatory manner with the objective to improve their quality of life” (p. 1). Today, extension services encompass more than the transfer of knowledge and skills. It involves not only planning with the beneficiaries and involving them in the decision making process, but also linking them to markets (Franz et al., 2009; Singh, 2000; Swanson & Rajalahti, 2010).

The predominant view is that a best-fit extension system for the developing world will be a pro-poor one that diffuses appropriate innovations to increase food security and good agricultural practices. Berdegúe (2005) opined that extension services that meet the needs of the poor should be a multi-stakeholder social learning process that generates and puts to use new knowledge that expands capabilities and opportunities for such a group. Berdegúe suggested that more emphasis should be placed on the process that is the knowledge than on the product. Singh (2000) also asserted that efficient extension programs should be “those that help people stand on their feet that genuinely encourage responsibility, initiative, decision making, and self-reliance” (p. 47). In a similar manner, pro-poor extension initiatives, as pointed by Klasen (2007), should maximize the income gains of the poor and accelerate progress toward meeting the

number one Millennium Development Goal of eradicating extreme poverty and hunger. This is a major reason why there is a general demand that national governments invest in the agricultural sector to attain a six percent agricultural growth rate in Africa (United Nations Economic Commission for Africa [UNECA], 2007).

Following the needs to meet the primary MDG objective, the consensus has been that an efficient extension service is crucial to improve productivity and meet the challenge of feeding the increasing global population, conserving the natural resources, and protecting the environment in the 21st century. In order to combat food insecurity where populations are rapidly growing and arable land is limited, there is an urgent need to make available the necessary inputs and appropriate technologies of production to small-scale farmers (NEPAD, 2005; Rivera, 2006). To meet this challenge amongst other development organizations, several African affiliated development organizations adopted a common mission to eradicate poverty and promote the sustainable development of the continent. For example, the primary goal of the New Partnership for Africa's Development (NEPAD), the Alliance for Green Revolution for Africa (AGRA), and the Forum for Agricultural Research for Africa (FARA) is aimed at improving food security that will help achieve the 2015 Millennium Development Goals objectives. According to NEPAD (2005) in order to avert food insecurity and reduce poverty, a six percent annual increase in agricultural output needs to be sustained during the next 20 years even though current data indicate that many African nations barely achieve a 1% annual growth in output and some countries are actually regressing. NEPAD further emphasized the need for national governments to invest in the agriculture sub sector and

the adoption of upgraded technologies, without which even large-scale investments would underperform and fail to achieve the targeted increases required in Africa.

In Cameroon, a majority of farmers are small landholders who, on average, farm less than two hectares of land and have low productivity due to soil-nutrient depletion and extremely low fertilizer use. UNECA (2007) reported extremely low fertilizer use of about eight kilograms per hectare in Africa compared to a global average of 100 Kg/Ha. The total arable land area of Cameroon is 15.1% with average crop yields estimated at 1,842 Kg per Ha for cereals and 5,777 Kg per Ha for roots and tuber crops (Earth Trends, 2003). These figures are observed to be below the productivity potential of the country. Consequently, an efficient agricultural extension system that transfers technologies that best fit the local conditions and the farmers' situations is critical. Furthermore, agricultural research and extension knowledge is needed to increase productivity and lower the high costs associated with expanding the area dedicated to crops and livestock production.

Statement of the Problem

Despite Cameroon's attempts to decentralize its development efforts in the 1970s, this has not yet been achieved, especially in the agricultural sector (World Bank, 2011). As a result, there has been little common vision for local development as well as appropriate planning, budgeting, and empowering the local communities to guide their own development priorities. For the past two decades the Cameroon government and international donors reduced investments in the agricultural extension sector, leaving its

public extension system unable to provide extension services to a majority of farmers who need these services (Fonjong, 2004). This is a common phenomenon with most African countries, posit Swanson and Rajalahti (2010), even though there is a current general consensus by policy makers that emphasizes that investments be made in the agricultural and research sectors in the developing world in order to alleviate hunger and poverty. For Cameroon, meeting the current challenges necessitates wise investments that require an analysis of the agricultural extension system to ensure the efficient and sustainable use of available resources (Birner et al., 2006).

The Cameroon government subsidized agricultural development for decades prior to the Structural Adjustment Program (SAP) reforms in the 1990s. After SAP policies eliminated agricultural subsidies, the extension services' performance deteriorated, especially for small-scale farmers. There has been little or no inclusive study to assess the functioning and performance of the Cameroon extension service since the policy changes of 1998. According to Birner et al. (2006), "The last global consultation on agricultural advisory services was conducted by Food and Agricultural Organization of the United Nations (FAO) in 1989 and has not been updated since" (p. 38). Also, these authors indicated that current reported data were often merely estimates of extension's performance and tend to contain many discrepancies. However, FAO has embarked on recent consultations on extension functioning and performance. In one of its recent consultation workshop on market-oriented agricultural extension with several Asian countries, Kahan and Singh (2011) recommended, "Capacity building programs of extension workers at all levels were recognized as being urgently needed (p. 30).

The absence of literature on the performance of the national extension service in Cameroon hinders the knowledge base on what reforms might be made to improve the functioning of the extension service. It was anticipated that the results of this study will provide relevant benchmark information for national level planning and resolve discrepancies in extension data in Cameroon. This study also adds to the knowledge base concerning the performance of the Cameroon agricultural extension system and may serve as a guide to initiate productive reforms for a more efficient extension system. The findings provide policy relevant knowledge for reforming agricultural services. Dialogue and interviews with the various stakeholders involved in the extension service system enabled the assessment of the current performance of the extension system in Cameroon. The participatory approach with various stakeholders involved in the evaluation of the program and services integrated the varied opinions from the various stakeholders. The varied opinions obtained were relevant in addressing issues that address the needs of all. It was envisioned that this could be the only way sustainable “win-win” solutions could be attained through policy options that ensure that available resources are targeted to the prioritized needs of the stakeholders.

Purpose and Objectives of the Study

The purpose of the study was to examine, in collaboration with the various stakeholders involved with the agricultural extension sector in Cameroon, the strengths, the weaknesses, the opportunities, and the threats (SWOT) that exist in the current national extension program. These findings determined how the functionality of the

national extension programs could improve sustainability. The program theory framework (Chen, 2005) and the International Food Policy Research Institute's (IFPRI) framework, developed by Birner et al. (2006), were used as a guide to analyze the current framework conditions in Cameroon and the characteristics of the existing agricultural extension services. The frameworks were guides to determine if they were a "good fit" that met the missions or goals of the extension service and the needs of the target groups. It was anticipated that the results from this study would assist in better program planning and policy implementation by the Cameroon agricultural extension service.

The goal of the study was to determine an improved national extension organizational and development program that would meet the future needs of rural Cameroonians in the 21st Century. The ultimate research questions were as follows: 1) What are the optimum organizational and program development options to improve the wellbeing of rural Cameroon citizens in South West and North West Regions of Cameroon? 2) How could Cameroon use the power of convergence of global trends to shape the future for its extension services for a best-fit that maximizes efficiency? The research objectives addressed the following questions:

1. What were the strengths, weaknesses, opportunities, and threats (SWOT) of the current extension system/models?
2. How do the present (2011) conditions of Cameroon food, agricultural, and environmental sector compare to the last 10 or 15 years? Is "today" better than "yesterday"?

3. What are the reasons for the difference (gap) between extension services in the past and in the present?
4. How can the functionality of the extension programs be made better for sustainability?
5. What are the similarities and differences between the two regions?
6. Do the current agricultural extension service characteristics compare or best-fit the frame conditions according to the framework developed by IFPRI researchers?

Specific protocol questions were used to address these research objectives (Appendix 2).

Conceptual Framework

This research used the system view of a program theory, (Chen, 2005) conceptual framework, (Figure 1.1) and the International Food Policy Research Institute (IFPRI) conceptual framework (figure 1.2) developed by Birner et al. (2006) in their paper *From Best Practices to Best Fit: A Framework for Analyzing Pluralistic Agricultural Services Worldwide* as guiding framework concepts for the study.

Using the program theory, the nature and characteristics of a given program can be illustrated.

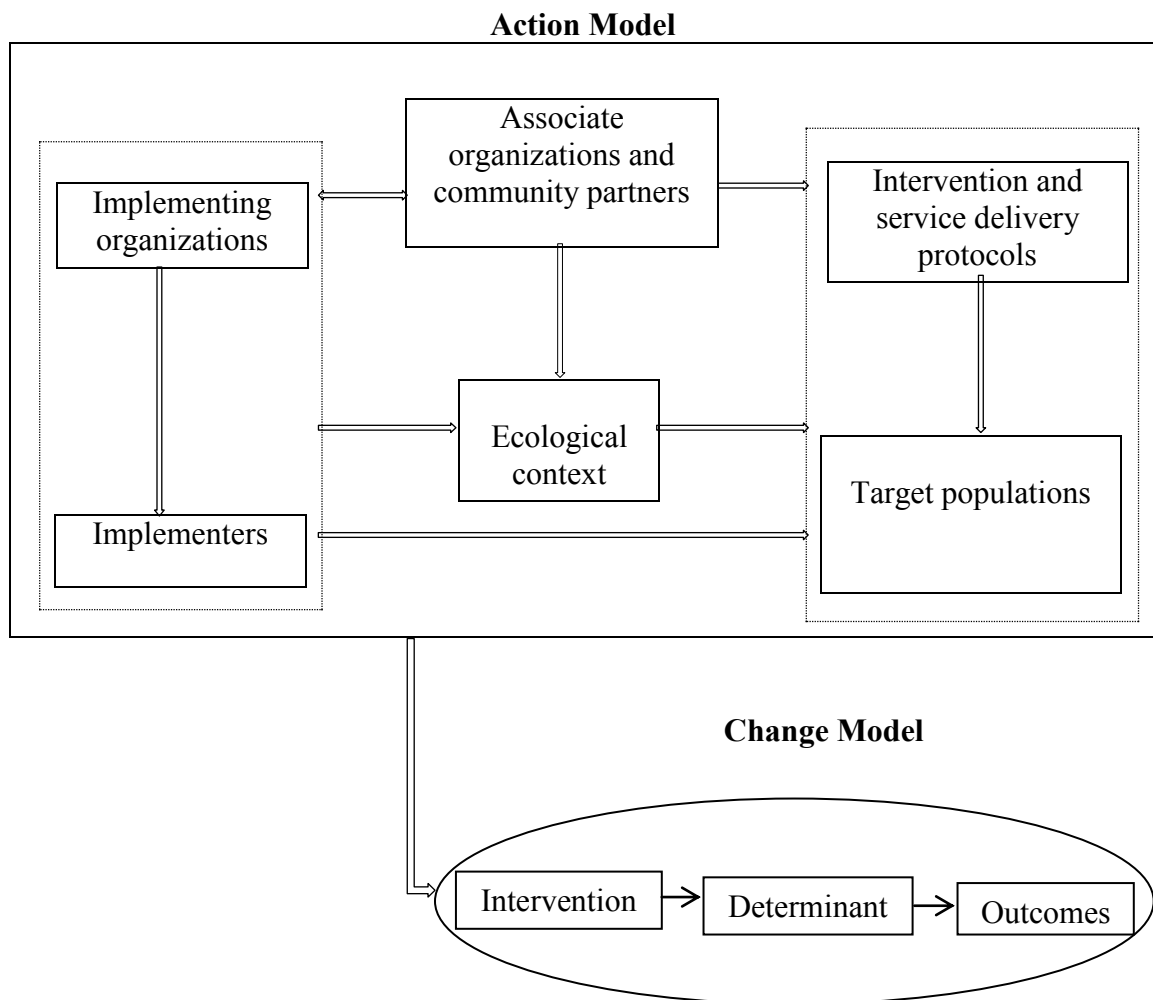


Figure 1.1. Conceptual Framework of Program Theory (Basic Form). Source: Chen, H (2005). Practical program evaluation: Assessing and improving planning, implementation and effectiveness. Thousand Oaks, CA: Sage Publications.

Chen (2005) pointed out that for a program to succeed and survive, it must first ensure the smooth transformation of inputs into desirable outputs and secondly must continuously interact with its environment to obtain the resources and support necessary for its survival (sustainability). The systems program theory conceptualized any

intervention program as having five components: input, transformation, output, feedback, and environment.

Chen (2005) indicated that the Logic model could be viewed as a simple version of the program theory because it has similar components to the program theory: input, activities, output, and outcomes. Chen, however, stressed the fact that the Logic model essentially serves to “develop an evaluable program, conduct evaluable assessments and monitor a program’s performance” (p. 36).

Whereas the Logic model focuses on the quantification of a program activity with measurable indicators, the program theory strives to ask what makes a program sound and how this was accomplished. Rogers, Petrosino, Huebner, and Hacsí (2000) opined that program theory identifies what about the program causes the outcomes. The program theory is also useful for understanding why programs work or fail through researchers’ post-hoc analysis and can be used to improve programs directly and indirectly.

The inputs of a program that is being evaluated are resources obtained from the environment, which include personnel, finances, equipment, and facilities.

Transformation represents the processes a program converts its inputs into outputs.

Transformation is the synonym of activities in the Logic model. Outputs are the results of the transformation, which represents the attainment of goals. The environment is any factor outside the program’s boundaries that foster or constrain the program’s successful implementation. Feedback is all about program evaluation, posits Chen and, “Without feedback, a system flies blind and is bound to deteriorate and eventually die” (Chen,

2005, p. 5). With feedback, programs can gauge whether the inputs of a program are adequate and organized, target groups are reached, interventions are implemented appropriately, quality services are offered to clients, goals are attained, and stakeholders' expectations are met.

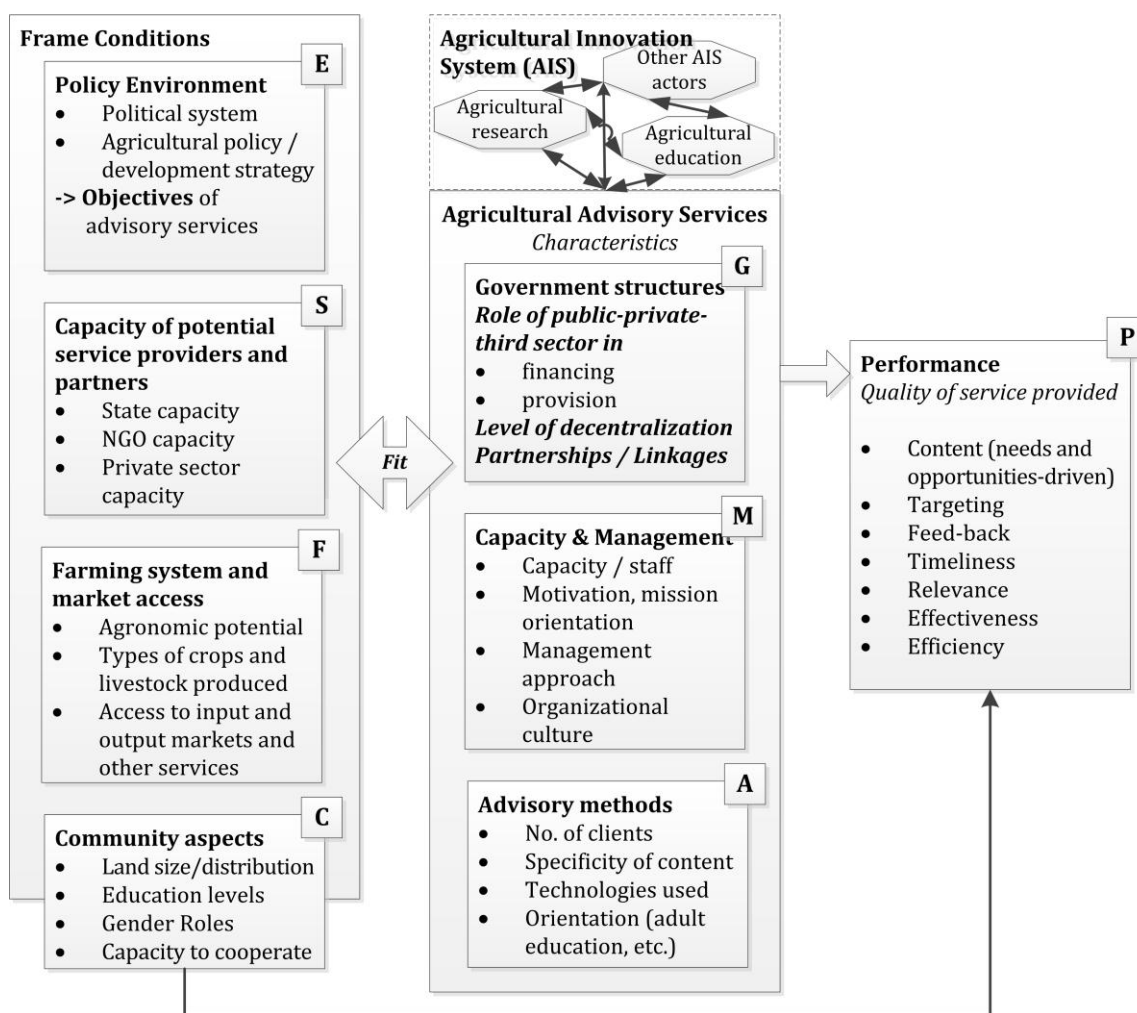


Figure 1.2. IFPRI Framework Guide for Designing and Analyzing Agricultural Advisory Services. Adapted from *Best practice to best fit: A framework for analyzing pluralistic agricultural advisory services worldwide* (DSGD Discussion Paper No. 37) by Birner, R., Davis, K., Pender, J., Nkonya, E., Anandayasekeram, P., Janvier, M., Mbabu, A., Spielman, D., Horna, D., Benin, S., & Cohen, M. (2006).

A program's existence is justified by the meeting of its goals. Outcomes are concrete, measurable aspects of these goals. Braverman and Engle (2009) suggested that the program theory can guide decisions about what parts of a program deserve the most evaluative attention.

The IFPRI framework was developed to analyze the efficiency of any extension organization or program as well as to redesign the system by facilitating the choice of the best-fit program and reforms available. The authors posit that there is a trend in general policy reform favoring processes that are increasingly participatory in nature. Participation by all stakeholders could improve the efficiency of extension services because local participants better understand the cultural, social, and environmental contexts that make it more likely that local priorities are incorporated into reform agendas (Birner et al., 2006). Participatory reform also supports change by creating ownership. The authors, however, warn that "elite capture" should be avoided in negotiating reforms through participatory approaches. They hypothesized that research involving the analysis of agricultural advisory service reform contributes to identifying the conditions that are conducive for transforming agricultural advisory services into learning organizations.

This research was limited to the SWOT analysis of the national extension program and how the SWOT analysis compared to the IFPRI framework. The frame conditions of this framework were analyzed to see how they fit the existing agricultural advisory services' characteristics (choice variables), how the performance of the

extension service could be enhanced, and what best-fit program could be adopted (Figure 1.2).

The frame conditions include the policy environment, the capacity of potential service providers and partners, farming systems and market access, and relevant community aspects. These frame conditions were analyzed to determine how they fit the advisory services' characteristics (governance structures, capacity and management, advisory methods) for performance of the existing agricultural extension services in Cameroon. Ultimately, the above analysis revealed the SWOT of the existing national agricultural extension program organization and functioning in the two regions of Cameroon.

SWOT Analysis

A SWOT analysis is a planning tool used to examine the strength, weaknesses, opportunities, and threats of a program or organization. A SWOT analysis was used as a tool to examine the past and current extension delivery method, the current extension programs, and the organizational program. According to Dyson (2002), a SWOT analysis can generate a rich array of factors with potential strategic initiatives. Houben, Lenie, and Vanhoof (1999) view SWOT analysis as historic insights into the strategies previously implemented as well as the success that was accordingly achieved.

Spence, Gherib, and Biwole (2011) noted, "The strategic formation process requires a thorough analysis of the external environment composed of various

stakeholders and an analysis of the internal resources and competences of the firm” (p. 337) that could then be translated and implemented into specific managerial practices.

The strengths and opportunities have internal sources while the weakness and threats have external sources. In a SWOT analysis, both the internal and external factors are kept in focus. SWOT analysis was described by Dyson (2002) as a firm foundation for resources and competency-based planning. A SWOT study of an organization will involve identifying the mission of the organization and then analyzing the strengths, weaknesses, opportunities, and threats. Strategies to address the various factors revealed by this analysis can then be developed and incorporated into the implementation agendas. This tool is important in strategic policy planning.

Constitutive Definitions

SWOT Analysis: A planning tool used to examine the strength, weaknesses, opportunities and threats of a program or organization that can generate a rich array of factors with potential strategic initiatives (Dyson, 2002). SWOT analysis is the historic insights into the strategies previously implemented as well as the success that were accordingly achieved (Houben et al., 1999).

Frame Conditions: These are variables that policy makers or advisory service managers can influence only indirectly or that are beyond their influence. These include policy environment, capacity of potential service providers, farming systems and market access, community aspects (Birner et al., 2006).

Characteristics of Agricultural Advisory Services (Choice Variable): Policy makers and advisory service managers can directly influence these characteristics. These include governance structures (role of public private sector in financing and providing extension services, level of decentralization and partnership/linkages), capacity, organization and management, and advisory methods (Birner et al., 2006).

Operational Definitions

Strengths are characteristics of an organization that will allow it to take advantage of the opportunities that are recognized.

Weaknesses are characteristics of an organization that stand in the way of an organization's ability to take advantage of its recognized opportunities.

Opportunities are valuable occasions to improve organizational performance in seeking its goals.

Threats are characterized as external conditions that stand in the way of an organization seeking specific opportunities; which are usually long-range goals.

Strengths and weaknesses have internal sources whilst opportunities and threats have external sources (Morris, 2005).

Sustainability: Various definitions for sustainability exist. The use of each definition depends upon the context of physical, natural, and human capital. For this study, sustainability occurs when program components that were developed and implemented in earlier stages are continued after the initial funding or special scaffolding is removed. Sustainability is therefore the institutionalization of innovations

into ongoing organizational systems (Australian Agency for International Development [AusAID], 2000; Scheirer, 2005).

Significance of the Study

Funding programs donors have the intent that development programs be sustainable even after major funding ceases. For that reason, there has to be accountability and appropriate planning of programs for that to happen. The study assisted in analyzing the functionality of the national extension program of Cameroon. The program theory framework and the IFPRI framework for analyzing extension programs were used as guiding frameworks that assisted with this evaluation procedure.

The frameworks served as guides to indicate if the goals of the program were being met. The SWOT analysis tool was able to indicate what characteristics the program could improve on to make it better. The implication of multiple stakeholders in the analysis process gave a holistic view of the program functioning and encouraged the formulation of sustainable solutions to the program. In 1989, FAO analyzed the perceived knowledge gap in Cameroon. FAO found inefficiencies in the existing national extension program. Based on this gap, extension reforms were initiated to meet the global trends. The findings of this research serve as a starting point to the extension reforms necessary for Cameroon. The research findings also contributed to the agricultural education field of study.

Context of the Researcher's Experience

The following rationales were used for selecting the research topic and the two regions for the research purposes: First, the researcher's parents are farmers in Cameroon, and they benefitted from the national extension program services. As a young girl growing up, the researcher lived in both the North West and South West regions and therefore understands the culture of these two regions. She also had the opportunity to observe the activities of extension agents from 1980 to 1997. Extension services at the time contributed to the economic growth of farmers. It was questionable if the services had improved or not with time. The researcher later worked with the National Research Institute for Agricultural Development (IRAD) and had the opportunity to work closely with the Ministry of Agriculture's extension agents in rural communities. In the process, she was able to observe the evolution of the extension services. It became increasingly clear to her that the processes utilized to generate and disseminate agricultural knowledge faced challenging problems that needed to be resolved.

Second, a majority of the populations of these two regions lives in rural communities and practice farming as their main occupation. The bulk of Cameroon's food also comes from these two regions. These two regions have also benefitted or participated actively in various extension projects that have been implemented by the National Extension Program and other private actors. As such, rich qualitative data that tell the true story were obtained from these two regions.

Third, the two regions are the only English speaking regions of Cameroon and have their programs executed in the same manner. The researcher understands and speaks Pidgin English (Broken English) that is most often used by the rural communities as Lingua Franca. The researcher is also perfectly bilingual and speaks and writes both English and French that are the official languages of work. Consequently, the researcher got all necessary information firsthand without the need of a translator whose use could have distorted the meaning of information collected.

Finally, the climatic conditions for the most part in both regions are similar; they both have two rainy seasons and grow similar food crop types although they are placed into different ecological zones (Western Highlands Zone and Monomodal Humid Forest Zone for the North West and South West Regions, respectively) because of differences in native vegetation type and temperature range. The two regions also have cultural similarities for the most part.

CHAPTER II

LITERATURE REVIEW

Overview of the Literature

The goals of this literature review were to identify examples that 1) demonstrate how funding of agricultural extension organizations has affected economic gains and livelihoods for rural populations, 2) highlight models that have been used in extension services delivery, 3) discuss extension sustainability and reform initiatives, 4) discuss extension evolution in Cameroon with a global view of extension and emerging trends that affect extension advisory services, and 5) build upon works of scholarly contributions in the field of agricultural extension.

Impact of Extension

The diffusion and adoption of agricultural knowledge is a catalyst to improve food security and well-being for individuals and communities throughout the world. A majority of African countries' economy depend on agriculture, and it is a source of employment to over half of the population (Fonjong, 2004; UNECA, 2007; Worth, 2006). Impact studies in many countries revealed that investing in agricultural research and extension could result in a high rate of return through the extension of appropriate research knowledge and technologies (Chisi, 2007; Evenson, 1996). Rate of return on investment in Uganda in cassava research was as high as 167% as reported by Bua et al. (2007). Similar studies in Tanzania and Cameroon showed returns to agricultural

research and extension. In Cameroon, for example, Sterns (1993) indicated an estimated internal rate of return of 15% from cowpea research and extension. Using research extension integrated technologies in Cameroon, fishpond productivity increased from 498 kg to 1609kg fish/ha over all farms where the technologies were adopted (Brummett, Gockowski, Pouomogne, & Muir, 2011). However, adopting the technologies in a sustainable manner was a challenge. Brummett et al. (2011) reported that rural farmers reverted to their old practices with eventual decreased productivity while periurban farmers continued with the introduced technologies because they had access to extension services and markets. The impact of extension was also particularly important during the Green Revolution era of the 1960s. The Green Revolution technologies were instrumental in instituting national research institutes and improved food production in the 1960s in developing countries (Evenson & Gollin, 2003). Famine was averted in Asian countries like India, Philippines, and Indonesia during the 1970s, thanks to the Green Revolution.

Despite the recorded benefits of extension, the general public does not usually assert the importance of the extension service because it is difficult to measure its impact. According to Qamar (2002):

There has always been concern for the difficulties faced in objective evaluation and impact assessment of agricultural extension programs. The isolation of the impact of extension in an agricultural development program is no easier task than catching a fish with bare hands. (para. 14)

The diversity of skills, management systems and objective of various extension programs makes it even more difficult to conceptualize a broad generalization of the impact of extension programs. For that reason, a case-by-case analysis is necessary to reveal the effectiveness of programs. Variations in returns in the above discussed impact examples probably also suggest that some program designs are more efficient than others (Davis, 2008) and thus call for continued funding for research and extension, including efforts to enhance linkage to markets and between agricultural research and extension to improve existing programs.

Models in Extension

Training and Visit Model

Extension delivery in the 1960s and 1970s used mainly a top down approach where research developed technologies and the extension service took such technologies to farmers for adoption. The training and visit (T & V) model used mainly a top down extension delivery approach. The T & V model was particularly valuable in disseminating the improved varieties of the Green revolution. The modern or improved varieties were diffused through the T & V extension model with the assumption that the technologies would be adopted following Rogers (2003) diffusion of innovation model (Antholt, 1998). The T & V extension model was a fortnightly extension approach introduced by the World Bank in 1967 for the extension of agricultural knowledge to farmers. Extension agents were trained every two weeks on crop concerns. They diffused acquired knowledge to farmers and got feedback that was directed to the

research institutes for solutions. Although at the time the model was successful in promoting the Green Revolution technologies and instrumental in improving food production and averting famine in the 1960s in Asia and other African nations (Everson & Gollin, 2003), the model was however supply-driven rather than demand-led. It was later criticized for its expensive and bureaucratic nature and its failure to integrate farmers in identifying needed technologies (Antholt, 1998; Davis, 2008).

The T & V model was observed to be more successful in Asia than in Africa. Davis (2008) attributed the T & V success in Asia to a more homogenous farming system and a higher capacity among extension agents and farmers. Mixed views exist about the success of T & V in Africa. While it was generally accepted that T & V encouraged capacity building among extension staffs, other authors argued that the model was inefficient, ineffective, and not financially sustainable (Antholt, 1998; Bamou & Masters, 2007; Davis, 2008). Failures of extension can be attributed to other factors like the management approach, the policies, and the context in which extension approaches were applied. Inadequacies in the T&V approach that resulted mainly from lack of involvement of farmers in the planning and development of appropriate technologies and costs were experienced in Cameroon and other African nations. The Tchouamo and Steele (1997) study on the impact of T & V indicated that only 30% of farmers benefited from extension services. The authors then recommended a more participatory approach to deliver extension services because 70% of the farmer population was not being directly served by the T&V model in the Western Province of Cameroon. The trickle-down effect anticipated from T & V was not always apparent,

argued Tchouamo and Steele. Failure of the T&V model led to the introduction of participatory approaches to extension (group extension) such as the farmer field schools (FFS) and farming systems research and extension (FSR/E) to deliver extension knowledge.

Participatory Approaches

The failure of the top down T & V extension approach often left low rates of technology adoption and led to a paradigm shift to the introduction of participatory approaches to extension services delivery in the 1970s and 1980s. Essentially, participatory approaches emphasize learning and ownership of the learning process more so than the teaching approach that was emphasized by the T & V model (Toness, 2001). Participatory approaches to extension include participatory farmer group extension, gender sensitive extension, client oriented extension, and research-extension- farmers' linkages that use participatory tools like participatory rural appraisal (Qamar, 2002). The participatory rural appraisal (PRA) approaches have been applied in farming systems research, problem identification and analysis by farmers, market investigation and small holder marketing potentials and in participatory planning and management of natural resources (Chambers, 1994; Toness, 2001). According to Chambers (1994), participatory approaches “enable local people to share, enhance and analyze their knowledge of life and conditions, to plan and to act” (p. 953). In an updated literature, Chambers (2002) describes participatory approaches as “a growing family of approaches, methods, attitudes and behaviors to enable and empower people to share, analyze and enhance

their knowledge of life and conditions, and to plan, act, monitor, evaluate and reflect” (para. 4).

The essence of participatory approaches is to ensure program effectiveness and sustainability that happens only when the beneficiaries are involved in decision making at all stages of the project and interactive participation is encouraged (Bar-on & Prinsen, 1999; Singh, 2000; Toness, 2001). Joint participation enhances interaction between the professional and beneficiaries and leads to increased consensus on direction for change, making the change more sustainable. In this sense, “PRA often implies radical personal and institutional change” (Chambers, 1994, p. 958).

In extension development, the predominant participatory approaches used have been the farming systems and research method and the farmer field schools group method. The farming systems research recognized the role farmers could play in research and the potentials they had in identifying the constraints they faced in their fields that the researchers may not always detect. Farming systems research led to a better understanding of the complexities, diversity, and risk associated with many farming systems. Chambers (1994) contends that small and poor farmer’ knowledge, professionalism, rationality, experimental mindset, and behavior—including their ability to conduct their own analysis—were better understood with farming systems research. Worth (2006) on the other hand suggested that the duty of extension practitioners is to facilitate skill acquisition by farmers to engage with scientific inquiry while simultaneously sharing their knowledge and information.

Other participatory methods include group formation for the efficient delivery of extension information. These include farmers forming common initiative groups to facilitate extension delivery and farmer field schools. These group approaches have enhanced extension outreach to a larger population and enabled farmers to learn from each other. In groups, the farmers develop action plans that are implemented and monitored closely with assistance from government agencies, non-governmental organizations, and local community workers (Bar-on & Prinser, 1999). The authors added that through participatory approaches, development organizations and change agents can better cooperate with each other.

The participatory approaches were successful in improving technology access and adoption rates by farmers. However, adequate funding for extension services within the developing countries was a major concern with most of the developing countries still dependent on external funding for delivery of extension services (Bamou & Masters, 2007).

Sustainability and Reform Initiatives of Extension Programs

The sustainability of extension programs has been indicated as a major challenge due to dependence on foreign funding for agricultural development by most African nations (Swanson & Rajalahti, 2010). A halt or interruption of research and extension activities is usually observed once external funding ceases to exist. Even when external funding exists, frequently, the continuity of ongoing projects is interrupted because of delays in fund arrival and results to inefficiencies and many distortions in the

agricultural sector suggest Bamou and Masters (2007). External funding also often dictated the methods of project execution.

Inadequacies in the T & V system, failure of the national extension program sustainability, coupled with international debt crisis in the 1980s, led to policy reforms in many developing countries. The International Monetary Fund's (IMF), World Bank's, and bilateral donors' structural adjustment program (SAP) was one such implemented program by national governments in developing countries. Staatz and Eicher (1998) contend that the SAP's function was meant to reduce national governments' budget deficits and re-ignite economic growth by aligning domestic prices closely with world prices. The SAP was intended to achieve a greater involvement of the private sector in resource allocation. Through liberalization, the SAP program reforms emphasized that the extension service be overhauled to enable the private sector's active involvement in delivering extension services. Essentially, the SAP was implemented with the purpose to stimulate economic growth (Food and Agricultural Organization of the United Nations [FAO], 1999; Staatz & Eicher, 1998). However, liberalization issuing from the SAP was not supported with a regulatory framework that created full and fair competition to protect the environment in most of Sub-Saharan Africa (FAO, 1999), leading to inadequacies.

Many developing countries have undergone extension reforms to involve the active participation of the private sector in extension delivery through decentralization (Rivera, 2001; Rivera & Alex, 2004), but many encounter difficulties and lack coordination on the part of the national governments (Farrington, Christoplos, Kidd, &

Beckam, 2002). Even though extension services are considered social services or public goods, lack of coordination has often left many farmers and disadvantaged groups without access to the extension services (Swanson, 2008). Bamou and Masters (2007) reported that only 30 percent of the farmers' population in the Western province of Cameroon had access to extension services. Rendering public goods is also not a cost effective and rewarding venture for the private sector. A main reason why the public sector involvement in extension delivery should continue is that purely private extension systems generally lack incentives to address broad public concerns, such as long-term social and environmental issues (Rivera, Willem, & Alex, 2002). At the same time, most small farm holders are unable to afford private extension services. Davis (2008) and Swanson and Rajalahti (2010) contend that medium and large-scale producers can afford the payment for extension services, but national governments must still subsidize extension services for small-scale farmers.

Global trends continue to affect extension service delivery. With the prime objective of meeting the Millennium Development Goals (MDG) of 2015, there is demand for national extension systems reforms in developing countries to focus on meeting the current global trends: population growth, impact of technology, environmental degradation, migration-immigration, and global terrorism. As pointed out by Rivera (2001) and Swanson and Rajalahti (2010), many countries have adopted and continue to experiment on several reforms for pluralistic extension delivery. Some reforms include measures adopted in response to the current paradigm shift in cognizance of a market-oriented economy, sustainability, and a democratic society

(Rivera & Alex, 2004; Swanson & Rajalahti, 2010). Current trends have also enabled substantial private sector involvement with delivering extension services. Because governments in many developing countries have most often failed to provide adequate public services, private sector providers could be seen as filling the gap left by the public providers (Rose & Batley, 2011). However, the economic and environmental sustainability of such efforts by the private sector is still questionable. Rose and Batley (2011) contend that non-governmental service providers are proactive in the phase of structural constraints and adopt strategies that balance financial survival, organizational identities, and a commitment to their goals that include influencing government policy and practice. Allahyari (2009) in his study on extension reorganization suggested that attention must be paid to implement holistic organizations and participatory organizations to enhance suitable extension systems that support green agriculture.

Sustainable development implies that both the public and private sector extension services organization be enhanced. The stakeholders (government organizations, NGOs/private sector, and farmer organizations) involved in extension services delivery and use should be intricately involved in the organization and implementation of extension services in order to achieve sustainability (Singh, 2000). Furthermore, sustainability of any development effort also requires that the beneficiaries take active parts in the planning and organization of their extension service to meet their development goals (Gasperini & Maguire, 2002). Swanson and Rajalahti (2010) also advocated that the strengthening of the public agricultural extension organization services is critical to alleviating poverty, especially because many of the organizations

have suffered debts and adjustment induced budgets cuts like the SAP that took place in the last decade.

The extension service in Cameroon also faces inadequate funding from the government. Dewbre and Borot de Battisti (2008) reported that only 28% of the Cameroon agricultural aid budget was allocated to agricultural research, extension, and education while of the remaining 72%, 40% was allocated to agricultural production, 15% to agricultural policy and administrative management, and the rest of the 16% was allocated for other services. These figures indicate that attention in agricultural development, therefore, has to emphasize support for small farm holders, especially in terms of extension services to enhance the benefits of diffusion and adoption of technology innovations.

Although the private sector has an increased role in extension service delivery, Gasperini and Maguire (2002) suggested that the ultimate goal will be to strengthen the capabilities of the public extension services to collaborate with the private organizations offering extension services and the users of extension services to ensure sustainable livelihoods for rural families. Singh, (2000) contends that collaboration can be done by planning or programing in conjunction with all stakeholders of interest and giving every stakeholder a voice in that process.

In an effort to understand and improve on the extension delivery methods, Idowu's (2005) research among North West province farmers in Cameroon revealed that the farmers' receptivity to extension delivery depended upon the use of several educational methods. Idowu also found that female farmers were marginalized, with

male farmers receiving eight times more visits from the extension agents than their female counterparts. Certain development projects attempted to fill the gender gap experienced in extension delivery in Cameroon. The North West Development Authority (MIDENO) project in Cameroon, for example, attempted to include women as not only extension delivery agents and village extension workers, but also involved rural women in group activities so they could benefit from extension services (Tjip, 1990). Bamou and Masters (2007) concluded that the MIDENO project was a successful extension program funded by the World Bank that might be replicated in other provinces of the country and in Africa as a whole. However, with the cutback on external funds, this successful program, like many others that depend on external funding for the most part, faced sustainability challenges as well. The authors also conceded that funding issues had resulted in distortions within the agricultural extension system in Cameroon.

Extension in Cameroon

Cameroon, like many previously colonial controlled nations, had departments of agriculture created by the colonizing powers (Swanson & Samy, 2003). Extension work began prior to 1914 and was focused mostly on cash crops for export to the western countries. As a result, knowledge generation and dissemination for native or local crops was minimal. Missionaries were instrumental in disseminating agricultural knowledge and extension of local crops using demonstration farms (Jones & Garforth, 1996). Extension services in most African countries before 1900 until the late 1980s were centrally controlled with funding coming from the public sector and external donors

(Alex, Zijp, & Byerlee, 2002; Antholt, 1998). The evolution of agricultural extension in Cameroon has its roots in two distinct colonial agendas: the French and the English. After Cameroon's independence from France in 1960 and prior to the reunification of the Western English Cameroon with the Eastern French Cameroon, each state's extension service operated under the policies of its colonial power. The French Cameroon operated under the "Secteurs de Modernization" (Development Sectors), located in each of the provinces that provided agricultural extension services.

The English Cameroon extension body on the other hand was founded upon crop specific cooperatives that provided extension services to its members. The role of extension in both states was to support large commercial plantations producing cash crops and to strengthen extension services to small farm holders who produced cash crops (Bamou & Masters, 2007). After the reunification of Cameroon in 1964, the Department of Agriculture and Rural Animation was created under the Federal Ministry of Planning to provide extension services for the entire country. The Department of Agriculture's mission, then, was to sustain the agricultural industries created by the colonial powers and to transfer the responsibilities of development to the rural communities. In 1972, a Ministry of Agriculture was formed but extension was carried out in conjunction with parastatal agencies like the Cotton Development Agency (SODECOTON), Food Crop Development Authority (MIDEVIV), North West Development Authority (MIDENO), and the Marketing Board. These agencies provided support for the formation of producers' cooperatives and provided the necessary inputs, equipment, credit, and marketing for farmers' produce (IFAD, 2001). The function of

the ministry then was limited to defining, coordinating, and evaluating agricultural policy (Tjip, 1990). The provision of extension services by parastatals that were located in different ministries led to duplication of efforts and inefficiencies.

In 1987, with the aid of the World Bank, FAO, and USAID, a five-year strategic plan for the design and implementation of a national extension project was developed as a solution to problems related to agriculture. This project was centrally controlled at the national level with emphasis on improving the capacity of the central service, strengthening links with research institutes, and enhancing coordination with the parastatals. At the provincial levels, the Ministry of Agriculture's offices were restructured to implement the T&V extension model. However, the T&V model was unable to provide extension services to all small farm holders. Balgah, Valentinov, and Buchenrieder (2010) attributed the cause of this situation to the oil boom of the late 1970s and early 1980s that led to underinvestment in the agriculture sector, often called the "Dutch Disease."

Following a financial crisis in the late 1980s and the reduction of funding from donors, Cameroon implemented the structural adjustment program (SAP) instituted by the World Bank and the International Monetary Fund (IMF). In 1990, the government legalized the establishment of non-profit organizations to assist in delivering extension and development services in an effort to increase access to extension services to rural farmers and promote economic growth. As a result there are many very active non-governmental organizations that deliver extension services in collaboration with farmers' groups and private, for-profit organizations. Since the implementation of the SAP, the

national extension system has implemented extension services through the three programs described below.

National Extension Program

The National Extension Program focused mostly on the T&V model to deliver extension messages and was implemented in the North West province through the North West Development Authority (MIDENO) and the south west province through the South west Development Authority (SOWEDA) between 1988 and 1994. Emphasis was on improving farmers' yields, especially of cash crops (Antholt, 1998). The T&V model quickly lost faith because of the diversified nature of crops and the emphasis on cash crops (Bamou & Masters, 2007).

National Agricultural Extension Project

The National Agricultural Extension Project (PNVA) was implemented from 1996 to 1999. This program used participatory methods to avoid the failures encountered with the T&V model. Farmers did not only have contact with extension workers alone, but also interacted and carried out research with researchers to develop lasting solutions to some of their problems because they participated in research field and open days, during which they shared their experiences (Tchouamo & Steele, 1997).

National Agricultural Extension and Research Project

The National Agricultural Extension and Research Project (PNVRA) was financed by multilateral funds (World Bank and International Development Agency (IDA) and its counterparts from 2000-2005 (Bamou & Masters, 2007; IFAD, 2001). This project included a research component and divided the country into five agro-ecological zones,

with specific crops being targeted and promoted in sub-sectors. Extension workers who worked under these projects together with their supervisors still work today with producer organizations (PO). The program involved principally the Ministries of Agriculture and Livestock, Fisheries and Animal Industries, with the National Institute of Agricultural Research and Development (IRAD) filling the research gap through the development of species and varieties that were resistant to most of the pests and diseases affecting crops and livestock. This participatory approach to extension greatly facilitated a joint problem-solving ideology and led to more farmer-to-farmer sharing of expertise and resources (Tchouamo & Steele, 1997). These authors suggested that this was perhaps one of the most successful extension approaches used in Cameroon but it also experienced problems of financing. They also argued that although the extension approach was more participatory in its nature, there was a lack of funding for farmers' initiatives and inadequate funding of the research component. Apart from the T & V and the participatory approach, other extension delivery approaches used in Cameroon include the farming systems research and integrated pest management approaches.

Global View of Agricultural Extension

Gill (2005) opined, "Agricultural extension is one of the policy instruments through which governments can intervene in the process of rural development and influence the outcome in terms of resource allocation efficiency, distributive justice, and levels and patterns of production and productivity" (p. 3920). The core reasons for the establishment of extension services in developing countries through the Marshal Plan

were mainly to increase cash crop production and food production, reduce famine, and improve livelihoods. From its inception, the extension service was a public sector activity, providing a free public good (knowledge) to its rural population in order to increase farmer's yields, alleviate poverty and improve on livelihoods (Alex et al., 2002; Antholt, 1998). However, with the ever-changing world and globalization agricultural extension has also changed. In a historical review of American extension systems, Jones and Garforth (1996) conclude:

In the early years of this century, extension services were in their formative stage; they were relatively small in scale and limited in the scope of their work and contact with farmers, and their organization was often somewhat haphazard even though based on legislation. They were organized predominantly either by central or local governments, or by agricultural colleges, usually in close association with experiment stations, or by farmers' organizations (agricultural societies, cooperatives, farmers' unions, or chambers of agriculture), or combinations of these parent bodies. As the century has progressed, the organizations have matured. Changes have often occurred to their parent affiliations, government funding has become relatively more important, and their objectives have become broader especially in the North. (¶ 32)

The above scenario portrays the complex challenges facing the management of agricultural extension services given the diverse dimensions of the numerous actors involved and global trends.

The ratification of the Uruguay Round of General Agreement on Tariffs and Trade, for example liberalized markets, and fostered competition in the world markets by developing nations. This led to a change in agricultural extension activities from simple technology transfer to a market driven, value chain approach that involved the commercialization of advisory services (Labarthe, 2009; Swanson, 2008; World Bank, 2006). Similarly, Rivera and Alex (2004) posit that extension is a knowledge and information system whose function encompasses more than providing agricultural knowledge. Agricultural extension's role, therefore, is to improve the livelihoods of producers through increased productivity, enable beneficiaries to participate and compete in markets through access to information, allow freedom of movement, and provide access to socioeconomic infrastructure (Davis, 2008; Swanson & Rajalahti, 2010; World Bank, 2006). Agricultural extension, therefore, has both economic and social goals and plays a major role in economic and social policy. However, NEPAD (2005) posits that developing countries will not be able to participate in and benefit from these current global trends unless they achieve increased agricultural funding by at least 10 percent.

In an effort to meet the MDG goals, policy makers came to a consensus that poverty alleviation in the developing countries could be combatted only with increased agricultural productivity. In a workshop on extension reforms by the World Bank, USAID, and the Neuchatel Group extension experts, the overarching themes of concern were poverty reduction, decentralized and pluralistic extension, collaboration and partnership, cost sharing and fee for services, appropriate innovations, and monitoring

and evaluation of extension programs (Alex et al., 2000; Rivera & Alex 2004). It was advocated that the extension system should be a pluralistic, decentralized, and devolved system with collaborative relationships among stakeholders and partnership networks. Even though cost sharing and fee for service was thought to be a more sustainable way of extension functioning, the general agreement was that the public sector must remain the major player and focus its funding on poverty alleviation (Davis, 2008; Rivera & Alex 2004, Swanson, 2008).

Emerging Trends

The new paradigm toward market driven opportunities has severely affected the funding and delivery of agricultural extension services. As the world becomes smaller thanks to technological advancement, many countries find themselves confronted by a competitive global market (Rivera, 2001). Many public extension systems were and are still under pressure to decentralize their extension systems to meet with the available slim funds. India and China, for example, decentralized their extension authority and management to the states and district levels (Swanson & Rajalahti, 2010).

Decentralization efforts were also initiated in Ghana and Trinidad in the late 1990s (Swanson & Samy, 2003). However, decentralization comes with its own problems.

Swanson and Samy pointed to the fact that these countries still face obstacles in enabling the decentralization process effectively to respond to farmers' needs. The authors further observed that most often than not, the authority to manage the extension services is not fully devolved to the local councils as expected. In a similar manner, FAO's (1999)

review on export crop liberalization in Africa revealed that policy changes led to considerable competition at the farm gate level but in most instances did not serve the small farmers situated in remote areas because the coordination of activities was lacking.

Market trends and dietary preferences shape extension information as well. Extension information currently embodies value added crops and the linking of farmers to markets. According to Qamar (2002), the old practice of delivering the same technical information to farmers needs to be replaced by client-focused approaches that are participatory, take advantage of technology, and are holistic to optimize resource use. Alex et al. (2000) observed that current technological innovations are more likely to be knowledge intensive that will require extension to address two important agendas of poverty reduction and environmental conservation.

Economic liberalization and globalization have fostered emerging trends that agricultural extension must address. These trends include economic sustainability of public-private sectors involved in extension delivery, science and technology, environmental degradation, policy environment (political influence), democratic participation (inclusion of grass root population and women most especially in decision making), and improving low literacy levels for extension agents and users of extension services (Alex et al., 2000; Rivera, 2001). Factors suggested by Hansra, Singh and Singh (2005) that have implication on the extension services and agricultural growth are the World Trade Organization (WTO), nutritional security, public private roles in agricultural development, and human resource development. Rivera (2001) suggested that some of the major needs to extension are trade related education on agro-health,

value-added agro processing, and agro market competitiveness. These needs according to him arose from the obligation that countries become WTO members and take competitive advantage of agricultural market niche opportunities. Following is a review of some emerging trends that affect extension.

Science and Technology

Reliable agricultural information and knowledge on improved technologies has been instrumental in increasing agricultural productivity in the developing world. The improved varieties of the Green Revolution were a major breakthrough in science to increase agricultural productivity in the developing countries in the 1970s. Asian countries were more positively impacted by these technologies than were African countries (Davis, 2008). The advent of genetically modified technologies could be an opportunity to be exploited by developing countries. With adequate investments by national governments in extension services, African countries can actually increase productivity and leapfrog to close the economic gap (Todaro & Smith, 2006). The authors argue that developing countries have comparative advantage of available technologies that can easily be exploited and grow faster than the industrialized nations that went through the process of technology invention.

Information communication and technology (ICT) is an increasing driver of change that affects extension delivery. ICT links farmers and producers to markets and credit options as well as to agricultural extension services (Ballantyne, 2009; Hansra et al., 2005). Through ICT-based systems and portals, farmers, researchers, and extension agents are brought together. Hansra et al. (2005) suggested that because food security is

an issue of paramount importance on many national agendas and with international funds mobilized, national and regional initiatives should be strengthened through ICT. In the same light, Ballantyne (2009) advised that extension services should make use of available ICT to enable a variety of agricultural development activities and ensure agricultural content is open and accessible to all and at the same time recognize the value of farmers' indigenous knowledge. Ballantyne (2009) and Hansra et al. (2005) reiterated that information products and services should be made applicable to a more diverse audience with different collaborative and interactive forms of sharing and exchanging such knowledge. An information technology such as the cell phone is already a routine tool for information dissemination in most development projects in developing countries. The Internet is already making headway in advancing extension messages to rural communities as well. Countries like Laos, Mali, and Vietnam currently make use of Telecenters, and virtual linkages exist to bring research and extension together (Qamar, 2002). The cell phone and rural radios serve to inform farmers about technologies and daily market prices of their produce in many African countries.

Economic Sustainability of Public-Private Services (Alliances)

Privatization is the transfer of responsibility for funding and/or delivery of services to private organizations (Alex, Byerlee, Helene–Collison, & Rivera, 2004). In developing countries, non-state providers have stepped in to fill the gap left by the failure of public services. Non-state providers are commercial, faith-based, traditional, or non-governmental organizations. These providers operate independently, in parallel or sometimes in competition with public providers. Most NGOs bring with them technical

expertise and have the attribute of community embeddedness and therefore they are most liable to enter contractual and collaborative relationships with the government (Rose & Batley, 2011). Government organizations are therefore expected to view the private sector as collaborators and partners and not as rivals, suggest Rose and Batley (2011).

The current paradigm shift toward sustainable agriculture and markets demands that the public sector delivers extension services that are relevant to the needs of the end users (Rivera & Qamar, 2003; Swanson & Samy, 2003). These services are expected to meet the needs of a sustainable improved livelihood. However, even when public extension is justified, it has been increasingly recognized that involving the private sector in extension delivery is more efficient in serving clients, cost effective and, if properly planned, could lead to financial sustainability of the extension service (Alex et al., 2002). Many contributors call for the redefining of roles of the public sector and the establishment of a democratized, liberalized, and decentralized extension system to ensure its proper functioning and efficiency. Alex et al. (2004), for example, emphasized the need for the public sector to maintain its role in financing for the provision of public goods and services like conservation of natural and environmental resources and the provision of economic opportunities for those left out of the market economy.

Rivera and Qamar (2003) suggested that a mutually beneficial partnership between the public sector and the private sector will enhance extension service delivery. On the other hand, Patton (1987) advocated that such organizational arrangement be integrative in nature to encourage the treatment of problems as “wholes” considering the wider implication of actions. He asserted that, apart from reducing rancorous conflict,

competition, and isolation between organizations in the extension system, mechanisms for exchange of information and new ideas across the extension system will be achieved. This way, coherence in the consideration of multiple perspectives in decisions will be taken into account. Public-private services could be sustainable if the public sector de-concentrates delegates and devolves and shifts responsibilities to private firms, NGOs, and grassroots organizations, posits Swanson and Samy (2003). More decentralization and delegation of responsibilities to the councils is expected but still is not happening practically.

To ensure financial sustainability of extension services, there has also been debate as to whether extension services should be paid for by the end users. Payment for extension services has been successful in the Netherlands, New Zealand and Australia where extension is more of a privatized service but the idea has received rejection in developing countries. Studies on farmers for example in Nigeria to find out their willingness to pay for extension services revealed adamant opposition to any plan to commercialize extension services even though they were willing to pay for technology and agricultural inputs (Alonge, 2003). Alex et al. (2004) reported on a Chilean case study that only the better off producers had access to extension services when these had to be self-financed. The sustainability of privatized extension is therefore a challenge and would probably be more appropriate in promoting overall economic growth than for poverty reduction in the developing countries. Davis (2008) and Swanson (2008) also suggested that privatized, fee-based extension might not meet the needs of the subsistence, small holder farmers in developing nations who cannot afford to pay for the

services. Chapman and Tripp (2003) in the same light warned that transition to privatized extension will take significant amount of time and investment; hence policymakers should prepare appropriate long term plans.

Private for-profit organizations are usually supported by contracts with the public sector. Their services could take the form of a sales strategy of input supply firms, or specialized agricultural consultancy with the primary goal of earning profit but at the same time providing satisfactory services to the customer (Nagel, 1997). For profit reasons, private industry effort is usually located around government stronghold extension. They focus in areas with favorable resources such as fertile soils, moderate climate, and access to transportation to minimize cost and increase benefits. Their clients are also a small number of profit-oriented customers unless they are carrying out a contracted service from the government with an understanding of catering for the small farmers in dispersed locations. These companies provide advisory services as part of a variety of input and output marketing services but have a drawback in the lack of public understanding of available services (Davis, 2008). The public sector is therefore faced with the task of coordinating the dissemination of information and extension services.

Non-governmental organizations (NGOs), on the other hand, normally receive their funding from funding bodies with a well laid out agenda on how to carry out development and extension services. Some of their financing come from subcontracting from the public and from charity. However, because they are non-profit oriented, they usually carry out extension in the remote and inaccessible locations (Nagel, 1997). They are also committed to working with the poor in rural communities by providing intensive

and integrated assistance to grass root community organizations and adapt approaches to local situations with the goal to alleviate poverty. Their prominent contributions have been in building local organizations structure and capacity as well as linking them to markets (Rose & Batley, 2011). The drawback with NGOs is that they have limited funds and a limited timeframe of operation, and therefore, they often have minimal or localized operations that are short-lived (Kumba, 2003). Their role in providing extension services is therefore very limited and hence they cannot have major impacts that will affect the larger population. Their services also phase out when funds from donors stop; consequently, the sustainability of their services is also in question—a reason why complementarities of their activities by governments is necessary.

Democratic Participation and Environmental Degradation

Regarding the close link between environment and development, the pressing question to address is how best can natural resources be harnessed to advance sustainability with the cooperation of the community? The advocacy for empowering extension end users has increased tremendously with several development contributors asserting that sustainable development effort entail the involvement of the end users from the beginning of the process. Swanson and Samy (2003) indicated that there is a need for demand driven extension with farmers actively involved in determining the priority areas of intervention. In 2002, Qamar found that modalities like participatory farmer group extension, client-oriented extension, gender-sensitive extension, research-extension-farmer linkages, and the development of participatory tools like participatory

rural appraisal (PRA) and knowledge attitude practice (KAP) resulted from involving farmers in the decision making process.

Singh (2000) posits that farmers must be involved in identifying their own priority challenges in a participatory manner to feel empowered. Hansra et al. (2005) on the other hand opined that, the paradigm shift demands that extension not only links farmers to inputs and markets but also reduces farmers' vulnerability by enhancing the voice of the rural poor. The authors suggest that giving rural communities a voice makes them believe they have ownership of the technological solutions and therefore more easily adopt them. Swanson and Rajalahti (2010) concluded that the rural poor can be empowered by strengthening the development of micro-enterprises and farmers organizations/social capital through the extension service. Strengthening of rural organizations through participatory action therefore strengthens the extension service.

Allahyari (2009) proposed that the agricultural extension objective of increasing sustainability should not only be thought of in terms of the transfer of technology but also in the goal of strengthening rural organizations that will be able to influence research and policy agendas and enforce collective action concerning natural resources management issues. His extension approach to support sustainable agriculture suggests a holistic or integrated approach in offering extension services. Hansra et al. (2005) supported such collective actions and recommended the following as ways to encourage participation in extension delivery: developing forward and backward linkages, coordinating multiple agencies efforts involved in extension, contracting out extension,

integrating the efforts of all actors involved in extension, providing an enabling environment to obtain the input of all actors, and encouraging people's participation.

Monitoring the exploitation of natural resources in a sustainable manner is a challenge that the extension service has to meet to preserve the natural environment. This is particularly critical for Sub Saharan Africa (SSA) where most farmers depend on rain fed agriculture with minimal use of inputs. Van Crowder (1996) opined that national and international investment was needed in research on productivity enhancing technologies that have minimal adverse environmental consequences. More attention has been paid to alternatives like integrated pest management and integrated crop management practices to conserve the environment (Qamar, 2002). Extension agents probably need to be trained on current natural resources management concerns to be able to educate rural farmers. At the same time, the government has to provide safety nets that will encourage the rural communities to preserve the environment and adopt technologies. Increased available off-farm employment and provision of better survival skills are options suggested by Gasperini and Maguire (2002) as alternatives to encourage sustainable natural resource use and development. The authors gave estimated improved values of non-farm rural incomes averages for Africa as reported by FAO at 42 percent, 40 percent in Latin America, and 32 percent in Asia. Given varied environmental contexts, Qamar (2002) advised that extension methodologies and innovations should be situation specific. In a final note, Alex et al. (2002) recapped that:

Extension programs must recognize that the poor have very limited capacity to invest in new technologies and that risk is a question of survival. Poverty-focused

extension services will have to address social and organizational constraints to innovation, such as facilitating rural financial services, obtaining secure land tenure, and improving management of community resources. (p. 4)

Political Influence

The 21st century has witnessed sustained demand for Africa's natural resources like oil, minerals, and other raw materials, but the continent continues to lack effective institutional capacity to manage these resources in a sustainable manner (Takeuchi & Aginam, 2011). The public sector has a major role to play in providing a vision and strategic agricultural plan that meets the agricultural needs of its citizenry. Restructuring of the public sector in most developing countries has emphasized institutional restructuring, strengthening of research and extension linkages, financial reforms and sustainability, capacity building, taking advantage of ICT, and involving women in agriculture (Hansra et al., 2005). The restructuring however cannot be effective without a legal framework put in place.

To date, many developing countries still lack a legal operating framework for extension functioning (FAO, 1999). Agricultural extension policies have the potential to limit or enable extension activities. Peterson (1996) indicates that policies that influence the price signals to farmers most especially affect agricultural development organizations and the extension service. Provisional extension policies are the most common form of extension policies in developing countries where there is the absence of more formalized extension policies whereas the developed countries for the most part have well legislated extension policies with well-organized and stable extension services

(Contado, 1996). Extension reforms by policy-makers demand that developing countries develop a clear-cut policy framework that guides the functioning of its extension system for accountability. Pertinent issues that extension policies must address include mission and goals, extension approach and functions, subject matter coverage, geographic coverage, targeted beneficiaries, institutional and organizational framework, funding, and how to keep accountability of the program (Contado, 1996; Peterson, 1996).

Extension functioning will be enhanced if government funds extension adequately and has in place policies that encourage market incentives (Peterson, 1996; Swanson, 2008). The FAO's (1999) review of export crop liberalization also suggested that for any market driven economy to be successful, there needs to be a regulatory framework that creates full and fair competition, protects the environment and farmers and guarantees the quality of products and inputs.

In support of the necessity of a regulatory framework, Alex et al. (2002) specified that government investments in extension must be made within a sound policy framework that provides an enabling environment for investments to achieve desired impacts that should be economically efficient. Such investments they reiterate must be based on national strategies with a long-term vision, national policies, plans, and objectives for extension investment. Government policies should strengthen demand for extension services by making them demand driven and involving clients in program governance through participation and devolving of responsibilities to grassroots authorities (Alex et al., 2002; Davis, 2008; Franz et al., 2009; Swanson & Rajalahti, 2010).

Literacy of Rural Population and Building the Capacity of Extension Agents

Evenson (1996) described the two relevant themes to extension impact to be the awareness-knowledge-adoption-productivity (AKAP) sequence and the growth gap interrelationship between extension, schooling, and research. According to Evenson, the impact of extension involves a process and is felt if farmers become aware of technologies, acquire knowledge through testing and experimentation, and adopt the technologies that in turn changes their productivity. The above scenario depicts that real resources in the form of skills and activities by both the farmers and extension staffs are required for the AKAP process to take place. However, statistics indicate poor levels of education by rural inhabitants that could hinder this process. Gasperini and Maguire (2008) posit that there exist 130 million out-of-school children, 880 million illiterate youths with the majority of these numbers found in rural communities, that could be translated that the majority of the rural population are illiterate (Gasperini & Maguire, 2002). The authors admit that two of the most powerful weapons to fight against poverty and improve rural development are education and training. It was this same reasoning that spurred the 192-member states agreement in 2000 on the Millennium Development Goals (MDG) venture. These member states recognized the importance of education to development and set as a second objective, the target to achieve universal primary education for all by 2015. The premise was that basic primary education was the most basic relevant level of education that would allow for some understanding of health issues and farm technologies by farmers. However, productivity depends on the adoption

of technically efficient practices, presence of infrastructure in the community, and market institutions in place (Evenson, 1996).

Furthermore, increased agricultural production from limited arable land must derive from intensification using relevant knowledge and related information, skills, technologies, and attitudes that will play a key role in sustainable agriculture and rural development (Alex et al., 2002). Agricultural extension therefore faces a challenge of educating farmers and building the capacity of its staff to meet the current demands. The low literacy level of rural farmers sometimes leads to biased delivery of extension services. Extension agents have been reported to concentrate their efforts on the more literate and affluent farmers (Swanson, 2008). At the same time, many extension agents themselves have only basic secondary education with limited knowledge on the required, related subject matter. Davis (2008) pointed to the fact that extension agents need improved skills in group dynamics, ICT, and marketing to meet the diverse current needs. With budgets being reduced for extension services, in-service training for extension agents has been very limited in developing countries. Extension agents need training on natural resource management as well as in facilitation skills of farmer groups' organization and management (Alex et al., 2002; Davis, 2008). The curriculum for extension at the higher level will also need to be updated to fit the changing trends. To promote knowledge intensive agriculture, Alex et al. (2002) recommended that extension will have to respond to farmers request and come up with innovations that meet farmers need. They add that information that is built on formal schooling should also be transferred in an educational rather than in a directive manner. Okunade (2007)

supported that extension agents ought to employ the right method of teaching to bring about any significant change in knowledge, skills, and attitudes of farmers.

CHAPTER III

METHODS

Research Design

The purpose of the study was to examine, in collaboration with the various stakeholders involved with the agricultural extension sector in Cameroon, the strengths, the weaknesses, the opportunities, and the threats (SWOT) that exist in the current national extension program. This in effect was to determine how the functionality of the national extension programs could be made better for sustainability. The research was a comparative case study analysis of the national extension program services in the North West and South West regions of Cameroon with stakeholders who had been linked with the program for at least the past five years.

A naturalistic qualitative research method using a comparative case study design/approach was used for this research. The rationale for using the case study design was because this design has the strength of using multiple sources of data that encourage converging lines of inquiry to ensure construct validity (Yin, 2009). Case study is also the strategy that best captures in a holistic manner, the multiple perspectives in a naturalistic setting to understand a contemporary phenomenon that is being investigated (Lincoln & Guba, 1985; Merriam, 2009). The design also takes into consideration the fact that in a naturalistic inquiry, “there are always multiple perspectives; that no one perspective can tell the true story” (Lincoln & Guba, 1985, p. 119). For research that needs the perspectives of a phenomenon from multiple stakeholders as was the case for this

dissertation research, the case study was viewed as the most suitable method to conduct this research.

Merriam (2009) defines a qualitative case study as “an in-depth description and analysis of a bounded system” (p. 43). Following this definition, this research was limited to the context of the North West and South West Regions of Cameroon. In case study research, the investigator explores a bounded system(s) using in-depth data collection techniques from single or multiple sources of information to obtain rich data that is thick in description and heuristic (Merriam, 2009; Yin, 2009). Multiple sources of data collection in case study research serve to “explain the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies” (Yin, 2009, p. 19). Multiple sources of data collection that include documentation, physical artifacts, archival records, interviews, and direct observation are used in case studies to triangulate the data collected to corroborate obtained information.

The ultimate purpose of triangulation is to ensure the dependability of the results. As opposed to quantitative research where questions are usually close ended, the questions in case study research are generally open ended that are intended to know the what, why, and how of phenomena (Merriam, 2009; Patton, 2002; Yin, 2009). The case study method was very useful in revealing the perspectives on the extension program functioning and performance by the different actors linked to the extension program. The case study has also been used for the evaluation of administrative or government programs and findings are usually helpful for policy direction and implementation. The findings from this research were intended to enlighten the professional body on the

functioning of the extension program in the two afore mentioned regions of Cameroon. It was hoped that policy implementaion will issue from these results. A description of the context in which the study was conducted follows.

Population and Sample

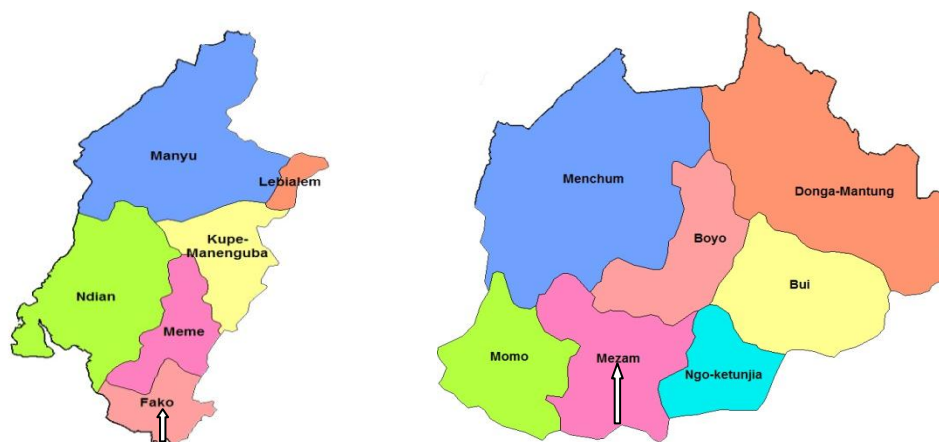
Geopolitical Area—Study Setting

The North West and South West Regions are the only two English speaking regions among the 10 regions in Cameroon. Each region is divided into administrative divisions that are further divided into sub-divisions. The smallest administrative units, the districts, make up the sub-division. The South West Region is made up of six divisions: Fako, Meme, Manyu, Ndian, Lebialem, and Kupe Manenguba (Figure 3.1) while the North West Region has seven divisions: Mezam, Boyo, Donga-Mantung, Ngo-Ketunjia, Mezam, Bui, and Momo (Figure 3.1). The population of the South West Region is about 1.5 million and that of the North West Regions is 1.8 million according to 2001 estimates (Maps of the World, 2011). The national extension program is executed in the same manner in these two regions. The researcher understands and speaks Pidgin English (Broken English) that is most often used by the rural communities as Lingua Franca and understands and writes both English and French languages. As such, the researcher collected all necessary information firsthand without the need of a translator whose use could have distorted the meaning of information collected.

The population of these regions is mostly youth under the age of 25 years old. Forty-one percent of the population is under the age of 14 years and only three percent

are over 65 years old, with 80 percent of the population involved in subsistence agriculture according to CIA (2012) reports. While the South West region houses industrial based companies and large agricultural cooperations, the North West Region has no industries or large agricultural cooperations except for the Ndu Tea Estate.

Although efforts have been made to decentralize the national agricultural extension service/program in Cameroon, it is still centrally controlled. The central administration of the services and funding is administered at the national level by the Ministry of Agriculture. The divisional offices supervise the activities of the division, sub-divisions, and districts while the regional offices oversee the activities of the entire region. The zonal extension agents work in the smallest units of the districts that have been carved out into zones. They are directly answerable to the sector supervisors who in turn report to the divisional delegates of agriculture. The case study was limited to the Mezam and Fako divisions of the North West and South West regions respectively.



a) South West Region of Cameroon b) North West Region of Cameroon
Figure 3.1. Maps of the South West Region and the North West Region of Cameroon.
 Source: Maps of the World (2011).

Case Description

Erlandson, Harris, Skipper, and Allen (1993) suggested that “purposive and directed sampling through human instrumentation increases the range of data exposed and maximizes the researcher’s ability to identify emerging themes that take adequate account of contextual conditions and cultural norms” (p. 82). Using a comparative case study, according to Yin (2009), also strengthens the dependability of result obtained in a case study research.

To assess the extension program in Cameroon, the main criterion of selection of respondents was that they must have had close links with the national extension program for at least a period of five years. A close link is defined as having benefited, collaborated, delivered, planned, supervised, or coordinated extension services in or within the auspices of the national extension program, that must have allowed a case to have insightful knowledge on the functioning of the extension program. Using criterion sampling for case studies as posited by Patton (2002) can add to in-depth qualitative analysis as well as in-depth follow up. The information depth was furthered enhanced by using intense cases that were very vested with or had insight of the phenomenon being studied. The second criterion for respondents was that they belong to one of the following four stakeholder groups: Farmer Leaders (FL) comprising small landholders (<2 ha) and large landholders (> 2 ha), Non-governmental Organization (NGO), Extension Representatives—Extension Authority (EA) and Zonal Extension Agents (ZEA), and Governmental Counterpart Organizations—Ministry of Agriculture Authorities (AA), Research Counterparts (RC), Parallel Program Representatives (PP),

and Development Agency Authorities (DA). The purpose of using heterogeneous stratified sampling of the cases from the above mentioned group was to capture and describe central themes that cut across a great deal of variation to ensure trustworthiness of the issuing research results as proposed by Yin (2009).

The regional supervisors/coordinators for the national extension programs and the divisional supervisors for agriculture served as a focal point to jointly identify the different stakeholders with the researcher following the above mentioned earlier criteria for cases. These stakeholders were both instrumental in determining the cases at the divisional and sub-divisional levels. The divisional delegates identified the extension agents who in turn identified the farmers in conjunction with the divisional supervisors.

The respondents selected were representatives from the following four stakeholder groups:

1. Farmer Leaders—Small Landholders (<2 ha) and Large Landholders (> 2 ha).
2. Non-Governmental Organizations (NGOs),
3. Extension Representatives—National Extension Authorities (EA) and Zonal Extension Agents (ZEA) and
4. Government Counterpart Organizations—Ministry of Agriculture Authorities (AA), Research Counterparts (RC), Parallel Program Representatives (PP), and Development Authorities (DA).

One focus group meeting each was held separately for farmer leaders and zonal extension agents in each of the two regions. With the joint assistance of the extension agents at the district level and the divisional delegates of the two regions, the

respondents for the study were identified and a location at the divisional delegation of agriculture and the time for the focus group discussions were fixed. Otherwise, other actors who participated in the study were acquired through snowballing and chaining.

Operational Criteria of Sampling

To be selected as a respondent or a case for this research in each of the following groups, certain conditions had to be met. After every case was identified, the researcher contacted every individual by phone or visit to ensure the criteria were met. The operational criteria for each group are discussed below.

Farmer Leaders

These are farmers who had small farm holdings and large farm holdings. Small farm holdings means the farms were less than two hectares while the large farm holders had farms that were greater than five hectares in size. Both groups of farmers must have been actively involved with the national extension program for at least the last five years. Actively involved means they had benefitted from the extension program; knowledge, grants, inputs, or had been rendered extension services in one way or the other by the national extension program.

The farmers were representatives from different farmer groups. Representatives were sorted from groups producing different crop types. These include staple food crops: maize, cassava, plantains, potatoes, rice, and beans and cash crops; coffee, cocoa, and palms. Gender balance was also ensured by requesting from the representatives that female and youth group leaders be balanced with male group representatives. It was also

requested every participant be capable and willing to communicate with much insight on extension issues that concerned them.

Non-Governmental Organizations

Non-Governmental Organizations (NGOs) were local NGOs that were actively involved with development activities and had carried out some sort of extension work for the past five years. They must have been collaborating with the national extension services for at least the last five past years. Their collaboration with the national extension services included complementing or offering certain extension services and/or had carried out some extension work that was subcontracted to them by the ministry of agriculture.

Extension Representatives

Extension representatives were persons directly linked with the national extension program that carried out extension activities, supervised or coordinated extension activities. They must have been employed by this service for at least five years. The extension agents, the regional supervisor for extension, and the national extension program staffs comprised this category.

Government Counterpart Organizations

These were individuals who worked with the ministries of agriculture, research, higher education, or other parallel government programs that complemented the activities of the extension program and provided extension services or worked in the development supervision bodies of the North West and South West regions.

The agricultural authorities were the regional delegates, divisional delegates, and sector supervisors of the ministry of agriculture and rural development of the South West and North West Regions. The selected cases from the ministries of research and higher education most have had close links with the national extension program through collaborative work for at least five years. These were stakeholders who had served as research liaisons for the National Agricultural Extension and Research Program. Parallel program cases were individuals who worked with government support programs in the regional delegation of agriculture. These parallel programs target the production of specific crops. These individuals must have worked with the program for five years and or were actively collaborating with the national extension program. The development authorities must have been involved with the programs for at least five years to understand the functioning of the program and its links with the national extension service.

Trustworthiness

Trustworthiness literally is a measure of the reliability of research findings. Lincoln and Guba (1985) suggested questions that could be asked to ensure the trustworthiness of a research endeavor is achieved include: 1) the truth value of the findings with the context and the respondents, 2) the applicability of findings with other contexts and respondents, 3) the consistency of findings with same or similar respondents in same or similar context and, 4) the neutrality of the research that

examines the degree to which the findings are not biased by the inquirer's motives, interests, or perspectives.

The conventional paradigm employs internal validity as criterion to address truth value, external validity for applicability, reliability for consistency, and objectivity for neutrality. On the other hand, naturalistic research uses disparate words as criteria to address the above questions suggested by Lincoln and Guba (1985) for scientific rigor. The naturalistic research criteria for truth value are credibility, applicability is transferability, consistency is dependability, and that for neutrality is confirmability.

Generalizing naturalistic research results has been a challenge with the field of social sciences. According to contributors, the crux with naturalistic research has been the difficulty to convince the general audience of its worth because the results from qualitative research are usually not generalizable (Merriam 2009; Yin, 2009). However, Lincoln and Guba (1985) and Yin (2009) argued that qualitative research should be viewed as complementary to conventional research and not as adjuncts. For that reason, critical strategies were employed to ensure the trustworthiness of this research.

Techniques that were employed to ensure the trustworthiness of this study include member checks during interviews, prolonged engagement, peer debriefing, triangulation of information acquired from the various sources, and the use of an audit trail (Lincoln & Guba, 1985; Merriam, 2009). Discussions of how these techniques were employed to assure trustworthiness follow.

Member Checking and Referential Adequacy

Member checking is the act of confirming through feedback from the respondents being interviewed that the information recorded from them and its interpretation by the researcher is correct (Merriam, 2009). The researcher at every interview repeated the responses to the respondents to ensure the accurate meaning was obtained. At the end of every interview, the researcher summarized the information collected to the respondents to ensure she got the accurate information and its context. This enabled the researcher to fill in the gap of any misunderstanding. At this point, some respondents volunteered additional information. The researcher also had the permission of the respondents to contact them for more clarifications on any doubt should the need arise. Referential adequacy was also another technique used to ensure trustworthiness. The recorded tapes were re-listened to confirm field notes and transcribed data.

Prolonged Engagement

Prolonged engagement helps an inquirer of a phenomenon to observe intensely for an in-depth understanding of any naturalistic inquiry (Lincoln & Guba, 1985; Merriam, 2009). It usually requires that the inquirer immerses himself/herself in the setting, by living or interacting with the setting closely for a reasonable period. This way she can observe and understand the culture, detect and take account of distortions that might creep into the data, and build trust, suggest Lincoln and Guba (1985). The researcher is also able to understand and have a deeper insight of the phenomenon under investigation that would not otherwise be evident to one who is not immersed in the

setting added Lincoln and Guba. The researcher in this case had worked closely with the extension counterparts to understand the setting and had the trust of the respondents involved in the study. She was also on ground for three months during the data collection phase and had close informal interactions with the respondents, the setting, and current context of the study site. In addition, the researcher's background knowledge was very valuable in assisting the respondents to explore and describe their circumstances, actions, and feelings (Holstein & Gubrium, 1995). This process enhanced a better understanding of the phenomenon and improved the credibility of the findings.

Peer Debriefing

Peer debriefing was another technique employed to establish credibility. It served the purpose of keeping the enquirer honest (Erlandson et al., 1993; Lincoln & Guba, 1985), provided the opportunity to test working hypotheses and an opportunity for the inquirer to purge out emotions and feelings that could otherwise have impeded good judgment (Lincoln & Guba, 1985). To accomplish the peer-debriefing task, the researcher had consultations with peer colleagues and senior colleagues and the advisory committee chair; all had experience with qualitative case study research, international development programs, and an insight of the research being conducted.

Triangulation

Triangulation compares different sources of information for congruence. Different triangulation methods for data analysis include source, methods, analysis, and theory triangulation (Lincoln & Guba, 1985; Merriam, 2009; Patton, 2002). Source triangulation was used for the analysis of these research data. Yin (2009) suggests the

use of multiple sources of information to ensure credible data is obtained in case study research. Various sources of data were used for this case study to illuminate the phenomenon under investigation. Data sources used for the research included interviews (involving open ended and semi-structured questions), focus group discussions, prolonged engagement and observations, field notes, reflexive journaling, the various program documentations, national data archives, and publications on the phenomenon under investigation. According to Patton (2002), triangulation of data from multiple sources also reduces systematic bias and distortion in the process of data analysis. The researcher used the constant comparative method to compare information from the various sources against each other for consistency to ascertain the credibility of the information obtained (Merriam, 2009; Patton, 2002).

Confirmability

A major critic about naturalistic research by its conventional counterparts is its proneness to bias and subjectivity. An audit trail was used to ensure confirmability of the research findings. An audit trail authenticates the findings of a qualitative research (Merriam, 2009). Through an audit trail, an auditor should be able to tell if intellectual and scientific rigor was followed to result in the findings of the research (Merriam, 2009; Patton, 2002). Audit trails were the various documents that ascertained that the results matched the raw data. Audit trails for this research are included as figures, tables, and appendices.

Data Collection

Data collection for this research was carried out during a nine weeks period beginning June 21, 2011 through August 23, 2011. The focus group interviews were held at the meeting rooms of the delegations of agriculture and rural development of the North West and the South West regions while in-depth interviews were conducted at the job sites of the respondents for most cases. Primary data were collected from respondents in the Mezam and Fako divisions of the South West and North West Regions respectively. Collaborators and national extension program representatives based in the national office in Yaoundé were also sources of primary data. Different data collection procedures were used for the exercises that include focus groups interviews, individual interviews, document consultations, and through the researcher's observations.

A SWOT analysis requires the perspectives and opinions of differing stakeholders' that can be useful for making strategic planning and policy change in an organization. The background of this study, therefore, is based on the constructivist philosophical paradigm that emphasizes that, individuals or actors in the society or social setting construct beliefs differently depending on what they perceive to be reality to them (Lincoln & Guba, 1985). In carrying out such an evaluation, the constructivists recommend it should be a social negotiation that supports multiple perspectives and representations to encourage ownership in the learning (Driscoll, 2005). This is the reason why a heterogeneous group of stakeholders was involved for this study, to encourage a goal-based learning process that was collaborative in nature. The use of

focus group discussions/interviews as a participatory approach also enhanced the learning process. Morgan (1988) and Stewart and Shamdasani (1990) elicit that focus group interactions produce data and insights that would normally be less accessible without the interaction found in a group. In addition, in policy related studies, focus group studies have been found to be relevant because there is a shift in balance to the benefit of the participants. Barbour and Kitzinger (1999) wrote:

Group work can help individuals to develop a perspective which transcends their individual context and thus may transform ‘personal trouble’ into ‘public issues’. The group process can also foster collective identity and provide a point of contact to initiate grass-root change. (p. 19)

Other authors who believe that focus groups can be manipulated to justify already-made decisions have contested these claims. These are valid criticisms but the researcher in this case had no political inclination but to explore and illuminate a phenomenal issue at hand for heuristic reasons. The researcher however recognized the shortcomings suggested above and that of using a single data collection method for qualitative research. The researcher specifically used a comparative case study design that has the advantage of using multiple sources of data collection to corroborate obtained information. To address the drawback of using a single data collection method, the researcher used focus group interviews conducted in conjunction with in-depth individual interviews as primary sources of data collection. Observations and documentations complemented data collection to triangulate results for trustworthiness.

In contrast to quantitative research, sample size is not usually a big concern with qualitative research. According to Patton (2002):

There are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of the inquiry, what will be useful, what will have credibility, and what can be done with available time and resources. (p. 244)

The focus of data collection as suggested by Merriam (2009) and Yin (2009) was to get information rich cases from which credible and dependable information could be obtained.

A focus group interview was conducted for each of the following groups: 10 farmers in the North West Region, 10 farmers in the South West Region, five extension agents in the North West Region, and six extension agents in the South West Region. Focus groups were chosen as a means to collect data for these groups of stakeholders for logistic reasons and also to enhance collective and homogenous identity and to enable otherwise timid individuals to open up and speak out in a common voice.

An interview protocol with 16 questions (Appendix 2) was used to guide the interview process. The questions for the research were mostly open ended with semi structured ones as follow-up questions to elucidate facts and information collected. Patton (2002) recommended using open-ended questions with probes for in depth information when appropriate and member checking for accuracy. Interviewees/cases were asked to do a retrospection of their experiences with the extension program and voice their personal experiences. The interest in interviewing the cases for their stories is

because the worth of their stories can contribute to change, suggested Seidman (1998). Member checking and triangulation were performed to ensure accuracy of results. Observations, daily journaling, and field notes were also conducted to strengthen and enrich the data collected. Secondary data were collected from historical archives and databases, including government reports and documents. Journals and scholarly publications also served as sources of secondary data.

Focus group formation and facilitation of discussions were done following guidelines specified by Morgan (1988) and Stewart and Shamdasani (1990). These guidelines instruct the use of homogenous groups yet also warn to ascertain that no two individuals are from the same organization. The authors also recommend that the researcher guides discussions and probes for deeper responses but without asking leading questions to obtain desired responses and simultaneously ensuring that every individual has an equal chance to participate. The focus group discussions each lasted between 100 and 120 minutes while in-depth interviews lasted between 60 and 90 minutes. The duration of each interview depended on when a saturation point had been reached for each question after a prolonged engagement. A saturation point is a point at which no new information was obtained even with further probing of the case. The saturation point also determines when a qualitative case study should stop: when no new information is acquired from informants or cases (Erlandson et al., 1993; Merriam, 2009).

Instrumentation

Being a qualitative research, the researcher was the main instrument for this research. The efficiency of a human instrument in data collection is enhanced if the human instrument is conversant with the phenomenon under investigation and understands the context of the study, posit Lincoln and Guba (1985). In this instance, the investigator of the research had worked closely as a collaborator with the national extension program, and had field experience with the local context of the study locations. This understanding helped bridged the gap that might have resulted if the researcher was ignorant of the norms and the culture of the context that might have rendered the study inadequate. To enhance the research, the researcher followed the rules of active interviewing suggested by Holstein and Gubrium (1995), Seidman (1998), and Yin (2009). The researcher engaged the respondents in conversation but allowed the respondents to talk. She was a good listener, but guided the conversation to construct meaning from the conversations. Lead questions were avoided. Field notes were taken during interviews and audio recordings of the interviews were done with permission from the interviewees. The recordings helped the researcher during transcribing of data to fill in the gaps of information that were missed during note taking. At the end of every interview, the researcher summarized the conversation to the respondent for member checking.

Ethical Considerations

At the beginning of the focus group interviews with farmers and extension agents, the divisional supervisors for agriculture and rural development and the regional

coordinators for extension in both regions thanked the respondents for honoring the invitation and briefly introduced the researcher and the purpose for which she was there; to conduct research that needed their participation because they were very important actors in the extension network and, their inputs were necessary to assess the functioning of the extension program. Thereafter, the researcher welcomed the respondents and thanked them for honoring the invitation. She enlightened the respondents about the research so they had a better understanding of the research and articulated her expectations from them that were mainly honesty and integrity; by presenting a true picture of the program as they had experienced, perceived or saw it. A code of conduct was also spelled out. A consent form in conformity with Texas A&M University Institutional Review Board (IRB) research guidelines was given to all respondents prior to the focus group interviews and in-depth interview for signatories. This form guaranteed the confidentiality of the participants' contributions to the study and informed them of their rights to opt out of the study if they wished to do so.

Assumptions

Three assumptions were made involving the researcher and the respondents. First, it was assumed and anticipated that the researcher would be as impartial and unbiased as possible in order to collect reliable qualitative data (Lincoln & Guba, 1985; Patton, 2002). The researcher strived to follow scientific methods of objectivity by being non-judgmental, unbiased, and balanced. Such objective stances are important attributes necessary to ensure trustworthiness as suggested by Lincoln and Guba (1985). At the same time, the researcher strived to have empathy for the respondents and be neutral

toward findings (Patton, 2002). Second, it was assumed that the respondents to give meaning to this research would provide only honest responses that are reflective of the extension program, the local conditions, and the respondents' personal experiences. Finally, it was assumed that the research results from this study would not only serve the researcher's goal to complete her dissertation, but would also serve as a means through which change could be advocated to improve the national extension program, the livelihoods of the stakeholders, and the communities the program serves.

Delimitations

This research was limited in relationships, logistics, and context. Only individuals or stakeholders who had economic, social, and personal interests in the national agricultural extension program for at least five years were selected to be a part of this study. For logistic reasons, the study was limited to farmers and extension agents from the Mezam and Fako divisions for the North West and South West Regions, respectively.

The research was conducted in two regions, the North West and South West regions, of Cameroon. Therefore, the findings of this study are limited to the context of the study locations because this research is qualitative in nature. Being a qualitative case study, the findings should not be generalized; however, given similar environmental, sociopolitical, and socio-cultural contexts, an individual may decide to transfer the results to their own context for applicability.

Data Analysis

Data analysis in qualitative research is a continuous process that is ongoing even during the data collection phase. Initial transcriptions were done concurrently with data collection following recommendations to promote the emergence of grounded theory and to adjust data collection as necessary (Erlandson et al., 1993; Merriam, 2009).

Unitized Coding and References

To initiate data analysis, first, a unit of coding was applied to the transcripts. Boyatzis (1998) defines a unit of coding as, “the most basic segment or element that can be assessed in a meaningful way regarding the phenomenon” (p. 63). The individual respondents were the units of coding used for this research. The respondents were given anonymous codes to preserve their confidentiality to meet the requirement of case study research. The codes created for each individual were done using the acronym of the individual’s location (for cases from the North West and the South West regions), the individual’s role as an extension stakeholder, a number identifying the respondent in his stakeholder group, the source of data in the case a quote was used (number of the question answered in the interview from which a quote came from). For example SWFL1#2 means South West Farmer Leader number one’s response quote to question number 2, SWZEA5 means South West zonal extension agent number 5. Table 3.1 details the unitized code references used for this research.

From Categorical to Thematic Analysis: The Coding Process

Data analysis in case studies is a continuous process that is ongoing even during data collection phase. Initial transcriptions were done concurrently with data collection

following Merriam's (2009) recommendations to promote the emergence of grounded theory and to adjust data collection as necessary. The researcher intimated herself with transcribed data during and after data collection.

Table 3.1.

Unitized Coding and References for Focus Groups and Interviews by Gender

		Focus Groups (4)			
Acronym	Name	Code	<i>n</i>	Male	Female
SWFL	South West Farmer Leader	SWFL1–SWFL10	10	8	2
NWFL	North West Farmer Leader	NWFL1–NWFL10	10	6	4
SWZEA	South West Zonal Extension Agent	SWZEA1–SWZEA6	6	4	2
NWZEA	North West Zonal Extension Agent	NWZEA1–NWZEA5	5	4	1
		One-on-one Interviews (28)			
SWAA	South West Agriculture Authority	SWAA1–SWAA6	6	6	0
SWDA	South West Development Authority	SWDA1–SWDA3	3	3	0
SWNGO	South West Non-Governmental Organization	SWNGO1–SWNGO2	2	2	0
NWAA	North West Agriculture Authority	NWAA1–NWAA5	5	5	0
NWPP	North West Parallel Program	NWPP1–NWPP2	2	2	0
NWDA	North West Development Authority	NWDA1–NWDA2	2	2	0
NWNGO	North West Non-Governmental Organization	NWNGO	1	0	1
RC	Research Counterpart	RC1–RC4	4	4	0
EA	Extension Authority	EA1–EA3	3	2	1
Totals			59	48	11

Intimation during data collection guided her in observing patterns and reassessing the protocol questions for readjustments to the data collection process and refined the working hypothesis (Erlandson et al., 1993; Merriam, 2009). Intimation of the researcher with the data during data collection was also helpful in determining when the saturation point had been attained (Merriam, 2009).

The steps outlined by Boyatzis (1998) for developing themes and codes were followed for data analysis. After data collection, the researcher read the transcripts several times for each unit of analysis (individual respondents) for familiarity with the raw information. Responses from unitized codes for each objective were assembled.

An outline of the synopsis of the respondent observations from transcribed data was created. Synopses were compared for similarities and patterns within the unitized codes. Open codes that were single words or short phrases were used to summarize described phenomena (Boyatzis, 1998; Merriam, 2009).

An initial free coding process for emergent themes was done. An examination of the preliminary open codes was done to identify similarities and patterns between unitized codes using constant comparative method. With constant comparative method, consistencies, patterns, emerging themes, and abnormal responses or anomalies between compared unitized codes emerged (Erlandson et al., 1993; Merriam, 2009). Yin (2009) describes five analytical techniques for analyzing case study research that guided pattern analysis that include pattern matching and compares an empirically based pattern with a predicted pattern to strengthen internal validity if such patterns coincide. Explanation building is another analytical technique where hypotheses are built. Other analytic

techniques used in case studies are time series analysis, cross case synthesis, and the use of logic models to compare how the vision and goals of a program match the observed outcomes (might be regarded as another form of pattern matching). Following these background guides, common themes emerged. A further refinement of the coding process for the trustworthiness of the codes/themes was done again by triangulation of data sources (Merriam, 2009; Yin, 2009). Using axial and selective codes for a second analysis for overarching emerging themes and subcategories the triangulation of codes from multiple sources (cases) and multiple data collection methods (interviews, focus groups, field notes, reflexive journal, and observations) was done for trustworthiness.

Caution was taken by the researcher to ensure the themes were emergent themes and not themes forced by the researcher by having another colleague verify the consistency of the judgment of the codes and emerged themes.

How Data Were Managed

Dependability was assured by using an audit trail and daily journal and field notes that ensured the credibility and trustworthiness of collected data. An inquiry audit/audit trail enabled a second reviewer (the committee chair, senior colleague and peer colleagues) to examine data for consistency in the research process, and the congruence of the raw data to the final findings. Credibility and dependability was assured by the richness in data that was assured by use of multiple respondents that gave multiple realities (Lincoln & Guba, 1985). The researcher also ensured the saturation point of data collection was attained as she analyzed the data concurrently during data collection. The case study findings resulted to this dissertation write up.

Summary of Methods

A comparative case study design/approach was used to determine how the functionality of the national extension program could be made better for sustainability. A SWOT analysis was used as an evaluation tool for this process. Multiple sources of data and diversified groups of stakeholders that encouraged converging lines of inquiry were exploited (Yin, 2009). Multiple perspectives capture a holistic view of a contemporary phenomenon in the naturalistic setting that is being investigated (Lincoln & Guba, 1985; Merriam, 2009). The research was context bound to the Mezam Division and the Fako Division of the North West and the South West regions of Cameroon respectively. The main criterion of selection of respondents was that they must have had close links with the national extension program for at least a period of five years. A close link was defined as having benefited, collaborated, delivered, planned, supervised, or coordinated extension services in or within the auspices of the national extension program, to allow a case to have insightful knowledge on the functioning of the extension program. The second criterion for respondents was that they belong to one of the following stratified four stakeholder groups: Farmer Leaders (FL), Non-Governmental Organization (NGO), Extension Representatives (EA, ZEA) and Governmental Counterpart Organizations from line ministries (AA, RC, PP, and DA).

The research data were collected during summer of 2011 over a period of nine weeks from June 21 to August 23, 2011. Open-ended questions combined with semi structured questions as follow-up questions were used to elicit facts and information collected (Patton, 2002). A total of 59 individuals participated in this research. Four

focus groups were conducted, with one focus group for each of the farmer leaders groups and extension agents for each of the two regions. Twenty-eight one-on-one interviews were conducted for the rest of the stakeholder groups. Data sources used for the research included: 1) interviews (open ended and semi-structured questions), 2) focus group discussions, 3) prolonged engagement and observations, 4) field notes, 5) reflexive journaling, and 6) the various program documentations, national data archives and publications on the phenomenon under investigation to reduce systemic bias and distortions in the data analysis process. A constant comparative method to compare information from the various sources against each other for emergent themes and consistency was done to ascertain the credibility of the information obtained (Merriam, 2009; Patton, 2002). Trustworthiness was ascertained through member checks, prolonged engagements, reflexive journaling, peer debriefing, triangulation and the establishment of an audit trail (Lincoln & Guba, 1985; Merriam, 2009; Patton, 2002). Coding procedures for emerging themes and codes as specified by Boyatzis (1998) were followed. The credibility of the research and findings was established by having senior colleagues, peers and committee chair verify the codes for rigor, consistency and congruence with the findings.

CHAPTER IV

FINDINGS

Guided by the conceptual framework and six research objectives, the data analysis yielded four categories and eighteen themes (Figure 4.1). Certain themes emerged more strongly and were more prevalent between regions and among the four stratified stakeholder groups. The density of each theme will be discussed in the corresponding narratives and reflected in the audit trails (Appendices 3, 4, 5, and 6).

Objective One: SWOT Analysis

The mission and goals of the national extension program were to improve the productivity of rural farms and the incomes of rural population through agricultural research and efficient extension and to increase agricultural production, achieve national food security, and alleviate rural poverty.

An analysis of interviews and focus group discussions from the six groups of stakeholders revealed the following 18 themes that could be categorized as strengths, weaknesses, opportunities, and threats (Figure 4.1 and Appendix 3).

Strengths

Education

Many respondents identified strengths of the PNVRA program that included technology transfer, learning, grassroots outreach, staff competence, and organized program structure. The program enhances technology transfer by providing guides on

improved varieties and seed multiplication (SWFL6, SWFL2, SWFL8, SWZEA5, SWAA2, SWAA3, NWFL4, and NWAA3). A farmer leader confirmed that, “Extension provides and guides us on improved varieties and seed multiplication. We gain valuable knowledge” (SWFL6#1) and another one explained that:

There is the availability of extension service to which we have access to give us advice on good farm management. We (farmers) also have access to good quality planting materials through certain projects in the ministry and the RUMPI project. (SWFL3#1)

Another farmer confirmed that, “Our problems are easily identified. When I have a problem and actually contact a ZEW (zonal extension agent), he is able to tell me exactly how to solve my problem” (NWFL4#1).

Group formation fostered learning and outreach (SWZEA2, EA3, NWZEA1, NWAA3, NWAA4, SWAA5, RC4, NWAA2, NWDA1, and NWDA2) as well as youth involvement in agriculture (SWZEA6). The program provides learning by empowering farmers (SWNGO1, SWAA4, NWZEA4, and NWPP1) and by building extension agents’ capacity. An extension agent reported that the program had empowered him, “the program built my capacity” (NWZEA5#1) while an extension authority (EA1) asserted that the extension agents and farmers had benefitted from constant training through collaborative programs that had empowered them (NWAA5). A majority of respondents across the various stakeholders groups also confirmed that the extension program had competent staff who had been trained when the program was very buoyant

during the World Bank funding period (SWAA1, SWDA2, SWNGO1, SWNGO2, RC2, RC2, RC3, RC4, EA1, EA3, NWZEA2, and NWZEA3).

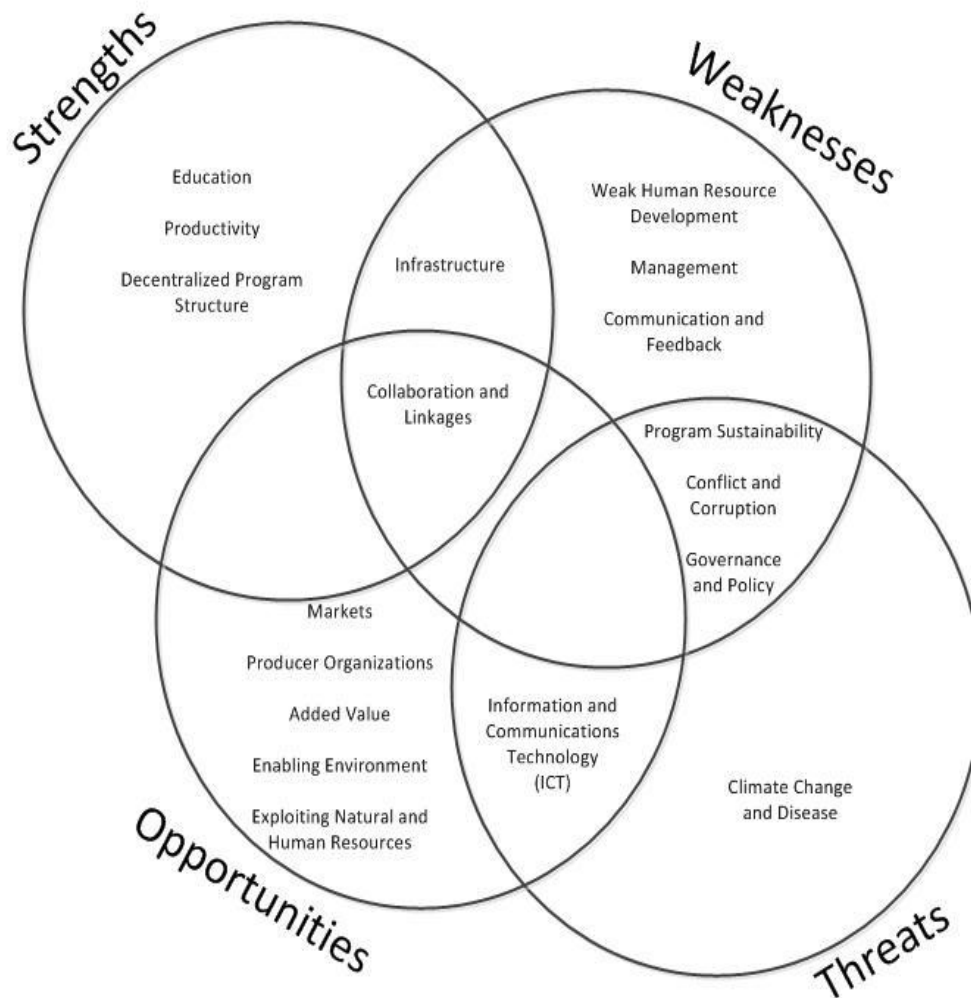


Figure 4.1. Emergent Themes from National Extension Program SWOT Analysis.

Collaboration and linkages

Collaboration and linkages were viewed as a strength of the program in the past with respondents indicating that the program had former strong links with research (SWDA1 and SWAA5). However, the theme was regarded more as a weakness of the

current program by most of the respondents. Some respondents viewed collaboration and linkages as an opportunity that could be used to strengthen institutional collaboration. A few respondents indicated that collaboration was a strength because farmers were linked by extension agents to parallel programs that gave grants to support them (SWZEA1, SWDA1) and the government gave support for research to enhance extension (RC1). Another respondent argued that the willingness of extension staff to work with research also indicated that there was collaboration and linkage between research and extension (EA1). According to an extension authority, “Constant training of the extension agents through collaborative programs strengthens the program” (EA1#1).

Productivity

Respondents indicated that the program had improved the yields of farmers (SWZEA3, EA3, NWZEA1, and NWPP2) and created income generation activities that improved farmers’ income levels (SWZEA4, SWDA3, EA1, EA2, EA3, NWPP1, and NWPP2). A farmer consented to the extension service role in improving her yields by saying that, “Through extension, we can assess our farms and plant with extension recommendations to get good quality crops and good yields. We are able to make good use of our available land” (SWFL8#1). Another female farmer also consented that:

Our extension worker educated us on improved seeds. We also grow improved maize using improved maize seeds that we buy from the Farmers’ House.

Extension workers improved our standards of living although we have not benefitted from any government support. The extension worker has improved our livelihood; our children’s education is assured too. They also taught us

diversification of crops, that is, mixed farming of corn, beans, and cocoyam.

(NWFL6#1)

Decentralized program structure

Respondents described the program as a structurally decentralized system with a unique line of command and information flow (SWAA1, EA1, NWAA1, NWAA2, NWAA3, and NWAA4). They indicated the structurally decentralized system to be a strength of the program because information could flow from the hierarchy down to the field workers easily and there was respect for hierarchy.

Infrastructure

Agricultural authorities in the South West and the North West regions indicated that extension agents had bikes as a means of transportation to enable them do their work (SWAA1, SWAA3, SWAA4, and NWAA4). The extension agents, however, complained that not all of them had bikes that were in good working condition.

Weaknesses

Conflict and corruption

Conflict among farmers groups was regarded as a weakness that limits farmers' gains from the extension program services and hindered extension agents' effective work (SWZEA6, SWFL5, NWFL3 and NWFL4). As suggested by a farmer leader, "Many conflicts in my group arose because of grants and inputs they give us. The sharing of input is not adequately done by group leaders" (NWFL3#2). One male farmer said, "Transparency and accountability is at times a big challenge with our groups and this brings a lot of conflict" (SWFL9#2). All extension workers agreed that it was sometimes

difficult to work amicably with farmers who for one reason or the other did not have grants and incentives. They added that they usually got insults from such farmers.

Corruption was regarded as a major weakness of the extension program (SWFL9, SWZEA6, SWZEA4, SWAA1, SWAA2, RC2, EA2, NWFL3, NWFL4, NWZEA4, and NWDA2). Respondents indicated that corruption resulted mainly from lack of accountability, poor channeling and management of resources, non-harmonized disseminated information, lack of transparency in the distribution of grants, and lack of grassroots' consideration in grant distribution. An extension agent confirmed that, "We have fake groups that we do not work with collecting subsidized chemicals" (SWZEA6#2).

A development authority also reported that conflict of interest arose in grant and support sharing to farmers (SWDA1). Another development authority and an agricultural authority linked conflict of interest to the participatory approach of delivering extension services (NWAA5 and NWDA2). According to NWDA2#2, "Participatory approach brings with it conflict of interest in contract offers which leads to corruption." An agricultural authority confirmed that, "Most NGOs are created and owned by individuals in decision-making positions. They are created by Agriculture staff so there is conflict of interest" (NWAA5#2).

Weak human resources development

Lack of trainings or human resources development on current extension issues/trends was viewed as a weakness of the extension program (SWZEA2, SWAA2). A research counterpart and a development authority indicated that lack of training had

led to loss of skills and manpower due to the number of extension agents retiring without any new recruits/replacements (SWDA2, SWZEA2, SWAA2, and RC3).

Collaboration and linkages

Although some respondents regarded collaboration as a strength of the program, others also indicated lack of collaboration and linkages as a strong weakness of the current extension program. Poor links of the extension program with research and higher education (SWZEA2 and EA2), lack of cooperative development (SWAA4), no formal service for technology transfer and feedback to research and weakly managed platforms (RC1), implementation gap due to poor coordination, and lack of synergy between the extension program, the parallel programs, and NGOs (SWNGO1, NWZEA4, NWPP2, and NWAA3) were the factors highlighted that affected collaboration and linkages negatively.

Management

Management was regarded as a weakness of the program. Sub categories of the theme include extension agents' inefficiency (SWFL7, SWFL1, SWFL2, SWFL4, and EA2), poor working conditions for extension agents (SWZEA1, SWZEA3, NWPP1, NWZEA4 and NWAA5), and poor management framework (SWZEA3, SWZEA4, SWAA2, RC4, EA2, and NWAA1). The following were advanced as reasons that affect the effectiveness and efficiency of the program; high farmer to extension agent ratio that results to delayed response from extension agents (SWFL4, SWFL7, SWAA1, SWAA2, SWAA3, RC2, RC4, EA2, EA3, NWZEA1, NWAA3, NWAA5, and NWNGO), shortage and late arrival of planting materials (SWFL2, SWZEA2, and SWZEA6), and

lack of motivation of staff and extension agents (SWDA1, RC3, EA2, NWZEA4, NWAA3, NWAA5, and NWAA5). Other reasons given for inefficiencies were staff unwillingness to work in remote areas (SWNGO2), extension agents' lack of competence/specialization (SWAA4), and lack of enthusiasm by farmers to adopt technologies (NWAA2).

To support program inefficiencies, a farmer leader confirmed that, "Extension worker ratio to farmer is small. We have little coverage. We do not have the attention of extension workers as often as we had before" (SWFL4#2). In addition, "Cuttings and planting materials are supplied later than the planting season. Subsidized seeds come late. Sometimes they supply us with old planting materials that are not viable" (SWFL2#2). Poor working conditions for extension agents were confirmed by extension agents who said they had low and irregular payment of allowances (SWZEA1, SWZEA3, NWZEA3, NWZEA4, and NWPP1), no office space/work station, no fuel for bikes, and no work stationeries (SWZEA2, SWAA2, and NWAA1).

Infrastructure

Respondents also identified infrastructure as a weakness. Infrastructure issues were categorized into poor road infrastructure (SWZEA4, SWDA2, and NWAA1), lack of office space and office equipment (SWZEA2, SWAA2, NWAA1, and NWAA2), and lack of mechanization and postharvest technologies to add value to farmers' produce (SWDA2, NWDA1, and NWFL8).

We need a place that we can stay and have a day to receive farmers in the office.

Only three agricultural post structures exist for Fako division, but the division

has 24 agricultural post extension workers, so most of us use our homes as offices. (SWZEA4#2)

Communication and feedback

Poor communication was regarded as a weakness of the program.

Communication problems were due to poor dialogue between the extension agents and the hierarchy with no feedback on reports as indicated by South West extension agents, North West agriculture officials and a research counterpart (SWZEA3, SWZEA4, SWZEA2, SWZEA6, NWAA3, NWPP1, and RC3). A farmer leader indicated that there was lack of dialogue with the authorities (NWFL3). According to extension agents, “We have poor communication from top to bottom” (SWZEA2#2), “The hierarchy does not read reports” (SWZEA3#2), and “The delegation works with farmers without our consent” (SWZEA4#2). Agriculture authorities confirmed that poor communication was a problem with the program. NWAA3#2 indicated that there was “irregular information flow” and “lack of feedback” (NWPP1#2).

Governance and policy

The subcategories for governance and policy identified were lack of subsidized inputs (SWZEA5, SWZEA6, SWDA3, EA1, NWFL2, NWZEA3, NWAA3, NWAA4, and NWNGO), lack of capacity building (SWZEA2, SWZEA4, EA2, and NWAA2), bureaucracy and red tape management style (SWAA1 and EA2), no markets and certification board (SWAA4), and bad government policy (SWZEA2, SWDA1, SWAA4, RC2, NWZEA4, NWAA5, and NWDA1). Respondents suggested that there was a lot of red tape and bureaucracy involved in the functioning of extension activities.

The disbursement method of extension funds was not appreciated. According to both an agriculture authority and an extension authority, “the funds are not always disbursed on time and come in carton form rather than in cash” (SWAA1#2) and “the proper functioning and performance of the extension service is not a priority for the government” (EA2#2). The policy of not subsidizing inputs and not encouraging the capacity building of employees through scholarship opportunities was also perceived as a weakness of the extension program.

Program sustainability

Program activities were described as not being sustainable. The main reasons given for lack of sustainability of the program were inadequate government funding and dependence on external funding (SWZEA6, SWAA1, SWAA3, SWAA5, SWDA2, RC3, EA1, EA3, NWPP2, and NWAA4). The inability to complement technologies with subsidized inputs, weak financial situation of farmers, and a weak market sector were other reasons suggested for lack of sustainability (SWAA1, SWDA2, and NWDA1). An agricultural authority narrated that:

Most times when we elaborate projects, we have inputs as part of it, but farmers cannot afford the inputs. At the same time, extension is being made to follow the normal bureaucracy of the ministry of agriculture, but we want to stay as an autonomous department so we can function independently and efficiently.

(SWAA1#2)

Opportunities

Markets

Market was an opportunity that most farmers suggested was worth exploiting that could improve the extension program and inspire them increase production. Respondents suggested that linking the farmers to local and neighboring regional markets would be an opportunity to exploit (SWFL6, NWFL6, NWZEA3, NWAA1, NWAA4, NWAA5, and NWNGO). “Extension should link us to markets” (SWFL6#3). “Markets can be organized for farmers through cooperatives and protecting them through price control mechanisms” (NWZEA3#3). Protecting farmers through certification for quality improvement and cooperatives were also suggested as strategies to improve on the markets (SWAA4 and NWZEA3).

Producer Organizations (PO)

Empowering PO as well as youth and elite farmers were indicated as means that could be used to strengthen peers and to create platforms according to agriculture authorities (SWAA1, SWAA4, and SWAA5). Publicity of the extension program to the public will also empower or strengthen the program as suggested by a research counterpart (RC3). Finally, organizing agricultural shows for farmers was suggested as a strategy to empower farmers (SWZEA3).

Institutional collaboration

Existing institutions such as NGOs, universities, and research institutes and centers were cited as opportunities that could be exploited to improve the extension program (SWZEA6, SWAA1, SWAA2, SWDA1, NWAA1, NWAA2, NWAA3,

NWDA1, and NWNGO). Other respondents cited improving on capacity building as an opportunity that the extension service could as well exploit (SWZEA3, SWZEA4, SWZEA3, and NWZEA3). An agricultural and a development authority suggested that through institutional collaboration the capacity of extension staffs could be built through external workshops and trainings from other NGOs, and from the newly created local university in the North West Region (NWAA1, NWAA5). “The newly created University of Bamenda for example will help to enhance the capacity of staffs willing to further their education” (NWAA2#3).

Enabling environment

Respondents described the country’s political system as a peaceful one that encourages development. They also suggested that a peaceful environment would attract donors to finance extension activities and agricultural development (SWNGO1, RC2, NWDA1, and NWNGO). An NGO representative suggested that the government should provide incentives to involve the many NGOs in extension activities (SWNGO2). That way, the extension service could take advantage of the many beneficiaries that are available to adopt technologies (SWNGO1 and NWDA1). An NGO respondent articulated that the government could actually lease out some areas of intervention to NGOs that had the expertise. In an NGO representatives words:

The government should involve more NGOs in extension activities, second its idle staffs to us (NGOs), provide us with subventions for core activities and reinforce supervision. The government might actually lease areas of NGO intervention and just supervise executed activities. (SWNGO2#3)

A research counterpart suggested that, “If a standardization agency and linkages structures and platforms for quality control and markets were created by the government, this would improve the extension program” (RC1#3).

Natural and human resources

Agricultural authorities, NGOs, and development authorities indicated that there was available land with diverse ecological zones that if exploited would encourage agricultural production and hence extension activities (SWAA5, NWAD1, NWNGO, and SWAA1). A research counterpart and a development authority suggested that the national extension program’s trained but underutilized staffs could be used for other programs as appropriate (RC4 and SWDA2).

Information and communication technology

Information and communication technology (ICT) was viewed as critical to enhance extension services especially with the new generation of farmers (SWZEA5). “With globalization, ICT would encourage learning from other countries” (RC2#3), and the dissemination of extension information as a whole (SWAA2, SWDA1, RC3, EA3, and NWAA1).

Added value

Exploring avenues for adding value to produce and producing high value crops was an opportunity that was suggested would benefit the extension program and the farming community (EA1, NWZEA1, NWZEA2, NWPPA, NWPP2, and NWAA4). An extension authority explained that:

There is the opportunity to exploit high value crops that can be grown in the various climatic environments that we have. At the same time, big farmers are willing to grow and export. If technology to add value is in place, this will foster extension activities. (EA1#3)

Threats

Climate change and diseases

Climate change was reported as a major threat to the extension program and services. Farmers reported experiencing short sporadic rainfalls that affected the planting season and resulted to undiagnosed diseases that affected their crops (SWFL9, SWFL1, SWFL8, and SWFL10). A North West farmer specifically stated, “Poor soils are a major threat that reduce my coffee and rice yields tremendously” (NWFL1#4). The degeneration of improved material was also recognized as a threat by a development authority (NWAD1). A research counterpart’s view was that the HIV pandemic was a threat that affected the health of the younger generation of farmers (RC1). An agricultural authority suggested that food security was threatened by neighboring countries that sourced food from the country (NWAA1).

Conflict and corruption

The majority of respondents also reported conflict and corruption as a major threat to the extension program. South West Region farmer leaders reported that conflict from land tenure and industrialization limited available farmland to farmers (all SWFLs). Extension agents also reported having conflict with farmers who did not get grants from parallel projects (SWZEA6). Conflict of rule of interest also issued from

conflicting messages from different institutions (NWAA4). Conflict from intertribal wars and animal destruction was also a threat that affected the extension program activities as proposed by an extension authority (EA1). Corruption and manipulative attitudes was a threat that hampered the extension program functioning (SWAA5, SWNGO1, SWNGO2, and RC2).

Program sustainability

All groups of respondents viewed the sustainability of the program as a threat. Sustainability issues issued from multiplication of efforts and structures (RC2, RC4, and EA2), “loss of extension agents” (EA2#4), loss of staffs, and large farmer to EA ratio (NWFL2 and NWAA5). Government reduced funding and reliance on external donors for program functioning (SWAA4, SWAA1, SWAA5, NWAA2, SWZEA3, SWAA2, NWAA3, and NWPP1) was identified as a threat. An extension authority detailed that:

Multiplicities of efforts confuse farmers because they do not know whom to follow. Extension agents are torn between attending to the parallel projects and the extension program and are thus not efficient. Farmers tilt toward incentives and thus these projects derail farmers’ activities with the national extension program. If the parallel projects were created and nested at the national level with one line of command, then our programs will be both sustainable. (EA2#4)

Other factors that threatened the sustainability of the program are lack of developed markets and agricultural banks (RC1, RC2, and NWDA1) and middlemen who extorted farmers. According to an agricultural authority and an extension authority, farmers seldom got the real value for their produce because middlemen exploited them

(SWAA4 and EA2). An agricultural authority argued that, “Middle men determine the price for farmers’ produce, and there is no statistics of how much is sold in the country because of lack of government control and coordination” (SWAA4#4).

Information and communication technology (ICT)

ICT was an anomaly that was considered a threat by an extension authority. She said ICT was a threat because, “There is the possibility of lack of the mastery of internet information by extension agents or the farmers themselves” (EA3#4).

Governance and policy

Respondents from all stakeholder groups viewed government policy as a threat to the extension program. South West farmers indicated that the poor working conditions and high input cost coupled with fluctuating produce prices were due to poor government policies (SWFL3, SWFL10, SWFL9, SWFL7, SWAA4, and SWAA5). “The poor government policies do not prioritize extension services and that has been compounded by the fact that the government liberalized extension without protecting the farmers” (SWAA5#4). “The operating of parallel programs without synergy with the extension program and research” (SWAA4#4) coupled with “bureaucracy is a big threat” (SWNGO#4). The poor implementation of government copied policies from other countries was a concern raised by an extension agent (NWZEA3). The lack of a well constituted certification unit was indicated as a threat by farmers, agricultural authorities, development authorities, and extension authorities (NWFL3, NWAA3, SWAA4, NWDA1, EA2, and EA3). A research counterpart indicated that, “The fact that there is

no technical staff in political administration is a threat because no concrete decisions to impact extension and research can be taken” (RC4#4).

Summary

Eighteen themes emerged from the SWOT analysis: 1) education, 2) collaboration and linkages, 3) productivity, 4) decentralized program structure, 5) infrastructure, 6) conflict and corruption, 7) weak human resources development, 8) management, 9) communication and feedback, 10) governance and policy, 11) program sustainability, 12) markets, 13) empowering producer organizations (PO), 14) enabling environment, 15) exploiting natural and human resources, 16) information and communication technology, 17) added value, and 18) climate change and diseases.

The strengths identified were education, collaboration and linkages, productivity, decentralized program structure, and infrastructure.

The weaknesses were conflict and corruption, weak human resources development, collaboration and linkages, management, infrastructure, communication and feedback, governance and policy, and program sustainability. The opportunities suggested include markets, empowering producer organizations (PO), institutional collaboration, enabling environment, exploiting natural and human resources, information and communication technology, and added value.

The threats proposed were climate change and diseases, conflict and corruption, program sustainability, information and communication technology (ICT), and governance and policy.

More weaknesses emerged than the rest of the three categories. There were also overlaps with the themes proposed by respondents in the different categories (Figure 4.1). Respondents identified collaboration and linkages as strength, weakness and opportunity while program sustainability was viewed as a weakness and a threat. Governance and policy, and conflict and corruption were suggested as weaknesses and threats while some respondents proposed ICT as both an opportunity as well as a threat. ICT was an anomaly.

Objective Two: Extension Services Today Compared to 10 to 15 Years Ago

To address this objective, respondents were asked to describe the present conditions of Cameroon food and agricultural sector, compare the current extension services to the past 10 to 15 years. Eight themes that emerged were agricultural productivity, infrastructure, innovative technology transfer, feedback, postharvest technology, markets incentives, financial sustainability, and staff competence (Appendix 4).

Productivity

A majority of respondents indicated that the agricultural conditions had improved in terms of improved varieties, the yield quantity, quality, and the competences of the extension staffs (SWFL3, SWZEAs, SWNGO1, NWAA2, NWAA5, SWDA1, SWNGO2, RC1, NWNGO, SWAA6, RC3, and RC4). “We are doing better in terms of production. Yields have improved. Quality and quantity has increased and this is because of the improved technologies that we have instituted over the years”

(NWAA2#6). The extension agents added that yield improvements were especially evident with farmers who had been given grants through parallel programs (NWZEA1, NWZEA2, NWZEA3, NWZEA4, and NWZEA5).

On the other hand, some respondents indicated that production was still below capacity (SWFL1, SWFL6, SWFL7, SWDA1, EA1, EA2, and RC3). “Production has ameliorated in terms of quantity and quality. We still import food so we have not reached our optimum potential” (RC1#6). All farmers and extension agents as reasons why the extension program was better in the past frequently listed subsidized inputs, improved planting materials, and improved yields (all SWFLs, NWFL1, NWFL6, and NWFL9). “The extension program does not give us (farmers) the improved materials and inputs like they did before” (SWFL3#6). “The Chinese came and introduced rice in 1960, but the yields are now low because of poor soils” (NWFL1#5). A farmer leader narrated that, “We were told the government was going to give seeds. When the seeds came, they were given to non-group members. Also, the high prices of inputs reduce our profits. Our yields stay low because we cannot afford fertilizers” (NWFL6#5), “There are no subsidized inputs for corn so our yields are low” (NWFL9#5). In addition, “The system is not functional like before. There are no resources to carry out research; there are no foundation seed materials. We get planting materials from the market without knowing their source” (NWAA1#6). “Most technical innovations now are not adopted because farmers do not have the means to compliment training with inputs” (EA1#6). Sometimes we have problems that the ZEWs (zonal extension agents) cannot find

solutions to. “I lost all my cocoyam and my ZEW could not tell me how to safe my farm” (SWFL1#1), “Prices of inputs make agriculture unprofitable” (SWFL7#5).

Infrastructure

Infrastructure was indicated to be better in the past and lack of it in the present had resulted to an agricultural production that was still below its potential (SWFL1, SWFL4, SWFL6, SWFL8, SWDA1, EA1, EA2, RC1, and RC3). Infrastructure issues were linked to small farm sizes, financial constraints, and poor rural infrastructure with limited technology for transformation. “Most farm land has been sold out for industrial purposes and we are faced with land tenure issues” (SWFL1#6), “Our farm roads are still bad’ (SWFL4#9). “I think the production is good, but the main problem is linked with marketing due to bad roads. If you go to Kupe-Manenguba, you will find lots of food loss due to bad roads” (SWAA1#6). A farmer said, “Sometimes we do not know where to meet the ZEWs (zonal extension agent) because they have no offices” (SWFL7#2). An agricultural authority and an extension authority were however very optimistic about the prospect of mechanized agriculture given the current encouragement of elite citizens to actively take up agriculture as a business (SWAA3 and EA1).

Innovative Technology Transfer

Certain agricultural authorities, research counterparts and extension authorities indicated that technology transfer had improved (RC2, EA2, NWAA1, NWAA5, and SWAA3). Technology transfer was indicated as being currently better because of available improved technologies that increased production (RC1, NWAA2, NWAA5, NWDA1, and NWZEA1). The participatory approach used by the current program was

appreciated than the training and visit approach (T&V). The following respondents agreed that the current participatory approach used for technology transfer was better than the former training and visit approach (SWZEA4, SWDA1, EA2, EA3, NWAA3, and NWFL3). “I would like to think that the extension system has improved. It is a lot better; extension before was not participatory, but rather top down but at the moment it is more participatory” (SWDA1#6). Regular access to extension agents and feedback was thought to be better in the past than with the current program (SWFL2, SWNGO, RC3, RC4, NWPP1, NWZEA5, and EA3). The participatory approach was also suggested to enhance grass root contact and scaling up (SWAA6 and RC2). Farmers perceived demonstration plots on individual farms as a very important aspect that they benefitted from in the past but they did not get with the current program activities (SWFL1, SWFL2, and NWFL8). However, another farmer suggested that the group demonstration with the current programs was better and served demonstrative purposes (NWFL10).

Feedback

It was also indicated that feedback was better in the past years. A research counterpart explained that, “The money was not a constraint in the past and there was planning and execution of activities. There was also a follow up mechanism. There were verifiable indicators, through reports and CIG (common initiative group) formations” (RC3#6).

Postharvest Technology

Postharvest technology was seen as a barrier to the agricultural and extension sector by certain agricultural authorities, extension authorities and research counterparts (SWAA1, SWAA4, EA3, and RC3). They indicated that post-harvest technologies were not developed and farmers could not reap benefits from their produce if they had to dump produce at cheap prices during peak harvest seasons. An agricultural authority described that:

The quantity of food crop produced is average; there is a postharvest problem and marketing problem with price fluctuations from one season to another. Price fluctuation is due to poor farm to market roads with a lot of perishable food waste. There is not enough means for food storage and facilities for processing. There is lack of facilities for food evacuation, processing, and storage.

(SWAA4#6)

Market Incentives

Fluctuating market prices were perceived to be a barrier to markets especially because of the absence of certified cooperatives. Farmers and an agricultural authority viewed cooperatives and markets as an important feature that was better addressed in the past than at the present moment (All SWFLs, NWAA4, and NWFL5). “We have no cooperatives to sell our produce to and also take loans from” (NWFL5#6). “The government had absolute control of sales and farmers were satisfied with produce prices they got. Cooperatives served as farmer banks then” (NWAA4#5). The presence of

young proactive farmers that perceive agriculture as a business was indicated as a promising aspect to the current extension activities (SWZEA6 and NWNGO).

Financial Sustainability

Funding availability and management was perceived to have been better in the past. Respondents indicated that there was more funding with regularly paid allowances and available resources to work effectively (all SWZEAs, RC3, RC4, and NWPP1). Activities were viewed as, “sustainable in the past” (SWZEA1 and SWAA) because the program was more effective and efficient. “We had better working conditions” (SWZEA3#6) and “regularly paid allowances and available resources” (SWZEA2#6). In the past, “extension staffs were more committed and motivated to work due to regular disbursement of funds and frequent trainings” (SWZEA5#6). “Current reduced national funding and treasury bottle neck has reduced motivation to work and our commitment to PNVRA (extension program)” (SWZEA3#6). “There were demonstration farms that we do not have today. Today, unmotivated extension agents just tell us what to do with no demonstrations” (NWFL8#6). “There were strong collaborative links between extension and research” (NWAA1#5), with “no duplication of efforts” (SWNGO2#6). “The government has not been able to meet up with its financial obligations. They (Government) provide three months allowances to serve for 12 months; this makes it difficult for field staffs to carry out their activities” (SWAA2#6).

Staff Competence

Staff competence was regarded as an incentive to the extension program now. Even though they was no provision for in-service trainings with the current program,

respondents asserted that even extension staffs had benefitted from the past trainings and acquired vast experience during the training and visit extension approach in the past. They contended that the acquired competences were beneficial to the program at the moment (SWFL3, SWZEAs, SWNGO1, NWAA2, NWAA4, NWAA5, SWDA1, SWNGO2, RC1, NWNGO, SWAA6, RC3, and RC4). “The government staffs (extension staffs) are experienced, but again they are not result oriented” (SWNGO1#6). “The training and visit did a great job with capacity building, but there is a need for a training component now to meet current need” (NWAA6#6). “Extension provides and guides us on improved varieties and seed multiplication” (SWFL3#5).

Summary

Eight themes that emerged were 1) agricultural productivity, 2) infrastructure, 3) innovative technology transfer, 4) feedback, 5) postharvest technology, 6) markets incentives, 7) financial sustainability, and 8) staff competences.

Infrastructure, financial sustainability, postharvest technology, feedback, and markets incentives were barriers to the agricultural and extension sector now that hindered agricultural productivity. In the past, agricultural productivity was an incentive, but now it is a barrier to the agricultural and extension sector. Innovative technology transfer and staff competence were perceived to be the incentives that fostered the agricultural and extension subsector currently. Although the majority of respondent indicated that agricultural productivity had improved because of available technologies, other respondents suggested that production was still below its potential because of infrastructure and market incentives constraints. Technology transfer had improved.

However, feedback was thought to be better in the past. Financial sustainability of the program was a present challenge that had limited collaborative links between the program, research and other actors. In-service trainings were lacking with the present programs, but staffs had competences acquired from past trainings during the T&V extension approach.

Objective Three: Reasons for Differences in Past and Present Extension Services

The analysis revealed the following main themes: program sustainability, funding and management (funding amount and disbursement method, government priorities, poor planning and management, decentralization, bad policy and structural issues), collaboration and linkages, and parallel programs/project interference (Appendix 5).

Program Sustainability

When asked for the reasons for the differences that existed for the current national extension program and in the past, research counterparts suggested that there was lack of a vision for sustainability of activities (RC3 and RC4). They asserted that sustainability was never a part of the program from the beginning. They indicated that the program has a culture of depending on donors for the running of activities. However, if the program was to be sustainable, they reiterated that the management needed to figure out from the beginning how the program will be sustained once donor funds ended. Every respondent confirmed that lack of sustainability was also due to reduced

funding and the lack of political will of the government to see the extension program function efficiently. A research counterpart opined that:

The money generated from agriculture is not reinvested into agriculture. They do not build on project sustainability and always look up to external donors.

Agricultural funds are used for other things instead of strengthening agricultural productivity. Even though agriculture is the main employer and economic booster, it does not get the attention it deserves. (RC4#7)

Funding and Management

All respondents asserted that, the extension service functioning is not a priority to the government. The reduced budget is further compounded by poor disbursement method of the funds that had resulted to poor planning and mismanagement (RC3, EA3, RC4, and SWDA2). Formerly, the central funds for extension disbursed money directly to regions in cash, but now, money comes in the form of cartons - impress (EA2, EA3, SWAA1, SWAA3, NWAA2, and NWAA5). An extension authority opined that, “Decentralization of the extension budget was not a very good thing for the extension service because the national coordination has no control at the regional level” (EA2#7). She added that the supervision of activities was a challenge with the current program for that reason. To support decentralization funding issues, another extension authority described that:

Decentralization is good for other nations like the developed world, but it is bad for Cameroon in terms of funds management. Funds should be more decentralized to the subdivisions and regions, but should be under the control of

the national office that justifies consumption and productivity with the amounts spent. This can guide the state on how much to disburse. (EA3#7)

The presence of many projects that interfere with extension activities (duplication of effort) was another aspect that hindered the sustainability of the extension program as indicated by an extension authority (EA3). For political reasons, projects that would have been consolidated under the extension program are run separately. To support his point, he argued that:

An example is the maize program with sub projects funding maize and carrying out extension. This can bring confusion to farmers. If the maize program could take control of maize in its entirety, then that could assure sustainability. If there was a sole maize network from field preparation to planting, production, processing and marketing, then sustainability could be assured. (EA3#7)

The above respondent also added that technical expertise affects extension sustainability because experts in different fields are sent to man project in expertise areas that do not match theirs. A development authority that had worked with the PNVRA program gave a summary of the challenges the program faced that affected its sustainability.

I worked as a PNVRA staff before joining SOWEDA. The difference is that the chief of post or front line staff do not have the available means to do their job efficiently. Much of the money sent for extension activities is cuts in the way of credits. Now money is through government engagement. Money that was engaged as the contact part for extension, does not come as is. The frontline staff

still ends up having only 40% of what they should normally have. That is why PNVRA (extension program) cannot be sustainable. The money allocated can be sufficiently managed to carry out extension activities at PNVRA, but the cuts on the way reduce it to virtually an insignificant amount. Money should be channeled through PNVRA directly as cash. Another suggestion is that money should be paid directly as part of the salary or directly into the extension agent's account. (SWDA2#7)

Collaboration and Linkages

All farmers reported that they had benefitted from the national extension services, local NGOs, international NGOs, and regional development supervising projects (MIDENO–GPDERUDEP and SOWEDA–RUMPI). However, every respondent reported that there was no government support or incentives for NGOs carrying out extension work. Collaboration with local NGOs was mainly personal according to extension agents from both regions. Most of them were consulted and hired as resource persons by local NGOs. However, the authorities would prefer NGOs consult with them and make this collaboration official. In an agricultural authority's opinion, NGOs should consult with the ministry of agriculture through a national convention.

The national extension office wants this collaboration to be initiated at the national level so that activities can be harmonized to avoid duplication and to ensure the extension agents are not distracted from carrying out their normal field activities by the NGOs. (SWAA1#7)

In an NGO representative's voice:

In the field, we work with the ZEWs (zonal extension agents) in areas where we intervene, in Fako here and Lebalem Division. If we have to train farmers, we invite them to bring in technical input and we also have them assist us to follow up with farmers for feedback. We might inform the divisional delegation of agriculture and rural development (DDARD), but it is usually a private negotiation between the ZEWs and us. We try to avoid bureaucracy that is involved to get these arrangements because we have a time limit to carry out our activities. (SWNGO2#7)

Collaboration with NGOs

Extension authorities indicated they work with all collaborators, but it was difficult to work with NGOs because they did not have stock of them and their activities. The ministry of agriculture authorities admitted having more collaboration with international NGOs. “Little or no official collaboration takes place between local NGOs and the government” (SWAA5#13). The government has no incentives put in place to support local NGOs (SWAA5, SWNGO1, and SWNGO2). However, local NGOs get some extension work subcontracted to them by the government development authority board (SWDA1, SWNGO1, SWNGO2, NWDA1, and NWDA2). An extension authority at the national level also reported that, “Some subcontracting of extension activities was given to NGOs when the national extension program had enough funding in the past” (EA3#13). A parallel program representative reported that they used NGO staffs as resource persons for their trainings. The local NGOs collaborated with each other. An extension authority reported that they did not collaborate with NGOs as expected

because they do not have stock of them and what they do (EA1). Another extension authority expanded on this by saying that:

There is no clear cut work documents with the government to enable NGOs know their roles. Government monitors NGOs through reports. I am not sure if they do. They are compelled to submit yearly reports of their activities to the government to make sure they are legally operating. (EA3#11)

Collaboration with Research

Agricultural authorities and extension authorities reported poor partnership, linkages and collaboration with research, but indicated that human relationships exist (SWAA2, SWAA3, SWAA4, SWAA6, EA2, NWAA2, NWAA3, NWAA4, and NWAA5). An agriculture authority portrayed the collaboration as:

The collaboration is fair because all the extension material is collected from research; however, the collaboration is not very good because research does not believe in doing things without money or incentives. An example is a disease of the cocoyam that was destroying farmers produce. I received a report from my delegate. I reported the matter to my hierarchy (Minister). When I reported the matter to research, it had to follow bureaucracy for any intervention that did not come. It is not the Ministry of Agriculture that should identify problems in the field with farmers and write to research. Research should have their funds to identify problems and research on them. As an agriculture authority here in the region, I should identify a problem and just send it to the research center in the region and not waste time going through hierarchy in the national program. The

collaboration in this case is not very smooth. I should be able to get information and send it directly to the research center here and they send me the solution so we can communicate to the farmers directly. (SWAA6#11)

NGOs and development authorities on the other hand reported having good relationship with research and the university (SWNGO1, SWNGO2, NWDA1, and NWDA2). An NGO authority explained that, “We collaborate with universities to get training so that we can impact rural communities. We work together with research to elaborate projects on aquaculture. Research does the research part or answers our questions to this project” (SWNGO1#11). The development authorities reported that collaboration with research was mainly in the form of outsourcing to get improved material (NWDA1 and NWDA2).

All research counterparts confirmed that collaboration with extension had dwindled with reduced funding. “We had good links between research and extension during the buoyant phase of PNVRA and it still continues even though timidly” (RCI#11). Another research counterpart added that:

In principle, yes, collaboration exists, but in practice not as well. In the past, the program was fully funded by DIDA and the World Bank. But since these donor funds ended, government funding has been reduced and disbursed irregularly as such the activities of the program have greatly reduced. (RC3#11)

An extension authority also confirmed that:

There are no links with research now because of the low profile of PNVRA activities resulting from reduced funding. PNVRA had external funding and

national funding. Right now, there is low national budget so research-extension interface has slowed down. (EA3#11)

Collaboration with Parallel Programs

Parallel programs indicated their collaboration with the extension program was “through the use of extension agents” (NWPP2#10), “through meetings” (NWPP1#10) and some had no collaboration with the extension program (NWPP3).

Reasons for lack of collaboration

Many reasons were suggested that enhanced and also hindered collaboration that include funding, communication, conflict of interest, human relationships, bad policy, competition, lack of competence, and lack of government support or incentives to private actors, and common interest and goals. Most respondents (SWAA3, SWAA4, SWAA5, SWAA6, RC1, RC2, RC3, EA1, EA2, EA3, NWPP3, NWAA2, NWAA3, NWAA4, and NWZEAs) suggested funding as the main reason for lack of collaboration.

An agricultural authority opined that, “Human relationships exist, but collaboration with research and higher education is minimal with no on-farm trials, or joint diagnosis of farmers’ problems. This is linked with the economic crisis” (SWAA4#11). An agricultural authority concurred that, “Collaboration with research is not very good because research does not believe in doing things without money incentive” (SWAA6#11). A research counterpart argued that, “Finances is the main issue; agriculture has more money than research through these various projects” (RC2#11). A research counterpart suggested that they were other factors other than funding that determined linkages. “Funding is not the only factor that affects formal linkages.

However, without enough funding, we still use formal linkages for programming with specific development organizations with whom we have signed MOU that depend on agriculture, for example SODECOTON, CDC” (RC3#11).

Other reasons for weak linkages/collaboration indicated were “lack of communication and conflict of interest” (RC3#11). RC3 further added that each stakeholder, using its strengths to its advantage and communicating such strengths to the various actors, could improve linkages. He continued that actors should have formal linkages with specific memoranda of cooperation. An extension authority confirmed, “Joint field supervision and diagnosis happened in the old days, but right now, funding issues have limited that collaboration” (EA1#11). Another extension authority highlighted the importance the World Bank played in enhancing collaboration. An extension authority pointed to the fact that, “Formerly collaboration was done through research/extension interface during the World Bank funding. This stopped when World Bank funding stopped. There was strong collaboration before, but right now I would say there is very weak or no collaboration” (EA2#10). An extension authority confirmed this statement by saying that, “right now, there is low national budget so research/extension interface has slowed down” (EA3#10).

Bad policy was a reason given for lack of collaboration especially between parallel programs and the national extension program. An agricultural authority opined that, “I think it is just bad policy. Every day, the ministry brings up new programs, but the working is not coordinated” (NWAA5#11).

Competition was suggested as one other reason for lack of collaboration between extension actors. In a development authority's opinion, "Government workers (extension workers) see NGOs as threats while parallel programs prefer NGOs because they have best output from NGOs" (SWDA1#11).

Having the ministry of research and the ministry of agriculture that houses the extension service in two separate ministries was reported by a development authority as a reason for poor collaboration between these two ministries. In his words, he said, "As long as the two ministries are under two different umbrellas, there will continue to be problems with collaboration. However, while we solicit ministerial collaboration, we also encourage interpersonal collaboration" (SWDA1#11).

Lack of competence was a reason suggested by a development authority for not collaborating with local NGOs.

We collaborate with international NGOs, but not with local NGOs. The problem with local NGOs is that many of them are not managed by people with expertise in the domain. They get the market/money and get us to do the work cheap. It is not uncommon to find a teacher creating an agricultural NGO because it is cheap to create one. (SWDA2#11)

All respondents confirmed that the government gave no support or incentives for NGOs carrying out extension work. Lack of incentives from the government to support private extension actors was confirmed by respondents to hinder collaboration of local NGOs with the government extension services (SWAA5, RC2, SWNGO1, and NWNGO). An NGO representative suggested that:

The ministry of agriculture for example in Nigeria gives incentives to NGOs to carry out extension work. Cameroon government policy makes it difficult for donors to deal directly with NGOs. The donors have to pass through the government. Most NGOs that have external donors' funds have to be recommended by the involved ministry. Because of this, activities are delayed. Sometimes the government officials have bad fate for certain NGOs.

(SWNGO1#13)

A second NGO representative opined that, "We try to avoid bureaucracy that is involved to get these arrangements because we have time limit to carry out our activities" (SWNGO2#13).

Weak government policy with no mechanism or legal framework put in place for coordinating extension activities by the private sector hinders collaboration between stakeholders (SWAA4 and NWAA3). According to an agricultural authority:

NGO collaboration is mostly personal. In effect, that should not be the way to operate. They should be working in collaboration with the ministry and the delegation. That is they should bring their package and we work together to deliver the message. Before they were involved in planning meetings, but that has not happened for a long time. (NWAA3#11)

A development authority described that:

Government has a role to coordinate, and collaborate to enhance extension rather than trying to carry out every activity. We see NGOs as major collaborators and partners. We prefer NGOs because they are more efficient and they will actually

carry out activities and be paid later, but the government partners will not do any work if they do not have monetary incentive given them forefront/upfront.

(SWDA1#11)

Common interest and goals/motives between NGOs enhances their collaboration.

An NGO representative affirmed that:

Yes, we have some networks within which we collaborate; South West Civil Society Network. In the field we share experiences and benefit from field experiences of other NGOs that worked in those localities. They help for sensitization programs. We could also share resource persons and also the carrying out of activities. (SWNGO2#10)

Parallel/Support Programs

Parallel/support programs also emerged as a theme that brought differences to the extension program or affected the sustainability of the extension program. There were divided opinions about parallel programs. Some respondents perceived the programs as good for the extension program while other respondents thought that the parallel programs did not serve to strengthen the extension program. In a development authority's view, "parallel programs were instituted to strengthen the agricultural sector and extension services" (SWDA1#12), and "are very good" according to an agricultural authority's opinion, "because the maize program, for example, provided two tons of planting maize free of charge to farmers in my zone" (NWAA4#12). A representative of a parallel program narrated that:

The parallel programs were initiated at the level of the ministry of agriculture to reduce broad based extension practiced by the national extension program and target specific crops because they wanted real results. The different parallel programs look at extension using a value chain approach. Specialists from the ministry are used to run these programs. (NWPP2#12)

The national agricultural competitive program (PACA) and the PNVRA program both practice general extension. A parallel program representative confirmed that parallel programs were good because they carried out extension activities and gave farmers grants. In his passionate words, he said:

All what the farmers get as benefits come through parallel projects. The national extension program is dormant now because the funds from the national government are not disbursed enough to continue with the usual activities of the project. The central government does nothing. PNVRA is not functional the same way it did before the World Bank funds ended. (NWPP3#12)

Some respondents like NWAA3 and NWDA1 consented that the parallel programs were supportive of the national extension program because they provided packages that enhanced the extension messages but added that the programs had some limitations. Some of the limitations mentioned were, “The assistance for farmers does not come in a timely manner. Seeds and grants come after the farming seasons and those grants sometimes are not used for the purposes for which it is meant” (NWAA3#12). The respondent continued, “Parallel programs bred corruption because some of the groups that benefitted from regional projects had not competed for regional projects and

some of the projects approved from the national level were not relevant to the region”. A development authority indicated that the parallel programs would be good if people were charged with the implementation to ensure accountability. He, however, suggested that the programs lacked networking between crop growers and that some coordinators of the program abused power. He mused that, “Vehicles for programs are used for personal business” (NWDA1#12).

Some respondents did not think the parallel programs were supportive of or strengthened the extension program. An extension authority did not think the parallel programs were really supporting the extension program in any way. In her opinion:

If we have or want other projects to exist, we should not have ZEWs (extension agents) working in that same area. Human resources are poorly managed. We find the projects and the national extension program using the same person.

Every project comes with its way of functioning and funding. The state would have the same results from three different persons or projects for the same farmer and most often, some other locations of farmers are left unattended to. (EA3#12)

Other agricultural authorities who did not think too well of the parallel program had similar views to the extension authorities. They suggested that funding bodies dictate parallel programs running (NWAA1, NWAA2, and NWAA5). The above respondents also added that the programs would be more efficient if they were managed by the extension service and not as separate entities. According to NWAA1#12:

The extension program should house all these programs, but policy does not allow it...If the extension program carried out these programs, it would be more

efficient. The ideal is that one structured extension program should be handling all of these components.”

Some of the authorities reported that these programs used the national extension program to carry out their activities (NWAA1, NWAA2, NWAA5, and NWPP1), but still functioned as different entities because they did not report to the extension service. A seemingly annoyed agricultural authority that coordinates extension activities narrated that:

They (Parallel Programs) have their own channel of reporting. They report to the ministry of agriculture directly. If you ask me how many tons of improved materials have been distributed I would not tell you. The extension service does not even know what they do in the field. Extension laid the foundation for these programs. These programs use the ZEWs (zonal extension agents) to get to farmers. And when they get to the farmers, the farmers now pay more attention to the program representatives than the ZEWs because they have inputs and tools to offer. (NWAA5#12)

Summary

Stakeholders indicated that the differences from the past and present extension program resulted from funding and management, program sustainability, parallel programs, and collaboration and linkages. The extension program is not sustainable because the vision of sustainability was not incorporated from the inception of the program. There is the culture of dependence on foreign donor funding with little national government commitment to fund agriculture and extension activities. Money generated

from agriculture is invested in other sectors. Management has not been able to effectively address the decentralization of the extension services. Decentralization has its limitations. It leads to managerial challenges with unfavorable disbursement methods of funds to the regions and encourages corruption. Funds are disbursed irregularly with frequent cuts as kickbacks before it get to the regions. While parallel program employees, research counterparts and some agriculture authorities perceived parallel programs as strengthening the extension program, on the other hand, extension agents, extension authorities and some agriculture authorities thought the programs were not really strengthening the extension program. Coordination and collaboration between the national extension program and other actors was a challenge. Bureaucracy hinders collaboration between NGOs and the national extension program. Funding hinders collaboration between research and the extension program. The national extension program collaborates more with international NGOs than with the local NGOs. Local NGOs reported having more collaboration with research and the university and even better collaboration with other local NGOs. Local NGOs collaborate with supervising development authorities through the execution of activities subcontracted to them. Some development authorities did not collaborate with local NGOs because they perceived they lacked competences. However, parallel programs preferred using local NGOs for their trainings because they were perceived to be more effective and efficient. Other reasons for lack of collaboration include poor communication, conflict of interest, bad government policy, competition, lack of competence, and lack of government incentives

to support private actors involved in the agricultural information system. Common goals, interests, and human relationships fostered collaboration and linkages.

Objective Four: Improving Extension Programs for Functionality and Sustainability

Respondents were asked about their opinion on how to ensure sustainability of the national extension program and extension services as a whole. Four main themes emerged: 1) government investment, 2) training, 3) market incentives, and 4) management (Appendix 6). The majority of respondents opined that subsidizing inputs for farmers by the government would be the most important step to take. This way, farmers could afford inputs and increase production. They added that if inputs were subsidized, every farmer would benefit rather than the few who received grants. This would also curb the problem of conflict, transparency and corruption that emanates from grant distribution.

The Government should ensure fertilizers are distributed as sent to ensure transparency. Subventions come from Yaoundé for specific groups in the region that the delegate is not aware of. Two million francs each is given for groups; 40% for trainings and 60% for materials. This is a public investment budget that the government gives out to communities, but not all farmers benefit. The best is to subsidize inputs so all farmers can benefit. (NWFL4#8)

According to an extension authority, “The government should subsidize inputs instead of giving free inputs to farmers” (EA1#8). A research counterpart said, “The

government provides politically motivated gifts like inputs to a handful of farmers, but that is not sustainable. I think this is a bad idea; the best is to subsidize cost of inputs so all farmers can benefit” (RC3#9). An extension agent however still suggested that incentives be given to farmers (SWZEA3).

More council and private sector engagement with extension functioning were also advocated for (SWFL10, SWAA2, NWAA2, NWZEA4, and SWNGO1). Respondents suggested that the program should be structurally reorganized to involve council sponsorship of extension activities with the private sector empowered to take active part in extension activities. “Councils should sponsor more of extension activities” (NWFL10#9). “The government structure should not be entirely responsible for extension; it should encourage and empower cooperatives. An intensive monitoring program should be put in place” (SWNGO1#8).

Markets and a price standardization system were considered very critical in ensuring the sustainability of extension programs. Farmers opined that they needed markets and standard prices for their produce (NWFL1, SWFL9, SWFL7, SWFL5, and SWNGO2) and that could be achieved by reinstating production and marketing board cooperatives and the farmers bank (SWAA2, NWPP2, and NWAA1). According to a farmer, a good program would be “One that encourages and institutes processing cooperatives like we had before. We did not worry about marketing 20 years ago when we had the marketing board” (NWFL1#8). Another farmer explained that, “The most important thing for me is the market. We toil and sell food cheap; meanwhile every other commodity in the market is expensive. We don’t have enough buyers coming to the

village markets all the time” (NWFL5#8). According to an NGO representative, “the government should empower the cooperatives and just monitor their activities (SWNGO1#8).

Rural infrastructure development was considered an important factor that affected farmers. Poor farm to market roads resulted to waste due to inaccessibility to markets and lack of transportation for extension personnel hindered extension work (SWFL9, SWFL7, SWFL5, SWAA6, and SWNGO2). We will pay for extension services “if waste of our produce is reduced by improving on the transportation services” (SWFL5# 9). “Divisional delegates need to be equipped with vehicles, without which I will stay in my office and write my reports” (SWAA6#9).

Respondents also indicated that the government should provide adequate funding for agricultural extension services, and disburse funds for the program in a timely manner. That way, extension agent allowances and risk allowances can be paid on time (SWZEA6, NWAA2, SWAA1, SWAA6, SWAA5, EA3, SWNGO2, NWAA5, NWDA1, and RC3). In respondents words, the government should “prioritize extension and fund adequately and in a timely manner” (RC1#8), “improve on cash flow and managerial skills” (EA3#8), “revamp research and invest in technology to add value” (NWPP2#8). The respondents wanted to see more commitment on the part of the government to fund extension services and research (EA2, NWAA5, and RC1) and that “funds should be disbursed as cash and not in impress or carton form” (EA2#8) At the same time agriculture authorities indicated that there was need for an attitude change from depending on external donors for funding to use of government support resources (RC2

and NWAA3). Respondents suggested that the system could be self-generating by encouraging locally produced seeds (RC4), instituting medium and large-scale farmers to pay for extension services (NWAA5 and NWZEA3) or have “all farmers pay a small token for extension services” according to an NGO representative (NWNGO#9). Another suggestion was that, “an agricultural tax should be instituted for all workers” (NWZEA2#9).

Certain respondents (SWZEA1, SWAA6, RC1, NWDA1, SWZEA4, and NWAA1) suggested training of farmers and extension agents on innovations. Respondents suggested that reinstating demonstrations farms and community development (SWAA1, SWAA4, and SWNGO2) could reinforce farmers’ capacities. Extension could also be paid through “Training of Trainer lead farmers” (SWFL10#9, SWFL2#9, and SWFL9 #9), use of farmer groups, and “recruiting more staff to strengthen the extension program for sustainability” (SWNGO2#8).

Improved linkages and collaboration was indicated as critical to ensure sustainability of the extension program. Respondents suggested links between research and agriculture be strengthened (SWAA1) and if possible, the two ministries should be lumped into one ministry with synergies created between intervening structures (SWDA1, RC1, and RC4). “Agricultural research and extension should be lumped under the same ministry for efficiency and work under different departments” SWDA1#8. It was also stressed that intervening extension programs be consolidated to avoid duplication (EA3, NWDA1). “Consolidate programs carrying out extension activities to reduce duplication of efforts; sustainability is mainly due to political priority” (EA3#8).

Another important issue raised by an extension authority was that extension strengthening bodies should supervise and collaborate with the extension program rather than carry out extension activities. “Extension strengthening bodies like SOWEDA, RUMPI, MIDENO, and GPDERUDEP should supervise and collaborate with PNVRA (national extension program) and not implement extension activities” (EA1#8).

The practice of innovative agriculture is critical to extension sustainability. Mechanized agriculture with focus on large-scale farmers was suggested as one solution to sustainability (SWAA5, NWAA1, and NWAA4). Postharvest technologies with emphasis on added value and the introduction of high value crops were suggested as other options that could render the program sustainable (SWFL9, SWFL7, SWFL5, SWAA4, SWAA5, and NWPP2). An agricultural authority opined that the extension program could only be sustainable if a holistic approach was used. “Extension can be paid for if it is made holistic. If check and balances reveal farmers can reap benefits, they will pay for the services” (NWAA4#9).

The majority of respondents indicated that small-scale farmers would be unable to pay for extension services because they were mainly subsistence farmers (SWAA3, SWAA5, SWAA6, SWNGO2, RC1, RC3, NWAA1, NWAA2, NWAA3, NWAA5, NWZEA3, NWDA2, NWFL1, NWFL4, NWFL6, NWFL8, and NWFL9). However, they affirmed that medium and large-scale farmers would be able to pay for extension services. According to an agricultural authority:

Certain category of farmers can pay for extension services and it all depends on the value they perceive they will gain from paying for these services. Some

proactive farmers would pay. Average farm size for many farmers is about 1/2 hectare. Non-natives are more active in extension activities than the indigenes. Big farmers can pay for extension, but small farmers should still be supported by the national extension for all trainings... The private sector works with big farmers. Extension should still support small farmers. Medium and large farmers should pay for extension services. (SWAA2#9)

Most small-scale farmers indicated they would not pay for extension services because inputs were not subsidized, I will not pay because “the knowledge given to me is not supported by subsidized inputs” (NWFL1#9), “production mechanism is not organized; no markets and standard prices” (NWFL4#9), “the price of coffee is low; I do not have government support” (NWFL8#9).

On the other hand, other respondents, including farmer leaders, indicated that farmers would pay for extension services depending on the perceived benefits (NWZEA3, NWNGO, SWFL7, SWFL7, SWFL5, SWFL3, SWFL4, SWFL6, all SWZEAs, SWAA2, SWAA4, SWDA2, SWNGO1, SWNGO2, EA3, NWAA4, NWZEA2, NWZEA4, NWFL3, and NWFL5). “I will pay to gain knowledge to increase my production” (NWFL3#9). “I will pay to improve on my yields and would only do so if inputs are subsidized” (NWFL5#9). Extension agents asserted that crop type and hectares of farmland would influence farmers’ willingness to pay for extension services. They indicate that farmers who produce cash crops and had farm holdings above five hectares would pay for extension services.

Policy change through increased investment in agriculture and prioritizing extension functioning (SWAA1, RC1, NWAA1, and EA3), revamping research (NWPP2), improvement on financial and managerial skills (RC2 and EA3) and establishing a rigorous monitoring and evaluation system (SWNGO1 and RC1) were policy options that were suggested for the government to initiate.

Summary

Subsidized input for the benefit of all farmers was suggested as a major step towards ensuring sustainability of the extension program. More council and the private sector engagement with extension functioning were advocated for. Markets incentives through a price standardization system to protect farmers and the establishment of marketing boards were also suggested as options to make the extension program sustainable. Rural infrastructure development was important to facilitate transportation of produce from the farm to markets. Training of farmers and extension agents on innovative agriculture, enhanced collaboration and linkages to consolidate activities were a necessity to sustainability and would avoid duplication of efforts. Respondents however indicated sustainability could only be achieved if a good government policy is in place to address these issues. Finally, sustainability can only be achieved if a system is self-generating. Although most respondents across all groups indicate that small farmers would not be able to pay for extension services, a few others suggested every farmer should pay a token, and they asserted that small farmers would pay for extension services if they perceived the benefits of doing so. Most small farmers indicated they would not pay for extension services because they had no markets, standardized markets

prices and no subsidized inputs to increase production. Some farmers indicated they would pay to gain knowledge to increase production provided inputs were subsidized and there were market incentives in place. The popular opinion was that medium-scale and large-scale farmers should pay for extension services, while the national extension program should still cater for small-scale farmers.

Objective Five: Similarities and Differences between the two Regions

Farmers in the South West region owned both food crops: cassava, plantains, yams, and maize and cash crops: palms, cocoa, rubber farms while those in the North West region owned mostly food crop farms: plantains, maize, beans, cassava, potato. Only one North West farmer leader owned coffee as a cash crop. The farm sizes in the South West region were also larger than those of the North West region. The South West region has more fertile soils than the North West Region. The South West region is the nearest neighboring region to the economic capital and has comparative advantage to nearness to markets to the economic capital and to the neighboring regional markets from Equatorial Guinea, Nigeria, and Gabon.

All South West Region farmer leaders agreed they would pay for extension services, but proceeded to elaborate that certain conditions had to be met for them to do so; standardized market prices and infrastructure or “facilities for storing excesses” (SWFL7#9), “improved postharvest technology, and transportation infrastructure” (SWFL5#9), subsidize inputs and markets(SWFL3, SWFL4, and SWFL6). A farmer leader said:

Yes, we can pay for extension services provided there are standard prices for produce so we can make gains from our produce and pay for extension services.

We were encouraged to plant palms and depend on the market for profits. The government should provide a means of storing excesses and standardize prices so we (farmers) have reasonable prices for our produce. (SWFL7#9)

Subsidized input was a general demand by all the farmers. A farmer leader (SWFL3#9) argued that:

I will pay for extension services if the government cuts down on input prices drastically. The high prices of inputs reduce our profits. Our yields still stay low because we cannot afford fertilizers. The councils collect 100 FRS (\$0.25) for every one bunch of plantain and 200 FRS (\$0.50) per bag of garri. We do not see what the council does with the money. Our farm roads are still inaccessible.

The South West farmers suggested the councils should contribute to extension running and functioning, government should reduce tax on farm inputs, and train farmers through training of trainer (TOT) lead farmers (SWFL2, SWFL9, and SWFL10). All the extension agents of the SW region agreed that most of their farmers would pay for extension services if it were an emergency for them. They stressed that small farmers might not be able to pay for extension services, but the large farmers were capable and could pay for extension services.

On the other hand, the majority of the farmer leaders from the North West Region objected to the payment for extension services. The few who consented to fee for extension services said they would do so because they want to gain knowledge to

increase yields. These were farmers with large farm holdings. “I will pay for extension services to gain knowledge to increase my production” (NWFL3#9), “I will pay to increase my yields if inputs are subsidized” (NWFL5#9). The majority of North West farmer leaders who dissented from the idea of paying for extension services gave the following reasons: “knowledge is not complemented with subsidized inputs” (NWFL1#9), “the production mechanism is not organized” (NWFL4#9), no markets, and standard prices and low yields (NWFL4 and NWFL6). “I will not pay because the price of coffee is low and I do not have government support” (NWFL8#9), “I will not pay because the prices for produce are irregular and production is low because of no fertilizer use. The prices of fertilizers are too high for me to afford” (NWFL9#9).

All South West extension agents agreed that their small-scale farmers might not be able to pay for extension services, but the large-scale farmers were capable and could pay for extension services. This was a reverse trend with the North West extension agents where most of them indicated that their farmers were incapable of paying for extension services. The majority of agricultural authorities especially those from the North West region, research counterparts including one development authority from the North West region and an extension agent indicated that farmers’ especially small farmers would be unable to pay for extension services for the following reasons: most of the farmers were subsistence farmers producing food crops and not cash crops (SWAA5, NWAA1, NWAA5, NWAA3, RC1, RC3, NWZEA3, and NWDA2), extension service delivery is a social responsibility (SWAA6 and NWAA1), “privatization is a western concept” (RC3), inputs are not subsidized (SWAA3 and SWAA6). Although

respondents indicated that small farmers could not pay for extension services, they indicated that there is a trend that extension services would eventually be paid for in the future because the government would not be able to single handedly provide extension services to the entire public. The government is gradually taking consideration of this fact by, “encouraging farmers to take up farming as a business and embark on large-scale production” (RC1#15). They also added that small farmers could pay for extension services if inputs were subsidized and farmers had good farm to market roads (SWAA3, RC3, and SWAA6).

All the NGO authorities from both regions, a majority of extension authorities, a small number of agricultural authorities and some extension agents consented that farmers could pay for extension services (SWNGO1, SWNGO2, NWNGO, EA1, EA3, SWAA2, SWAA4, NWAA4, and NWZEA2). The majority of these respondents indicated that extension services should be paid by all farmers (SWNGO1, NWNGO, EA3, SWAA2, SWAA4, and NWAA4) while a smaller fraction of them suggested payment should be restricted to medium and large scale farmers (SWAA2, SWNGO2, EA1, and NWZEA2). The following were conditions suggested that would enable farmers pay for extension services; strengthening of producer organizations (PO) using FFS and providing an enabling environment for cooperatives functioning, agriculture made profitable through market access, farmers are protected, inputs are subsidized, perceived benefit from technology, education on the need to pay, large-scale production, proper coordination and use of a holistic approach (encompassing the value chain).

An agricultural authority indicated that strengthening producer organizations through farmer field schools (FFS) was a way that could facilitate farmers' payment of extension services. "Farmers will pay if they have an enabling environment that allows the self-sustenance of cooperatives that have educational components" (SWAA4#9). It was not clear if the FFS approach was being practiced by the national extension service, but this was the approach used by other NGOs (STCP) to implement their activities in the communities. An NGO representative stressed the need for all beneficiaries of the extension service to contribute a small amount to the service (NWNGO). Other NGOs suggested that if farmers were educated on the need for payment and had a good agricultural business plan, they would pay for the extension services (SWNGO1 and SWNGO2), but most of all, government had to subsidize inputs and protect the farmers by regularizing prices for profitability (SWAA2, SWDA2, SWNGO1, EA3, NWZEA4, and NWAA4).

In both regions, the authorities faced challenges in coordinating collaboration of extension agents with local NGOs. Extension agents from both regions engaged in personal collaboration with the NGOs because they had private incentives to do so.

Summary

Both the North West and South West Regions of Cameroon grow food crops. However, most of the cash crops in Cameroon are grown in the South West region. The farmers of the South West region had both food and cash crop farms. This is a contrasting situation with the North West region where farmers predominantly grow food crops. Only one farmer leader from the North West region grew coffee as a cash crop.

The South West region was also situated close to the economic capital and this gave it comparative advantage to accessibility to markets over the North West region. The extension agents of the South West region assessed their farmers as being capable of paying for extension services while the extension agents of the North West accessed their farmers as being incapable of paying for extension services for the most part. South West farmers for the most part indicated they would pay for extension services if they had farm inputs subsidized, markets for their produce and adequate transportation infrastructure, and post-harvest and added value technologies facilities in place. North West farmers predominantly rejected the idea of paying a fee for extension services because they had low yields, no markets, and transformation technologies. Perceived benefits, crop type and farm size were indicated as factors that will foster payment of extension services. The researcher observed that the comparative advantage of neighboring markets from the economic capital is also a reason why South West region farmers would also be more willing to pay for extension services than their North West region counterparts. Both regions faced collaboration challenges with NGOs. The extension agents in both regions engaged in collaboration with NGOs most of the time for personal reasons. The extension and agriculture hierarchy in both regions however preferred institutional collaboration with NGOs that would foster harmony in activities and the accountability of extension agents.

Objective Six: Fitness of Extension Characteristics to the Frame Conditions

Birner et al. (2006) defined frame conditions and characteristics of agricultural advisory services as follows:

Frame Conditions: These are variables that policy makers or advisory service managers can influence only indirectly or that are beyond their influence. These include policy environment, capacity of potential service providers, farming systems and market access, and community aspects

Characteristics of Agricultural Advisory Services (Choice Variable): Policy makers and advisory service managers can directly influence these characteristics. These include governance structures (role of public private sector in financing and providing extension services, level of decentralization, and partnership/linkages), capacity and management, and advisory methods.

The SWOT analysis revealed that the frame conditions were not matched most often by the advisory services characteristics. All extension and agriculture authorities indicated that there was no extension policy in place and no legal framework for coordinating extension activities. “There is an agricultural policy that I know of, but not an extension one. PNVRA was a program that was executing extension” (CR3#1). “We have an agricultural policy, but not an extension policy. There are no reforms. The status quo has been maintained” (EA1#16). The function of the extension program is still questionable from the following testimony of an agricultural authority, “The poverty reduction strategy paper was developed, but never addressed by the national extension program. It was developed when extension was collapsing, but other programs are trying

to implement the problems in the paper” (SWAA1#16). The research perceived and observed that there was no extension structure or legal framework managing the extension activities of Cameroon as a whole. This is one reason why, when external funding ends, activities of the program also crumble. In addition, IFAD reports indicated that in Cameroon, no formal structure exists for coordination and collaboration among donors in agricultural and rural development (IFAD, 2007).

The frame conditions revealed that extension services were provided by the state for the greater part and NGOs as complimentary organizations. The private sectors were mostly business oriented agrochemical industries. The farming system was predominantly mixed cropping with the majority of the farmers producing food crops (corn, cassava, plantains, yams, potatoes, rice, and beans) on the same plots and a few farmers producing cash crops (cocoa, palms, and coffee) and large-scale producers practicing mono-cropping of cash crops. Access to inputs, markets and extension services were limited. The extension agents had general knowledge of every crop, but had no expertise in any given crop type to match the mixed cropping farming system type.

Concerning community aspects, a majority of farmers were small-scale farmers possessing less than two hectares of farmland. A majority of older farmers of age 50 years and above had no primary education. Farmers between 30 and 50 years old had primary level education and most of those above 20 years to 30 years had high school education with a few college graduates amongst them.

The extension service characteristics revealed the government funded and provided the bulk of advisory services to the public. International NGOs sourced funding from external donors. Some local NGOs were subcontracted extension activities by the government. The national extension program was decentralized structurally, but was still centrally controlled from the national level through the ministry of agriculture. Collaboration and linkages between agricultural research, higher education, parallel programs and the university were very weak.

Capacity and management indicated competent staffs that were aged above 45 years. The majority of the agriculture administrators or authorities had agriculture or agricultural related first degrees. A few others had master's degrees and doctoral degrees. Extension agents were staffs with a diploma from the agricultural school or secondary school leavers who had worked with the extension service and gained experience over the years. There were limited or no training programs to build the capacities of the national extension employees' competences on current extension innovations. No provisions were allocated for that purpose. There is no policy in place to encourage formal training nor are there any training opportunities to encourage extension staffs for further studies. The extension personnel were also not motivated to work given poor working conditions that include logistics and infrastructure. Insignificant employment had taken place over the past two decades meanwhile most staffs are programmed to retire within the next five years. Some extension staffs had also left to other ministries with better work conditions and opportunities.

A high ratio of farmers to extension agent was reported. For that reason, group methods for transferring technologies were used. The researcher did not delve into the specificity of educational content and technologies used, but the extension methods were reported to employ the orientation of adult education.

The frame conditions were not an appropriate fit for the characteristics of the services. The performance of the quality of the services provided were judged as inadequate given complaints by farmers that indicated they needed new technologies that added value which they were not getting, feedback was a major setback, providing information and technologies on time was a big challenge, disbursement of working funds to the regions from the ministry of agriculture was also a major challenge. No allowance was made to target specific groups with extension information. The effectiveness and efficiency of the program were constrained by mismanagement, funding amounts, and disbursement methods of funds. Extension agents' complained of lack of in-service trainings.

The performance of the quality of the extension services provided could also be enhanced by the improving the feedback and link between the extension service, agricultural research, agricultural education (university) and other agricultural information system actors like NGOs, and the private sector. Although these various actors are present in the field, collaboration and linkages between them was limited and observed to be uncoordinated for the most part.

Chapter Summary

Eighteen themes emerged from the SWOT analysis. The respondents identified education, collaboration and linkages, productivity, decentralized program structure, and infrastructure as strengths of the National Agricultural Extension and Research Program Organization in two geographical regions of Cameroon. Weaknesses were conflict and corruption, weak human resources development, collaboration and linkages, management, infrastructure, communication and feedback, governance and policy, and program sustainability. Respondents identified opportunities in markets, empowering producer organizations, institutional collaboration, enabling environment, exploiting natural and human resources, information and communication technology, and added value. Threats were perceived as climate change and diseases, conflict and corruption, program sustainability, information and communication technology, and government policy. Weaknesses emerged more frequently and with more density than the other categories. There were overlaps among themes based on personal perceptions and experiences.

Using a then-now comparison, respondents generally perceived that production, technology transfer, and staff competence were better today while infrastructure, postharvest technologies, markets, funding and management, and feedback were better in the past. Many respondents lamented, “The government staffs (extension staffs) are experienced, but again they are not result oriented” (SWNGO1#6). Respondents opined the reasons for the then-now dichotomy were program sustainability, funding issues, government policies and practices, priorities, structural issues, collaboration and

linkages, and parallel programs/project interference. When asked how to ensure sustainability of the national extension program and extension services, respondents identified government investment, training, market incentives, and management.

Although there were agronomic and demographic differences among the North West and South West regions, respondents from the South West region generally agreed to pay for result-based extension services and that subsidies were essential for profitability while a majority of farmer leaders from the North West region objected to the payment for extension services. Attitudes were associated with farm size, crop type, markets, and that extension is a social responsibility. In both regions, the authorities faced challenges in coordinating collaboration of extension agents with local NGOs. Extension agents generally engaged in personal collaboration with the NGOs because they had financial incentives.

Through data analysis, the findings provided a basis for drawing conclusions, determining implications, and making recommendations for a best-fit model to guide the National Agricultural Extension Program Organization in Cameroon.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter summarizes research related to strengths, weaknesses, opportunities, and threats to the agricultural extension program organization in the Republic of Cameroon. The purpose was to determine the functionality of extension programs with implications for sustainability and a best-fit model. The chapter presents the research problem, a summary of methodology, a summary of findings, along with conclusions, implications, and recommendations for policies and practices.

Statement of the Problem

Agriculture is crucial to the economic and social wellbeing of the Republic of Cameroon. The agricultural sector is a primary source of income to about 70 percent of the population, 13.8 million people, in Cameroon and contributes about 20 percent of the country's GDP while industry reports 31 percent and services account for 39 percent of the composition by sector (Central Intelligence Agency [CIA], 2012). Cameroon is one of few sub-Saharan African nations with substantial potential for growth, profitability, and sustainability in the agriculture sector (Dewbre & Borot de Battisti, 2008). The country has one of the best endowed primary commodity economies in sub-Saharan Africa, but it faces many problems that confront developing countries; the public service provider sector is the primary source of information and resources critical to small holders (Spielman et al., 2008; Rivera, 2006). Given such challenges, Cameroon vowed

to reduce poverty to 25 percent by 2015 from 53 percent in 1990. The pledge is far from being achieved (IFAD, 2007).

Although scientific and technological improvements are needed throughout the value-chain, the development of human capital, associated with agriculture through advisory/extension service delivery, has been shown to be an effective catalyst for sustainable growth (World Bank, 2000; Allahyari, 2009). Today, extension services encompass more than the transfer of knowledge and skills. It involves not only planning with the beneficiaries and involving them in the decision making process, but also linking them to markets and value-added processes (Franz et al., 2009; Singh, 2000; Swanson & Rajalahti, 2010).

In the same light of extension reform discourse, Birner et al. (2006) posited, “The last global consultation on agricultural advisory services was conducted by FAO in 1989 and has not been updated since” (p. 38). These authors noted that current reported data were often merely estimates of extension’s performance and tend to contain many discrepancies. However, from a recent FAO consultation workshop on market-oriented agricultural extension with several Asian countries, Kahan and Singh (2011) recommended, “Capacity building programs of extension workers at all levels were recognized as being urgently needed (p. 30).

Following budgetary constraints and world demand for extension reforms, public extension systems are faced with the challenge of efficient service delivery and managing equitable programs (Rivera & Cary, 1997). The absence of literature on the performance of the national extension service in Cameroon hinders the knowledge base

on what reforms might be made to improve the functioning of the extension service. This research intended to fill partially that gap. This research contributed to the policy reforms needed and partially filled the knowledge gap of extension performance in Cameroon.

Purpose and Objectives of the Study

The purpose of the study was to examine, in collaboration with the various stakeholders involved with the agricultural extension sector in Cameroon, the strengths, the weaknesses, the opportunities, and the threats (SWOT) that exist in the current national extension program to determine how the functionality of the program can be made better for sustainability in the South West and North West regions. The research objectives addressed the following questions:

1. What were/are the strengths, weaknesses, opportunities, and threats (SWOT) of the past/current national extension program services?
2. How do the present (2011) conditions of Cameroon food, agricultural, and environmental sector compare to the last 10 or 15 years? Is “today” better than “yesterday?”
3. What are the reasons for the difference between extension services in the past and in the present?
4. How can the functionality of the extension program be made better for sustainability?

5. What are the similarities and differences between the two regions compared?
6. Do the current agricultural extension service characteristics compare or best fit the frame conditions according to the framework developed by IFPRI researchers?

Summary of Methods

Type of Research and Conceptual Framework

A comparative case study design in a naturalistic qualitative environment satisfied the requirements and restrictions regarding the content and scope of the problem and data collection. The intention was to analyze the performance and functionality of the national extension program services in the North West and South West regions of Cameroon. The research used the program theory conceptual framework (Chen, 2005) and the International Food Policy Research Institute (IFPRI) conceptual framework developed by Birner et al. (2006) as guiding frameworks. This inquiry used a principal evaluation tool delimited by strengths, weakness, opportunity, threat analysis (SWOT).

Population and Sample

The main criterion for selection of the heterogenous respondents/cases was that they must have had close links with the national extension program for at least a period of five years. The second criteria for respondents was that they belong to one of the following stratified four stakeholder groups: Farmer Leaders (NWFL and SWFL), Non-Governmental Organization (SWNGO and NWNGO), Extension Representatives (EA,

NWZEA and SWZEA) and Governmental Counterpart Organization Authorities from line ministries (NWAA, SWAA, RC, NWPP, NWDA and SWDA). Focus group interviews and one-on-one in-depth interviews were used as strategies to collect primary data. Fifty-nine individuals participated in this research. Four focus groups were conducted for each of the following groups: 10 NWFL, 10 SWFL, five NWFL, and six SWFL. One-on-one interviews were conducted with the remainder of the 28 stakeholders.

Trustworthiness

Lincoln and Guba (1985) suggested questions that could be asked to ensure the trustworthiness of a research endeavor is achieved that included: 1) the truth value of the findings with the context and the respondents, 2) the applicability of findings with other contexts and respondents, 3) the consistency of findings with same or similar respondents in same or similar context, and 4) the neutrality of the research that examines the degree to which the findings are not biased by the inquirer's motives, interests or perspectives. Steps to ensure trustworthiness included member checks and referential adequacy, prolonged engagement, peer debriefing, triangulation, and confirmability. Data sources used for the research included: 1) interviews (open ended and semi-structured questions with probes for clarity), 2) focus group discussions, 3) prolonged engagement and observations, 4) field notes, 5) reflexive journaling, 6) various program documentations and national data archives, and 7) written publications on the phenomenon under investigation. An audit trail was used to ensure confirmability of the research findings.

Data Collection

The researcher was the main instrument for data collection and she followed the rules of active interviewing suggested by Holstein and Gubrium (1995), Seidman (1998) and Yin (2009) to enhance the research. Data collection for this research was carried out during a nine weeks period (June 21, 2011 to August 23, 2011). Primary data were collected from respondents in the Mezam division of the North West region, the Fako division of the South West region, collaborators in line ministries and national extension program representatives of the national office both based in Yaoundé in the Center region.

Data were collected in conformity with Texas A&M University Institutional Review Board (IRB) research guidelines. An interview protocol comprising 16 questions (Appendix 2) was used to guide the interview process. Focus group formation and facilitation of discussions was done following guidelines specified by Morgan (1988) and Stewart and Shamdasani (1990). The focus group discussions each lasted between 100 to 120 minutes while in-depth individual interviews lasted between 60 to 90 minutes.

Data Analysis

Data analysis was a continuous process even during data collection. The individual respondents were the basic units of coding used for this research. Initial transcriptions were done concurrently with data collection following Merriam's (2009) recommendations to promote the emergence of grounded theory and to adjust data collection as necessary. Steps outlined by Boyatzis (1998) for developing themes and codes were followed during the data analysis. With constant comparative method,

consistencies, patterns, emerging themes and abnormal responses or anomalies between compared unitized codes emerged (Erlandson et al., 1993; Merriam, 2009).

A further refinement of the coding process for the trustworthiness was repeated by triangulation of data sources (Merriam, 2009; Yin, 2009). Trustworthiness was enhanced by using axial and selective codes for a second analysis of overarching emerging themes and subcategories. This triangulated codes from multiple sources (cases) and multiple data collection methods (interviews, focus groups, field notes, reflexive journal, and observations) enhanced the trustworthiness of the research.

Dependability was authenticated using an audit trail and daily journal and field notes that test the credibility and trustworthiness of collected data. Credibility was confirmed by the richness of data by which multiple respondents gave equivalent realities (Lincoln & Guba, 1985). The researcher also achieved saturation of data as she analyzed the data concurrently during data collection phase.

Key Findings, Conclusions, Implications, and Recommendations

This section presents a summary of all the findings already discussed, the conclusions, the implications, and the recommendations for future research.

Objective One: SWOT Analysis

Eighteen central themes emerged from the SWOT analysis: 1) education, 2) collaboration and linkages, 3) productivity, 4) decentralized program structure, 5) infrastructure, 6) conflict and corruption, 7) weak human resources development, 8)

management, 9) communication and feedback, 10) governance and policy, 11) program sustainability, 12) markets, 13) empowering producer organizations (PO), 14) enabling environment, 15) exploiting natural and human resources, 16) information and communication technology, 17) added value, and 18) climate change and diseases (Appendix 3). Similar themes were observed by Hanyani-Mlambo (2002) in a SWOT analysis of the agricultural extension system in Zimbabwe.

The five strengths identified by respondents were education, collaboration and linkages, productivity, decentralized program structure, and infrastructure. More weaknesses were identified than in the other categories. Eight weaknesses were conflict and corruption, weak human resources development, collaboration and linkages, management, infrastructure, communication and feedback, governance and policy, and program sustainability. Seven opportunities confirmed by respondents were markets, empowering producer organizations (PO), institutional collaboration, enabling environment, exploiting natural and human resources, information and communication technology, and added value. Five threats proposed were climate change and diseases, conflict and corruption, program sustainability, information and communication technology (ICT), and governance and policy. Five central themes had overlaps in the analysis. Respondents confounded collaboration and linkages as strengths, weaknesses, and opportunities. Some respondents confounded program sustainability, governance and policy, and conflict and corruption as weaknesses and threats while ICT was proposed as an opportunity as well as a threat. The identification of ICT as a threat was

an anomaly. Morris (2005) attributed overlap in themes to variations within the context of the phenomenon and the perceived implications for the respondent.

Objective Two: Past and Current Performance of the Extension Program

For the most part, the extension program's performance and functionality were assessed by respondents to be better in the past than the present time. Agricultural productivity, infrastructure, postharvest technology, market incentives, financial sustainability, and feedback were thought to be better in the past. Infrastructure, postharvest technology, market incentives, financial sustainability, and feedback were barriers to the extension program and agricultural productivity (Appendix 4). On the other hand, staff competence gained from the previous training and visit approach and innovative technology transfer were incentives to the current program and agricultural production. These results are congruent with factors identified by Swanson and Rajalahti (2010) and NEPAD (2005) as areas necessary for the reform of the national extension systems in developing countries. Financial sustainability had limited the collaborative links between the extension program, research, and other actors.

Objective Three: Reasons for the Differences in the Program Performance

The Cameroon extension program was more sustainable in the past because of external donor funding. See Appendix 5 for audit trail. Lack of sustainability of the current extension program was due to the lack of a vision for sustainability at the inception of the program, inadequate national government funding, uncoordinated

parallel program, and perceived poor management. These findings are congruent with Spence et al. (2011) assertion from sustainability studies in Cameroon, Tunisia, and Canada that the context of Cameroon is less supportive of sustainable development and does not provide incentives to promote firms' involvement in sustainable development. Decentralized management was a challenge for the extension program, especially as related to fund management.

Respondents reported that inadequate funding had affected collaboration between various actors negatively to the detriment of the program. Respondents generally perceived weak collaboration between extension and research. The extension program did not collaborate with NGOs because they did not have stock of their activities. However, extension program collaboration was mostly with international NGOs. Development organizations collaborated with NGOs through subcontracting of extension activities. NGOs had better collaboration with research and the university than extension and even better collaboration with other fellow NGOs. While some development authorities preferred working with NGOs because of their effectiveness and efficiency, other development authorities asserted that they did not like working with local NGOs because they lacked competence. The opinions on parallel program effects on the extension program were divided. Some respondents indicated that the programs were beneficial to the functioning of the extension program because it provided grants to farmers to compliment extension information. Other respondents perceived parallel programs to be detrimental to the extension program, saying it

weakened the extension program because there was no coordination of activities between the two programs and resulted in the duplication of efforts.

Apart from funding, other reasons explaining a lack of collaboration were lack of communication, conflict of interest, bad policy, competition, lack of competences, bureaucracy, and lack of government incentives to encourage other extension actors. Fadeeva (2004) noted that most of these factors hindered collaboration.

Common goals, interests, and human relationships fostered collaboration between the actors. Such collaboration could foster the creation of new ideas, better resource allocation and use, expand empowerment and greater accountability, and improve the efficiency and effectiveness of natural and human resources management posits Fadeeva (2004).

Objective Four: Improving the Functionality of the Program

Suggestions by respondents for improving the program centered around four main themes 1) government investment, 2) trainings, 3) market incentives, and 4) management (Appendix 6). To improve the program performance and functionality, subsidized input for the benefit of all farmers was suggested as a major step toward attaining that goal. More council and the private sector involvement and engagement with extension functioning were advocated. Markets incentives through a price standardization system to protect farmers and the establishment of marketing boards were also suggested as options to make the extension program sustainable. Rural infrastructure developments to facilitate transportation from the farm to markets, training

of farmers and extension agents on innovative agriculture, enhanced collaboration, and linkages to consolidate activities to avoid duplication of efforts were also indicated as critical to enhance sustainability. Respondents, however, indicated sustainability could be achieved only if a good government policy is in place to address these issues.

Respondents affirmed that sustainability could be achieved only if programs were self-generating. Although most respondents across all groups indicated that small farmers would not be able to pay for extension services, a few thought every farmer should pay a token asserting that small farmers would pay for extension services if they perceived the benefits of doing so. Most small farmers indicated they would not pay for extension services because they had no markets, standardized markets prices, and no subsidized inputs to increase production. This finding is in congruence with Alonge's (2003) studies on farmers' willingness in Nigeria to pay for extension services that revealed adamant opposition to any plan to commercialize extension services even though they were willing to pay for technology and agricultural inputs. Some farmers indicated they would pay to gain knowledge to increase production provided inputs were subsidized and there were market incentives in place. These were mostly medium-scale and large-scale farmers. The popular opinion was that medium-scale and large-scale farmers should pay for extension services, while the national extension program should still cater for small-scale farmers. Similarly, these findings are congruent with Alex et al. (2004) who reported on a Chilean case study that only the better off producers had access to extension services when these were self-financed.

Objective Five: Similarities and Differences between the Two Cases Compared

The North West region and the South West region are similar in terms of food crop production, but vary in cash crop production. Only one North West farmer produced coffee as a cash crop while all South West farmers produced both food and cash crops. The South West region had a comparative advantage in market access and availability when compared to farmers in the North West region. The South West extension agents contended that their farmers were capable of paying for extension services while those of the North West region for the most part argued their farmers were incapable of paying for extension services. These assertions were confirmed by the farmers' opinions from both regions. Perceived benefits, crop type, and farm size were factors that influenced payment of extension services. The researcher assessed that comparative market advantage in the South West region could be another reason why South West farmers were more receptive to the idea of a fee based extension services. Extension agents in both regions indulged in personal collaboration with NGOs for private incentives.

Objective Six: Checking the “Fit” of Extension Service Characteristics to the Frame Conditions

The SWOT analysis revealed that the frame conditions were mismatched most often by the advisory services characteristics and would result in the poor performance of the extension program services. All extension and agriculture authorities indicated that there was no extension policy in place and no legal framework for coordinating

extension activities. This was confirmed by IFAD's assertion that no formal structure exists for coordination and collaboration among donors in agricultural and rural development (IFAD, 2007). Frame conditions revealed many private actors involved in extension activities, but there was a lack of coordination among the actors. A predominant mixed farming system existed with a few large-scale farmers and industrial producers practicing monocropping of cash crops. Access to markets and inputs was limited. Extension agents' capacity was limited to addressing general issues and concerns on every crop. Community aspects revealed that a majority of farmers were small-scale farmers possessing less than two hectares and between the ages of 30 and 50 years. A majority of older farmers above 50 years had no primary education. Farmers between 30 and 50 years old had primary level education and most of those above 20 years to 30 years had high school education with a few college graduates amongst them.

Extension service characteristics revealed the government provided the bulk of the advisory service to the public. Some NGOs were subcontracted extension activities by government development bodies, while international NGOs sourced funding from external donors. Collaboration between intervening extension actors is a major challenge. Although decentralization of the extension program was initiated, it still faces coordination and management challenges. A majority of extension staffs are older workers, mostly above 45 years with many due for retirement in the next five years. Most extension staff with supervisory positions had a college degree. A few others had master's degrees. The research counterparts had doctorate degrees in their field of expertise. Extension agents were staff with a diploma from the agricultural school,

secondary school, or high school leavers who had gained experience over the years through past in-service trainings. There was no policy provision in place to encourage formal trainings nor were there any opportunities to encourage staff for further studies. Some extension staff had gone to other ministries with better work conditions and opportunities.

Participatory group methods of technology transfer that employ adult education orientation were used to compensate for large farmer to extension agent ratio. The frame conditions were not an appropriate fit for the characteristics of the services. The performance of the quality of the services provided were judged as inadequate given complaints by farmers that indicated they needed new technologies that added value that they did have from the program. Other major challenges include feedback, providing information and technologies on time, and untimely disbursement of limited working funds to the regions from the ministry of agriculture. No allowance was made to target specific groups with extension information. The inquiry revealed that there was no formal document specifying such terms. The effectiveness and efficiency were constraints by mismanagement, funding amounts and disbursement methods of funds.

Extension agents' complained about a lack of in-service trainings. The performance of the quality of the extension services provided could be enhanced by improving feedback and linkages among the extension service, agricultural research, agricultural education (university) and other agricultural information system actors like NGOs, and the private sector. Although these various actors are present in the field, the

findings revealed that collaboration and linkages between them was limited and observed to be lacking in coordination.

Conclusions

There were overlaps with the themes proposed by respondents with some themes featured as strength, weakness and opportunity. This was the case with collaboration and linkages theme. Program sustainability, government policy, and conflict and corruption were suggested by respondents as both weaknesses and threats. Morris (2005) attributes this phenomenon of overlap in themes stemming from the inability of SWOT analysts to grasp the meaning of opportunity. Often options and catalysts are classified as opportunities. Morris indicated that threats were often identified as opportunities, but opportunities were bound by context: the problem, choice, the value, and the organizational mission and element: time constraints, sacrifice, risk, and catalyst. This might be a limitation of a SWOT analysis based on the respondent's understanding of the meaning of a SWOT analysis. Individuals have disparate perceptions and may respond differently to personal needs. However, it is important to recognize that the primary focus of a SWOT analysis is to recognize opportunities and avoid threats while weighing the organizations strengths and weaknesses.

Stakeholders were not asked to prioritize their needs but based on the extrapolated responses; stakeholder needs could be ranked according to table 5.1.

Table 5. 1.

Extrapolation of Priorities for Sustainable Extension Programs Based on Stakeholder Needs

Rank	Extension Representatives	Farmers	Government Counterpart Organizations	Non-governmental Organizations
1	Policy -Autonomous extension system	Government investment -Subsidized inputs and planting material	Government increased investment in extension and research	Government incentives to enable private sector active participation in extension
2	Funding -Increased funding and timely payment of allowances	Markets -Cooperatives -Price standardization	Subsidized inputs	Management -Collaboration and linkages
3	Management -Collaboration and linkages -Feedback -Phase out free inputs and grants	Infrastructure -Roads	Collaboration and linkages	Market incentives -Cooperatives -Fee for service -Access to land
4	Trainings -New innovations	Post-harvest technology and storage facilities	Autonomous extension body/service	
5	Subsidized inputs	Feedback	Phase out free inputs and grants	
6	Infrastructure -Office space and work logistics	Phase out free inputs and grants		

The priorities portray ranked issues in order of importance for program sustainability that include government funding of extension services with subsidized inputs as a primary concern, the establishment of an autonomous extension body that coordinates and manages extension services, markets, collaboration and linkages, infrastructure, and feedback. The most important demand was that the government funds

extension and research and establishes an extension system/body that coordinates and manages extension services. The rest of the priorities are intimately linked with funding and the lack of an autonomous extension body.

Although education was observed as strength with farmers benefitting from extension employees competences, extension agents still expressed the desire for in-service trainings especially in areas related to innovations. This finding is consistent with the recommendations of Davis (2008), Swanson and Rajalahti (2010) reformation strategies in extension program designs to address global trends. The extension agents' capacities were limited to general concerns and issues that have not been updated given limited in-service trainings. Extension agents did not have the skills to address marketing skills that was a main concern for the farmers. All respondents identified marketing as a critical concern. These findings are consistent with Kahan and Singh's (2011) recommendations for a market oriented agricultural extension that has capacity-building programs of extension workers at all levels. Lack of training on relevant issues (markets) and free inputs might be another reason why farmers did not pay much attention to extension agents, but to parallel program representatives that brought relevant trainings requested by farmers, free inputs and grants as was reported by extension agents. Similar trends were observed by Parkinson's (2009) analysis of demand driven extension in Uganda's National Agricultural Advisory Services. Parkinson reported farmers usually "select the same enterprise mainly so that they could get more inputs . . . and completely lose interest in the advisory portion" (p. 422).

One major weakness respondents raised with the program was lack of communication and feedback. Without feedback, it is impossible to know for sure if interventions are implemented appropriately and goals are attained, posits Chen (2005). A system flies blind and is bound to deteriorate and eventually die without feedback. The research observed that the program might eventually get to this point if the issue of feedback is not addressed.

Agricultural productivity was thought to have increased, but other respondents added that production was still below the potential of the country. Respondents indicated that food production had increased because there were surpluses of wasted food in rural communities. It is not sure if the waste was because of poor transportation infrastructure, a lack of value-chain processing, or because optimum production was taking place. Further research is needed to assess the real production levels of the farmers to answer these questions. Extension agents reported increased productivity with farmers who had acquired grants. That is not the case with farmers who reported poor yields because input prices were too high and inaccessible. The general agreement was that the government subsidize inputs so all farmers could afford to increase production. Another option was that agriculture should be funded so large-scale farmers (elite farmers) and youths take up farming as a business. If the country indeed intends to reduce its poverty level target by 25percent in 2015 as anticipated and eventually move away from being an agrarian nation in the near future, subsidized inputs and encouraged large-scale production would be an appropriate strategy to adopt. These findings continue to drive home NEPAD'S

demand for increased investment in agriculture by national governments of developing countries (NEPAD, 2005).

A decentralized program structure was seen as strength, but had coordination constraints, especially in terms of financial disbursement. It was suggested funds be disbursed regularly on time and as cash. A solution proposed was that funds for extension be disbursed through the national office of the national extension program that will in turn be disbursed to the regional offices to avoid corruption and kickbacks. The main contention here is that the extension program does not have an autonomous functioning body. Full decentralization will not happen if the extension service activities are run by the Ministry of Agriculture. Decentralization challenges suggested by respondents from the research findings confirm World Bank (2011) reports that decentralization efforts in Cameroon had not been achieved.

The weaknesses identified by respondents were mostly internal and were mostly managerially related. The program would be more sustainable if governing policies were put in place that prioritize extension and eliminate conflict and corruption. Developing the capacity of employees, enhancing collaboration, developing the infrastructure, and enhancing communication and feedback within the program and intervening collaborators would improve program sustainability. These suggestions are supported by Patton (1987) assertions that partnership brings new ideas and reduces rancorous conflict and competition. In his opinion, when actors work as partners, problems are treated as wholes because the wider implications of actions are considered.

With the emerging trends, markets were identified as a major opportunity that would enhance program sustainability. Available markets are an incentive for farmers to produce more, but that has to be coupled with good infrastructure development through farm to market roads to facilitate transportation of produce to markets. Added value and exploring information and communication technology were opportunities that the extension program could exploit to strengthen the program. Added value is still timidly exploited in Cameroon. Infrastructure for ICT is lacking, but given government commitment, it can be an avenue for agricultural growth.

The essence of the extension program is to empower the rural people. There are available producer organizations that the program can use to strengthen the extension program in collaboration with other intervening actors, but there has to be an enabling environment for that to happen. It was proposed by NGO respondents that the government extension service take up a more coordinating and supervisory role than trying to carry out all extension work. There can also be no efficiency and sustainability if intervening programs work in isolation. Parallel representatives noted that the programs were established to strengthen the national extension program. When asked about collaboration with the national extension program, extension authorities indicated they did not work closely as a team. The researcher observed and asserted that this is a misguided way of using resources by the national government in conjunction with agencies that fund such parallel programs. These programs would be more efficient if there was an autonomous extension body running parallel programs to complement its activities.

For a country that depends on rainfall, climate change resulting in sporadic rainfalls was a threat. Certain crop diseases had emanated for which solutions were yet to be found because of poor funding, and lack of collaboration with research. The cocoyam leaf diseases caused by the fungus *Phytophthora colocasiae* has reduced the production levels of cocoyam at an alarming rate. Cocoyam is a staple food crop for the two regions investigated and for most of Cameroon. There is need for the government to invest in research to solve such problems. In addition, diseases are not limited to crops; HIV/AIDS is a threat especially within the younger generation of farmers. Government policies would have to view extension differently, not just as a technology transfer for increased agricultural productivity, but to look at it in a holistic manner involving health related concerns, markets, and added value. These findings confirm recommendations made by proponents for extension reform (Allahyari, 2009; Franz et al., 2009; Singh, 2000; Swanson & Rajalahti, 2010).

The emergence of collaboration and linkages in the category of strength, weakness, and opportunity indicates its importance and the fact that it has both internal and external sources. This calls for collaboration between intervening external organizations (NGOs, other line ministries) and internal programs with the Ministry of Agriculture that include parallel programs. Collaboration and linkages as well as program sustainability were strained because of financial constraints. Injecting more funding in agricultural, research and extension, using the existing competences of national extension employees and including more participating stakeholders would strengthen these links for sustainability. Parallel programs that were supposedly meant to

strengthen the extension program and agricultural production were perceived as not serving that purpose by extension agents and extension authorities most especially. However, research counterparts and parallel program representatives indicated that these programs fostered agricultural production. Grants to farmers came through these parallel programs with limited farmers gaining from them. Grants were a source of conflict and corruption. Respondents indicated that these grants were politically motivated. The majority of respondents including farmer leaders indicated that grants be phased out and substituted with subsidized inputs so all farmers could benefit. The stakeholders including farmers for which both program are meant spoke in one voice; “phase out politically motivated inputs and grants and substitute with subsidized inputs so all farmers can benefit”. Malawi was able to avert famine and food insecurity and currently is a net exporter of grains because they initiated strategies like subsidized inputs to increase agricultural production

In conclusion, the findings demonstrate that there are certain interdependent elements necessary to address the proper functioning and sustainability of the extension program. These are the extension service, the private sector, research, institutional collaboration, and donor funded parallel programs. The extension program has to be managed by an autonomous extension service that runs and coordinates all support or parallel programs, collaborates and links with research and the private sector to update with current innovation trends and harmonize activities. The government has to invest in its extension program to ensure its sustainability in order to improve on the livelihood of

its rural communities. Initiated reforms would have to embrace the emergent global trends.

Implications

Contribution to Theory

Based on the analysis of the two cases involved, this research attempted to shed more light on the performance and functionality of the national extension program.

In the first instance, this research sheds light on the SWOT of the extension program, highlighting the opportunities that could be used to strengthen it. The opportunities had both internal and external sources indicating the program must reexamine its functions.

By showing that the program functioning was influenced by lack of “government vision to sustainability”, lack of government commitment for extension proper functioning, and external elements like parallel program interference, lack of adequate funding, and poor collaboration and linkages as revealed in the findings, this study revealed that SWOT analysis findings are usually affected by values, resources, and environment as proposed by Thompson (1999). The extension program management, governing policies must be reassessed for the tangibility of its values and work in an integrative manner with its external collaborators for the sustainability of the program.

The SWOT analysis revealed themes that were classified into one or more categories of strength, weakness, opportunity, and threat. Morris (2005) attributed this to a common occurrence with SWOT analysis. Morris hypothesized individuals usually

confuse options and catalysts for opportunities and because authors usually attribute strengths and weaknesses to have internal sources and threats and opportunities to external sources. The researcher's opinion is that a theme's importance and implications should be judged on the preponderance of occurrence and further inquiry initiated to ascertain why the respondent classified the said overlapping theme in various categories.

The findings reveal that fee for services would be possible only if farmers perceived the need and benefits and had incentives to do so like available subsidized input, infrastructure, markets, and postharvest and transformation technologies to add value. These findings add to knowledge and confirm Knowles, Holton III, and Swanson (2005) theory of adult education that adults will only be motivated to learn and invest in such endeavors if they had a need and perceived the benefits of doing so.

The SWOT analysis failed to identify specific levels or measure of performance of the extension program. It looked at the program in a holistic manner given stakeholder opinions. More quantitative research will be needed to complement the performance of the extension program through impact studies.

Finally, these research findings were able to fill the knowledge gap left by the last global consultations on advisory services that was conducted by FAO in 1989 as noted by Birner et al. (2006). The authors indicated that these findings were estimates of extension's performance and tend to contain many discrepancies. Current FAO consultation in market-oriented extension (Kahan & Singh, 2011) for Asian countries exists. This study incorporated a rigorous exercise that involved concerned stakeholders and presented a true picture of the extension program functioning in Cameroon.

Contribution to policy and management

Findings from this study will guide the extension program on reforming for a better functionality. The government officials will be able to use these findings to reevaluate its values and policies that champion a more sustainable extension system and the agricultural sector as a whole. The findings have indicated giving out politically motivated free input and grants is not healthy to the extension program, farmers, or the agricultural sector. It is anticipated that these finding will be used to initiate major sustainable changes that benefit the entire agricultural sector.

The findings show a need for subsidized inputs to boost the agricultural sectors. In addition, there is a perceived need for the government to provide incentives and foster an enabling environment to involve various stakeholders in the delivery of extension services. Respondents advocated an autonomous extension body manage extension activities and that more funds be allocated for research. It was suggested that the extension service and research be combined under the same ministry. It might just be the right time to initiate such policy change given the current worldwide advocated extension reforms.

The findings indicated that donor funded programs do not necessarily always address the agenda of development effort to ensure sustainability. Donor programs always envision short-term results with limited long-term implications. Examples are the parallel programs that have been used by the national government as a political tool. The question is how long will these parallel programs be funded? What proportion of the

population is targeted to leave any tangible impact? What measures are in place to ensure sustainability when the funding ends? These are further policy issues to address.

Limitations

The study was not without its limitations. This study did not include farmer leaders who had no links with the extension program. It could not be determined if such farmers had good productivity or if they perceived the national extension program to be of benefit.

The SWOT analysis fails to explain levels or measure of performance of the extension program. It looks at the program in a holistic manner given stakeholder opinions. A quantitative research to compliment the findings will be necessary to assess the impact of the extension program as a whole.

A small sample that cuts across various stakeholder groups was used for this study to get a global picture of the extension program. Additional in-depth ethnographic studies with each type of stakeholder group should be conducted in each region to get a better understanding of the national extension program. Furthermore, qualitative comparative interviews should be carried out between the different stakeholder sectors to explain differences and similarities in perceptions of the extension program.

Lastly, this research was limited in scope to the North West and South West regions of Cameroon. Being a qualitative research, these findings cannot be generalized to the national extension program because of environmental conditions, community aspects, and cultural differences in Cameroon that define the functioning and activities of the national extension program. However, given similar environmental, cultural and

community aspects, these findings could be exploited and transferred as appropriate by stakeholders.

Recommendations

1. Some respondents indicated that agricultural production was good while others thought it was below capacity. To ascertain the correct judgment on levels of agricultural production, further research would be necessary to explore the agricultural production potential of the two cases and the country as a whole.
2. There was overlap of themes with some confounding in the SWOT analysis. The researcher was not able to determine why overlap occurred. Further research would be necessary to investigate the reasons for themes overlap.
3. While a SWOT analysis provided a general overview of the performance of the program, it cannot be ruled out that the program had some impact on the society. Impact studies on the programs contribution to the communities and the society would further highlight the programs successes and failures.
4. International NGOs were not a part of the study. The extension program respondents pointed out that they had better collaboration with international NGOs than the local NGOs. The researcher did not delve into the reasons for such collaborations. Further studies will be necessary to investigate the incentives and barriers for such collaboration.
5. The respondents had divided opinion about parallel programs because there were limited collaboration and linkages between these programs and the extension

program. The researcher's opinion is that rather than have parallel programs and the extension program in the same ministry operate in the same communities without any collaboration, both programs be reviewed for sustainable functionality.

6. Given that reforms of national extension programs for most developing countries are on-going, it might be necessary for the Cameroon government to use these findings to examine its agricultural policy to implement changes that would strengthen the national extension program, agricultural production, and agricultural growth in Cameroon.

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APPENDIX 1

CONSENT FORM

*A Comparative SWOT Analysis of the National Agricultural Extension Program
Organization to Determine Best-fit Program Model: A Case Study of the North West and
South West Regions of Cameroon*

You have been requested to participate in a research study on the SWOT analysis of the national extension program to determine a best fit program model that will enhance its functionality. You were selected as a participant because you are familiar with and have had close links and an intimate understanding of the program's functioning. Close links means you have collaborated with this program in the capacity of any one of the following: farmer, zonal extension agent, extension authority, agricultural authority, research counterpart, parallel program representative, a development authority or a non-governmental organization partner. The information collected from this study will be used as part of the completion requirement for a Doctor of Philosophy dissertation at Texas A&M University by the investigator, Gwendoline Nyambi. The findings of the study would also be useful to enact reforms of the extension program.

You will receive no monetary compensation for participating in this study. Confidentiality of your person will be assured to minimize your risk of participation. Your responses will be coded and a pseudonym given to you to ensure that. No identifiers linking you to the study will be included in any published material. Only the principal investigator, Gwendoline Nyambi will have access to written and audio recorded records that will be destroyed as soon as the data are analyzed.

Your decision to participate or not to participate in this study will not jeopardize your relations with the extension program, ministry of agriculture or ministry of research in anyway. You may withdraw from this endeavor any time you so wish by contacting the principal investigator at gwendo70@neo.tamu.edu. This research has been approved by the Institutional Review Board–Human Subjects Protection Program at Texas A&M University. If you have any research related problems or questions regarding your rights as a research participant, you can contact these offices at (979)458-4067 or irb@tamu.edu.

Please be sure you have read the above information, asked questions and received answers to your satisfaction. You will be given a copy of the consent form for your records. By signing this document, you consent to participate in this study.

.....I agree to be audio recorded.

.....I do not agree to be audio recorded.

Signature of participant:Date:.....

Participant Name.....Date.....

Signature of Person Obtaining Consent FormDate:

Printed Name.....

APPENDIX 2

INTERVIEW GUIDE

Demographic information

- What is your name?
- What is your level of education?
- Does your main income come from agriculture?
- Are you the head of household in your family?
- What is your current job title?
- How long have you had links with extension services and the extension program?
- What type of links do you have with extension services?
- What is the mission of your organization/ farmer group?
- What extension programs have you participated in?

Protocol Questions

1. What are the strengths of the extension program
2. What are the weaknesses of the extension program?
3. What are the opportunities that the extension program can exploit?
4. What are the threats to the extension program?
5. How would you describe the present 2011 conditions of Cameroon food and agricultural sector?

6. How do extension activities today compare to the past 10 – 15 years? What are the reasons for the difference? Is today better than yesterday?
7. What are the reasons for lack of sustainability?
8. How can we reform to ensure the sustainability of the extension program?
9. Sustainability of the extension program is a big challenge currently. Can farmers/beneficiaries pay for extension services?
10. How is the collaboration between the extension program and the various actors involved in extension delivery?
11. Are there any reasons for lack of collaboration?
12. What are your perceptions about parallel/support programs?
13. What are the incentives from the government that attract complementary services and enhance performance?
14. How is agricultural extension service linked with agricultural research, education and other partners in the agricultural system (such as providers of complementary services, agri-business enterprises etc.)? Is there any participatory approach to setting research and extension agenda?
15. Are the outcomes of innovative activities actually addressing the technological, institutional and organizational needs of small farmers, agrarian laborers and other marginalized social groups?
16. What are the current extension reforms being considered to improve the extension services? What are the implications and potentials of these reforms?

APPENDIX 3

AUDIT TRAIL: SWOT ANALYSIS

Category/Domain	Theme	Respondents
Strength	Education	SWFL6#1, SWFL2, SWFL8, SWZEA5#1, SWAA2, SWAA3, NWFL4#1, NWAA3, SWFL3#1, EA3, NWZEA1, SWZEA2, NWAA4, SWAA5, RC4, NWAA2, NWDA1, NWDA2, SWZEA6, SWNGO1, SWAA4, NWZEA4, NWPP1, NWZEA5#1, EA1, NWAA5, SWAA1, SWDA2, SWNGO2, RC2, RC3, NWZEA2, NWZEA3
	Collaboration and linkages	SWAD1, SWAA5, SWZEA1, SWDA1, RC1#1, EA1#1
	Productivity	SWZEA3, EA3, NWZEA1, NWPP2, SWZEA4, SWDA3, EA1, EA2, NWPP1, SWFL8#1, NWFL6#1
	Decentralized program structure	SWAA1, EA1, NWAA1, NWAA2, NWAA3, NWAA4
	Infrastructure	SWAA1, SWAA3, SWAA4, NWAA4,
Weaknesses	Conflict and corruption	SWZEA6#2, SWFL5, NWFL3#2, NWFL4, , SWFL9#2, SWZEA4, SWAA1, SWAA2, RC2, EA2, NWZEA4, NWDA2#2, SWDA1, NWAA5#2
	Capacity building	SWZEA2, SWAA2, SWDA2, RC3
	Collaboration and linkages	SWZEA2, EA2, SWAA4, RC1, SWNGO1, NWZEA4, NWPP2, NWAA3
	Management	SWFL7, SWFL1, SWFL2#2, SWFL4#2, EA2, SWZEA1, SWZEA3, NWPP1, NWZEA4, NWAA5, SWZEA4#2, SWAA2, RC4, NWAA1, SWAA1, SWAA3, RC2, EA3, NWZEA1, NWAA3, SWNGO2, NWAA2, NWZEA3, SWZEA2
	Infrastructure	SWZEA4#2, SWDA2, NWAA1, SWZEA2, SWAA2, NWAA2, NWDA1, , SWFL7#3, NWFL8
	Communication and feedback	SWZEA3#2, SWZEA4#2, SWZEA2#2, SWZEA6, NWAA3, NWPP1#2, RC3, NWFL3, SWZEA3#2,
	Governance and policy	SWZEA5, SWZEA6, SWDA3, EA1, NWFL2, NWZEA3, NWAA3, NWAA4, NWNGO, SWZEA2, SWZEA4, EA2#2, NWAA2, SWAA1#2, SWAA4, SWDA1, RC2, NWZEA4, NWAA5, NWDA1
	Program sustainability	SWZEA6, SWAA1#2, SWAA3, SWAA5, SWDA2, RC3, EA1, EA3, NWPP2, NWAA4, NWDA1
Opportunities	Markets	SWFL6#3, NWFL6, NWZEA3, NWAA1, NWAA4,

		NWAA5, NWNGO, SWAA4, NWZEA3#3
	Empowering Producer organizations	SWAA1, SWAA4, SWAA5, RC3, SWZEA3
	Institutional collaboration	SWZEA6, SWAA1, SWAA2, SWDA1, NWAA1, NWAA2#3, NWAA3, NWDA1, NWNGO, SWZEA3, SWZEA4, NWZEA3, NWAA5
	Enabling environment	SWNGO1, RC2, NWDA1, NWNGO, SWNGO2#3, NWDA1, RC1#3
	Exploiting natural resources and human capital	SWAA5, NWAD1, NWNGO, SWAA1, RC4, SWDA2
	Information and communication technology	SWZEA5, RC2#3, SWAA2, SWDA1, RC3, EA3, NWAA1
	Added value	EA1#3, NWZEA1, NWZEA2, NWPPA, NWPP2, NWAA4
Threats	Climate change	SWFL9, SWFL1, SWFL8, SWFL10, NWFL1#4, NWDA1, RC1, NWAA1
	Conflict and corruption	SWFLs, SWZEA6, NWAA4, EA1, SWAA5, SWNGO1, SWNGO2, RC2
	Program sustainability	RC2, RC4, EA2#4, NWFL2, NWAA5, SWAA4#4, SWAA1, SWAA5, NWAA2, SWZEA3, SWAA2, NWAA3, NWPP1, RC1, RC2, NWDA1, EA2)
	Information communication technology	EA3#4
	Government policy	SWFL3, SWFL10, SWFL9, SWFL7, SWAA5#4, SWAA4#, SWNGO#4, NWZEA3, NWFL3, NWAA3, SWAA4, NWDA1, EA2, EA3, RC4#4

APPENDIX 4

AUDIT TRAIL: PAST AND CURRENT PERFORMANCE OF EXTENSION PROGRAMS

Category	Theme	Respondents	Reasons
	Productivity	SWFL1#1, SWFL3#6, SWZEAs, SWNGO1, NWAA2#6, NWAA5, SWDA1, SWNGO2, RC1#6, NWNGO, SWAA6, RC3, RC4, NWZEA1, NWZEA2, NWZEA3, NWZEA4, NWZEA5, all SWFLs, NWFL1#5, NWFL6#5, NWFL9#5, NWAA1#6, EA1#6, SWFL7#5	Subsidized inputs, improved planting materials, parallel programs, high input prices, lack of technology adoption
Barriers	Infrastructure	SWFL1#6, SWFL4# 9, SWFL6, SWAA1#6, SWFL7#3, SWFL8, SWDA1, EA1, EA2, RC3, SWAA3, EA1	Small farm sizes, no mechanized agriculture, no transformation technology and transportation
	Postharvest technology	SWAA1, SWAA4#6, EA3, RC3.	No developed postharvest technologies, dumping of produce at peak periods
	Market incentives	All SWFLs, NWAA4#5, NWFL5#6, SWZEA6, NWNGO	Absence of cooperatives, young proactive farmers is an incentive
	Financial sustainability	All SWZEAs, RC3, RC4, NWPP1, SWZEA1, SWAA2#6, SWZEA2#6, NWFL8#6, SWZEA3#6, SWZEA5#6, NWAA1#5, SWNGO2#6	Limited funding, irregular disbursement of funds, poor collaborative links and low motivation
Incentives	Innovative technology transfer and feedback	RC2, EA2, NWAA1, NWAA5, SWAA3, RC1, NWAA2, NWAA5, NWDA1, NWZEA1, SWZEA4, SWDA1#6, EA2, EA3, NWAA3, NWFL3, NWFL8, SWFL2, SWNGO, RC3#6, RC4, NWPP1, NWZEA5, EA3, SWAA6, RC2, SWFL1, SWFL2, NWFL8,	Improved technologies, participatory approaches and grass root contact

		NWFL10	
	Staff competences	SWFL3#5, SWZEAs, SWNGO1#6, NWAA2, NWAA6#6, NWAA5, SWDA1, SWNGO2, RC1, NWNGO, SWAA6, RC3, RC4	Benefits from T & V trainings

APPENDIX 5

AUDIT TRAIL: REASONS FOR THE DIFFERENCES IN THE PROGRAM PERFORMANCE

Theme and sub themes	Respondents
Sustainability of program	RC3, RC4, RC4#7
Funding and management <ul style="list-style-type: none"> • Funding amounts • Funding disbursement method • Government priorities • Poor planning and mismanagement • Decentralization • Bad policy • Structural issues 	RC3#11, EA3#7, RC4, EA2#7, SWAA1, SWAA3, NWAA2, NWAA5#11, SWDA2#7, SWAA4#11, SWAA5#11, SWAA6#11, RC1, RC2#11, EA1#11, EA2#10, NWPP3, NWAA3, NWAA4, All NWZEAs, SWAA6#11, EA3#10, NWAA5#11, SWDA1#11, SWDA2#11
Collaboration and linkages <ul style="list-style-type: none"> • Poor/fair partnerships and linkages • Good human relationships • No government incentives • Bureaucracy • Common interests • Communication and conflict of interest • Competition • Lack of competence 	SWAA1#7, SWNGO2#7, SWAA5#13, SWNGO1#11, SWNGO2#13, SWDA1#11, NWDA1, NWDA2, EA3#13, EA1#11, EA3#11, SWAA2, SWAA3, SWAA4, SWAA6#11, NWAA2, NWAA#113, NWAA4, NWAA5, RC1#11, RC3#11, EA3#10, NWPP2#10, NWPP1#10, NWPP3, RC2, RC3, EA2#10, SWNGO1#13, SWNGO2#10, SWDA2#11
Parallel/support programs	SWDA1#12, NWAA4#12, NWPP2#12, NWPP3#12, NWAA3#12, NWDA1#12, EA3#12, NWAA1#12, NWAA2, NWAA5#12, NWPP1

APPENDIX 6

AUDIT TRAIL: IMPROVING THE FUNCTIONALITY OF THE EXTENSION PROGRAM FOR SUSTAINABILITY

Categories	Respondents
<p>Government investment</p> <ul style="list-style-type: none"> • Council sponsor and cooperatives • Subsidized inputs • Investment in extension and research 	<p>SWFL2, SWFL10, NWAA2, NWZEA4</p> <p>SWFL9, SWFL10#9, SWFL2, SWFL3, SWFL6, SWFL4#8, SWNGO1#8, SWAA6, SWNGO2#8, EA1#8, NWAA1, NWAA5.</p> <p>SWZEA6, SWZEA3, SWAA3, SWAA5, RC1#8, RC3#9, EA2, EA2, NWPP2, NWAA5, NWDA1</p>
<p>Trainings</p> <ul style="list-style-type: none"> • Empowering farmers (TOT lead farmers, PO) • Training of farmers and extension agent 	<p>SWFL10#9, SWFL2#9, SWAA4, SWNGO2#8</p> <p>SWFL9#9, SWFL7, SWFL5#9, SWZEA4, SWNGO2, NWAA1, NWDA1</p>
<p>Markets incentives</p> <ul style="list-style-type: none"> • Price standardization, transportation and postharvest technologies • Added value • Marketing boards and farmer banks • Agricultural tax on all • Fee for service • No fee for service for small farmers • Access to land 	<p>SWFL9, SWFL7#9, SWFL5#9, SWAA6#9</p> <p>SWAA4, SWAA5, NWPP2#8</p> <p>SWAA2, NWAA1, NWFL1#8, NWFL5#8</p> <p>NWZEA2#9</p> <p>NWZEA3, NWNGO#9, SWFL7#9, SWFL5#9, SWFL3, SWFL4, SWFL6, all SWZEAs, SWAA2#9, SWAA4#9, SWDA2, SWNGO1, SWNGO2, EA3, NWAA4, NWZEA2, NWZEA4, NWFL3#9, NWFL5#9.</p> <p>SWAA3, SWAA5, SWAA6, SWNGO2, RC1, RC3, NWAA1, NWAA2, NWAA3, NWAA5, NWZEA3, NWDA2, NWFL1#9, NWFL4#9, NWFL6, NWFL8#9, NWFL9#9.</p> <p>SWNGO2</p>
<p>Management</p> <ul style="list-style-type: none"> • Improved management • Collaboration and 	<p>SWAA6, SWDA2, RC2, EA2, EA3, NWFL</p> <p>SWDA1, SWNGO1, RC1, RC4</p>

<p>structural reorganization</p> <ul style="list-style-type: none">• Holistic extension approach	NWAA4
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VITA

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