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Sustainability Challenges for Maize and Cassava Farmers in Amankwakrom Subdistrict, Ghana

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Walden University

College of Management and Technology

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Franklin Komla Atadja

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Dr. Karin Mae, Committee Chairperson, Doctor of Business Administration Faculty

Dr. David Moody, Committee Member, Doctor of Business Administration Faculty

Dr. Robert Hockin, University Reviewer, Doctor of Business Administration Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2016

Abstract

Sustainability Challenges for Maize and Cassava Farmers in Amankwakrom Subdistrict,

Ghana

by

Franklin Komla Atadja

MBA, Centenary College, 2009

BS, Business Administration, Centenary College, 2006

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

November 2016

Abstract

Agricultural system in Ghana underperformed because of limited financing, which constrained some small-scale maize and cassava farmers. The purpose of this case study design was to explore the methods that some small-scale maize and cassava farmers in Amankwakrom Subdistrict used in obtaining farm financing. Two themes from the literature review were a lack of collateral for small-scale farm financing and the small-scale farmers cooperative associations' role in farm financing. Regional-scale management sustainability index formed the conceptual framework for this study. Data collection included semistructured face-to-face interviews with 8 fluent English speaking small-scale maize and cassava farmers who have obtained farm financing in the previous years. Using the Microsoft Excel and Non-numerical unstructured data indexing and theorizing software program for data analysis method, 3 major themes emerged: the farmer's membership benefits of working in cooperative associations; farmer's ability to provide the collateral requirements for the financial institutions; and farmer's good loan repayment history. The study findings indicated that some small-scale maize and cassava farmers obtained farm loans because they used the cooperative associations as their collateral assets in order to satisfy for the requirements of the financial institutions. Social implications include the potential to guide the small-scale maize and cassava farmers to access farm credits to use in expanding their farm sizes. Expansion in farm sizes may result in more maize and cassava production that can help eliminate hunger and reduce poverty in the Amankwakrom Subdistrict of Ghana.

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Dedication

The first dedication of this doctoral study goes to our late daughter, Christine Sena Yayra Ama Atadja. We loved you, but Jehovah God loves you more. The second dedication addresses my grandparents the late Ferdinand Yasorgbor Komla Atadja and Frida Afuah Atubra. These parents' gave me the support and the foundations of life. You sowed the seeds of hope and prosperity for me. The third dedication goes to my father-in-law the late Nelson Kofi Kwakudua, who unconditionally gave me his lovely daughter as a wife. Thank you. May you all rest in perfect peace with God.

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Section 1: Foundation of the Study

Leaders of small businesses have accounted for a high percentage of job creation, cost-effective growth, and novelty through competitive advantage (Ngozi, 2012). The small-scale and medium-sized businesses have been the main drivers of economic growth and employment; therefore, investing into the field was essential (Nasr & Rostom, 2013). Agriculture inclusively has been the backbone of Ghana's economy. For an example, Ghana's agriculture employed about 60% of the labor force, contributed to food security, provided raw materials for local industries, spurred foreign exchange, and generated incomes for 72% of the population (World Bank, 2014).

The small and medium sized businesses, which dominated the African private sector, suffered from many challenges; and lacked access to financing (Haselip, Desgain, & Mackenzie, 2014). Access to credit was important for business growth, efficiency, and productivity (Kuntchev, Ramalho, Rodríguez-Meza, & Yang, 2013). Agriculture financing played an important role in increasing the small-scale farmers' economic activities (Balaceanu & Apostol, 2012). In addition, increased agricultural production enabled development and economic growth (Brownson, Vincent, Emmanuel, & Etim, 2012; Yankey, 2013). However, financing was not adequate to support the small-scale farmers who are the major agricultural producers in Ghana (Collier & Dercon, 2013).

Background of the Problem

Agricultural production in many African countries was inadequate, because of the scarce capital to support these small-scale farmers' effort to expand and increase production (Collier & Dercon, 2013). In 2014, the population of Ghana was 25.9 million,

of which 63% lived in the rural areas. Notably, agriculture production was the sustainer of Ghana's economy, and it employed about 60% of the labor force (World Bank, 2014).

Consequently, the agricultural sector contributed to the food security, raw materials for local industries, and provided incomes for 72% of the population (World Bank, 2014). However, poverty and limited access to credit for the small-scale farmers caused a significant reduction in the agricultural production (Ojiako & Ogbukwa, 2012). The scarce capital was a significant problem, but these small-scale farmers' still cultivated food crops for local consumption at the subsistence level (Ovwigbo, 2014).

Afram Plains was a rural community in Ghana and important for food production because of the fertile agricultural lands (Appiah, 2013). The district was the largest in the Eastern Ghana and covered an area of about 663 hectares (ha); however, the community was the poorest settlement in the Eastern region (Codjoe, Atidoh, & Burkett, 2012). Improvement in the financing for the small-scale maize and cassava farmers in the Amankwakrom Subdistrict in Ghana would have positive benefits for the agricultural growth. These improvements could result in the agricultural business profitability, spur the increase in employment opportunities, and reduce poverty in the Amankwakrom Subdistrict.

Problem Statement

Agriculture was the backbone of Ghana's economy and provided employment and income to 72% of the population (Badu et al., 2013). In 2012, agriculture in Ghana lost its top position for receiving loans to the services sector. The agriculture sector received 29% of loans and advances, as compared with the services sector, which received 38%

(Sebe-Yeboah & Mensah, 2014). Ghana's agricultural systems underperformed because of limited financing which prevented farming on a large scale for more profitability (Diwan & Emerson, 2013). The general business problem was Ghanaian farmers needed the capital to support their farming activities. The specific business problem was some small-scale maize and cassava farmers in the Amankwakrom Subdistrict lacked the strategies for obtaining farm financing.

Purpose Statement

The purpose of this qualitative case study was to explore the methods the small-scale maize and cassava farmers who cultivated less than two hectares in land sizes, used to obtain farm financing. Maize and cassava crops were important to the community and financing these farms could lead to more profits and create employment opportunities (Martey, Al-Hassan, & Kuwornu, 2012). Amankwakrom Subdistrict in the Afram Plains region was suitable for aiding Ghana's food production initiatives and security (Appiah, 2013; Yankey, 2013).

Implications for positive social change included the potential to guide the small-scale maize and cassava farmers in accessing financing to use in expanding their farm sizes. Expansion of farm sizes might help to increase the production of maize and cassava. The change would provide sufficient food requirements to the farm families, create job opportunities, and reduce poverty in the Amankwakrom Subdistrict of the Afram Plains.

Nature of the Study

Researchers have developed and used extensive arrays of qualitative methods to generate ideas that enhanced their research experiences to advance communal changes in societies (Garcia & Gluesing, 2013). The qualitative research method was appropriate for investigating problems and gaining the insights of participants (Bryman & Bell, 2015). This research method was suitable to use in the exploration of the financial sustainability challenges affecting the small-scale maize and cassava farmers in the Amankwakrom Subdistrict because it enabled me to learn about the cultivators' successes and constraints.

Exploratory case study was applicable when a researcher sought to answer a question that had no single set of outcomes (Yin, 2014). A group of investigators used the exploratory case study with in-depth interviews to explore the Thai rubber industry's achievements and future prospects (Weerathamrongsak & Wongsurawat, 2013). An exploratory case study research design was most suitable because it allowed me to explore the financial challenges facing the small-scale maize and cassava farmers in the Amankwakrom Subdistrict. This design helped me to learn about the small-scale farmers' methods of obtaining farm financing. The exploratory research design further helped me to understand the successful small maize and cassava farmers' indigenous knowledge (IK) of farm financing.

Research Question

The central research question of the study was: What strategies do the small-scale maize and cassava farmers in the Amankwakrom Subdistrict use to obtain farm financing?

Interview Questions

To obtain answers to the research question, I developed the following open-ended demographic and discussion questions. The aim of this interview was to explore the financial sustainability challenges influencing the small-scale maize and cassava farmers' in Amankwakrom Subdistrict in Ghana.

1. What is your name, age, and educational background?
2. How does your age or education affect you getting farm financing?
3. What farm financing options are available to you in the Amankwakrom Subdistrict? If any, which have you used successfully?
4. How are the formal financial institutions and organizational structures supporting your maize and cassava farm funding?
5. How are the state policies according financial help to the small-scale maize or cassava farmers in Amankwakrom Subdistrict?
6. What informal financial help is available for obtaining farm financing in the Amankwakrom Subdistrict?
7. What collateral requirements are there for small maize or cassava farmers to obtain financing through the formal or informal institutions?

8. How have the cooperative associations' assisted the small maize and cassava farmers? Do you think aiding the cooperative maize and cassava farmers is different from individual farmer investment?
9. How do you remit your farm loans back to the financial institutions after the farming period?
10. What can improve the small-scale maize and cassava farmers' relationship with the financial institutions?

Conceptual Framework

Aristotle practiced sustainability management measures and the ethics of self-sufficiency around the community's agricultural production, including the reuse of materials (Diamond, 2005). Sustainability development gained prominence in the world after the 1980 conservation union publication of the first conservation strategy. The Brundtland Report in 1987 gave sustainability management a boost until the 1992 Earth Summit in Brazil, which resulted in a concept for the United Nations framework of sustainable development (Reid, 2013). Birth and development of sustainability ideas among individuals, organizations, and communities called for the conceptual approaches of sustainability management (Reid, 2013). Community-based initiatives conceived sustainability solutions to the communities' problems (Balbinot & Borim-De-Souza, 2012).

These developments led to the inception of the regional-scale sustainability development index. This index's application was relevant to this study because of its methodological proposals, the integrated measures for developing policies, and

sustainability goals. The two paradigms of the index, which were experts developed and organized in a top down fashion, and the other a community-based bottom up approach that provided a sustainable local learning strategy to the rural communities (Antwi-Agyei, Dougill, Fraser, & Stringer, 2012).

Operational Definitions

I defined eight technical terms, which helped me to understand the sustainability challenges influencing the small-scale maize and cassava farmers in the Amankwakrom Subdistrict of Ghana.

Data envelopment analysis (DEA): DEA was a comparative data-oriented approach used for measuring the performance of various types of peer decision-making units. Besides analyzing agriculture and environment with DEA, many researchers' focused on efficiency estimation of agricultural production (Wang, Huo, & Kabir, 2013).

Food and Agricultural Organization (FAO): The FAO identified the fundamental agricultural policy challenges for the future. Their plans included creating the right commercial, technical, and regulatory environment and strengthening the agricultural innovation systems and encouraging the better agronomic practices (Organization for Economic Co-operation and Development [OECD] & FAO Report, 2013).

Indigenous knowledge (IK): Indigenous knowledge was a science, but it lacked documentation in mainstream or Western sciences. The lack of documentation has affected the balance in the co-evolution of the two sciences (Derbile, 2013).

Information communication technology (ICT): ICT was the investigation of social learning implementations (Ceserani, 2012). This ICT helped farmers in Ghana to learn

about the profitability of alternative levels of fertilizer use in variable weather and other growing conditions.

Micro and small enterprises (MSEs): Micro and small enterprise businesses were small-scale setups with major economic features directed toward poverty alleviation in Third World countries. These were sometimes the primary source of employment and income for rural Third World populations (Liedholm & Mead, 2013).

Small-scale farmers: Farmers who traditionally and manually cultivated their own indigenous varieties on between one to three hectares of land with limited farm financing are small-scale farmers (Klutse et al., 2013).

Sub-Saharan Africa (SSA): The countries of Sub-Saharan Africa were Benin, Burkina Fasso, Cape Verde, Cote D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Saint Helena, Senegal, Sierra Leone, Sou Tome & Principe, and Togo (Chikhuri, 2013).

Subsistence agriculture: Subsistence agriculture was an economic farming model in which farmers work mainly to feed themselves with limited need for trade (Smederevac-lalic, Pesic, Cvejic, & Simonovic, 2012).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions were facts, which were out of the control of the researcher and can make research studies irrelevant (Lefcourt, 2013). Nevertheless, assumptions were the core predictions made by scientists' about the nature of reality (Easterby-Smith, Thrope, & Jackson, 2012). I assumed the farmers who were participants in this study understood

the English language and did not need the interpretation of the interview questions in their local language.

I assumed the farmers cooperated with me and provided honest responses to the research questions. All participants' delivered their consents and agreed to the recording of the interviews. My assumption was that this research study would provide information for future studies about agriculture production and farmers' financial sustainability in Ghana.

Limitations

Limitations were the potential weaknesses of a study that were out of control of the researcher (Lefcourt, 2013). Nevertheless, limitations in scientists' studies were the fault measurements that affected the outcome of their learning (Swan, 2012). The weaknesses of my study were the potential lack of funds, transportation, accommodations, and necessary time for participants' interviews. Shorter periods of interviews from my experience contributed to members' bias and inability to recollect events. Some farmers experienced discomfort in disclosing personal financial information on their farming businesses.

Delimitations

Delimitations were the features that limited the scope of a study, which invariably defined the boundaries. Mostly, delimitations were in the control of researchers (Simon & Goes, 2013). Delimitations were also additional limits that researchers focus on during their studies. Researchers viewed these boundaries as the sustainable destination and governance of their studies (Laesser & Beritelli, 2013). The success of the study

involving the small-scale maize and cassava farmers in the Amankwakrom Subdistrict required adult English language speaking participants' who obtained farm financing and cultivated farms less than two [Ha] in land size.

Significance of the Study

Contribution to Business Practice

Access to financial capital to farmers contributed to the increasing farm outputs and incomes (Deininger & Byerlee, 2012). This research study contributed to the field of business practice by finding sustainable financing strategies for the small-scale maize and cassava farmers. The value of my research rested in the arguments of microfinance specialists who argued that adequate investments have transformed rural communities and reduced poverty (Borda-Rodriquez, 2014; Collier & Dercon, 2013).

Flexible microfinance loans have addressed the financing needs of the farmers with seasonal production farms (Weber & Musshoff, 2013). Financing played the beneficial role of strengthening the small-scale farms' expansions and supported the production capacities (Ojiako & Ogbukwa, 2012). Increased financing elevated the small-scale farmers' profitability to a higher standard that enabled them to engage in income generating smallholding activities beyond the subsistence farming level (Abdullah, 2014).

Implications for Social Change

The implications for positive social change from this study was the economic potentials of retaining farmers in the small-scale agriculture production. Improved financial investments could support the small-scale maize and cassava farmers to expand

on their farm sizes and increase food production. In addition, financial assistance to the farmers might help to create permanent agricultural jobs in the study area. These efforts might enable the farmers to contribute to the commercialization of maize and cassava production initiatives in the Amankwakrom Subdistrict of the Afram Plains (Yankey, 2013).

A Review of the Professional and Academic Literature

The contents of my literature review included small-scale farmers' sustainability challenges and strategies for obtaining farm financing. Planning and organization of relevant literature was important to successful database searches. The literature sources ranged from management and business research databases including (a) ABI/INFORM Complete, (b) Business Source Complete/Premier, (c) ScienceDirect, (d) Emerald Management Journals, and (e) Google Scholar. My search accommodations was through skimming related sustainability and agricultural investment topics with the sole intention of familiarizing myself with the body of available knowledge.

Similarly, researchers used literature reviews to find holistic issues of fragmental publications to use in their work (El-Thalji & Liyanage, 2012). I chose keywords or elements to place in the review search box such as scholarly peer-reviewed articles less than five years old with digital object identifiers (doi). The doi's gave me the ability to retain the authenticity of the digital contents and guaranteed access (Oehlerts & Liu, 2013).

To find the recent and relevant information on the problem, I used the Walden Thoreau database and other search engines specific to the topic. Keywords that helped me

to isolate the problem included terms such as (a) *commercial and small-scale farms*, (b) *farmers' sustainability challenges*, (c) *small-scale farmers in Africa*, (d) *sources of financing for farms*, and (e) *access to financing in farm productions*. Using the above keywords and other agricultural sources led to 279 articles on the topic with 99% published from 2012 to 2016 and 255 (91%) were peer reviewed.

To gain insight on what constituted the small-scale maize and cassava farmers' sustainability challenges in Amankwakrom Subdistrict of Ghana; I gathered the literature in five main areas to establish a case for pursuing this study. The areas were: (a) differences in commercial and small-scale agriculture, (b) general sustainability challenges affecting farmers, (c) changes in weather conditions effect on agricultural production, (d) land tenure systems influence on agricultural production, and (e) financial problems mitigating against agricultural production. Analysis of these areas gave me an in-depth understanding of the primary challenges affecting the small-scale maize and cassava farmers' businesses from the sustainability point of view.

Differences in Commercial and Small-Scale Agriculture

Agricultural commercialization involved animals and crops production on a large-scale (Smederevac-lalic et al., 2012). Large-scale farming included the use of specialized equipment for production, processing, transporting, storage, and marketing. Commercial crops farming and fisheries were prevalent in the developed countries (Smederevac-lalic et al., 2012).

Commercial agriculture differed from small-scale farms; their mainstay was higher outputs and profits from economies of scale, specialization, capital-intensive

farming methods, labor, cost-savings techniques, and the maximization of crop yields per hectare (Quartey, Udry, Al-hassan, & Seshie, 2012). However, commercial farmers' also needed financing to purchase inputs like seeds, fertilizers, and feeds (Wilk, Andersson, & Warburton, 2013). Consequently, the two groups of farmers both needed financing to convey their farm produce to storage, process agricultural outputs into secondary products, and transport food to the marketing centers (Wilk et al., 2013).

Small-scale farms fell into the margin of the modern economy because they were between the commercial and subsistence production level (Ayinde, Muchie, Omotesho, Ayinde, & Adewumi, 2012); however, the small-scale agriculture was a model in which farmers' cultivated primarily to sustain themselves with limited trading (Wilk et al., 2013). Commercial farming establishment was more prominent in the industrial economies where most of the farming population were agricultural professionals who were skilled laborers and global traders (Smederevac-lalic et al., 2012).

To support the earlier claims, the small-scale farmers increased farm productions, reduced poverty, and lessened hunger in Asia (Mann, 2014). In contrast to the achievements in Asia, small family farms in Germany, Austria, Switzerland, and Norway were a societal luxury with high-income elasticity (Mann, 2014). The richer countries' adaptation to increase agricultural production was influenced by the affluent citizens because of their ability to purchase the families' food requirements (Mann, 2014). However, moving from the subsistence agriculture production to sustainable small-scale farms required changes in strategies to improve the farmers' livelihoods (Quartey et al., 2012).

Small-scale agriculture was an alternative to the industrial farming prevalent in the advanced countries (Barnes, MacGregor, & Alberts, 2012). Agricultural businesses and companies required financing and a good source of internal raw materials to increase their global competitiveness (Barnes et al., 2012). To step up from the small-scale farming to the large-scale agriculture required different financing strategies and methods to improve the farmers' lives (Yankey, 2013).

Sustainability Problems Mitigating Against Farmers' in Amankwakrom Subdistrict of Ghana

The primary sustainability issues addressed in the literature review were: (a) the effects on farming through changes in weather conditions, (b) land tenure system issues, and (c) farmers' financing influences on agricultural production.

Changes in Weather Conditions Effects on Agricultural Production

Human systems adapted to the goals of climate change, but understanding these measures and challenges on a global scale was incomplete, because the leaders of developing countries lacked this knowledge (Kate, Travis, & Wilbanks, 2012). All countries needed to be involve in the fight against climate change. Public support was essential in the adaptation of climate change initiatives with steps to achieve engagement, document how the people perceived, and understood the change outcomes (Buys, Miller, & van Megen, 2012). The complications of climate change required early investments from international institutions to support small-scale farmers' and the associated food production systems (Vermeulen et al., 2012).

Society's response to the global climate change originated through cultural aspirations (Adger, Barnett, Brown, Marshall, & O'Brien, 2013). However, climate change endangered cultural dimensions of (a) lives, (b) material possessions, (c) identity, (d) community cohesion, and (e) sense of place. Global climate change influences crop productivity in ways that can create hardships concerning food security and human nutrition (Wheeler & von Braun, 2013). Climate change potentially interrupted the progress toward a world without hunger.

The notable climate change effects were (a) temperature, (b) altered patterns of rainfall, and (c) extreme weather events like droughts and floods (Field, 2012). Temperature played a significant role in driving year-to-year production changes (Field, 2012). However, rainfall was more important in the tropical agricultural production and the economic well-being of the rural communities (Wheeler & von Braun, 2013).

Agricultural production uncertainties due to bad weather, diseases, and financial crisis influenced world food prices. Evidences gathered on crop production uncertainties, affected wheat and corn prices on a global scale (Meyer & Yu, 2013). In the United States, climate change has led to a 4% decrease in the annual agricultural sector profits (Fisher, Hanemann, Roberts, & Schlenker, 2012). Fisher, Hanemann, Roberts, and Schlenker (2012) reported that these uncertainties for African agriculture yielded almost similar results (Fisher et al., 2012).

Agriculture was the backbone of economic growth in developing countries and a major source of livelihood, but the sector was vulnerable to climate change. In Africa and Southern Asia, programs in natural resources management with sustainable strategies

helped in the agricultural production (Knox, Hess, Daccache, & Wheeler, 2012). For example, the 30 years of weather and crop management studies in the Heilongjiang area of China revealed that a combination of new varieties of maize cropping assisted farmers in avoiding production stagnation despite warming temperatures (Meng et al., 2014). Meng et al., (2014) concluded that the farmers' adaptations to climate warming benefitted maize producers' who chose longer maturing varieties (Meng et al., 2014).

Investigations on climate change meant and intended for the understanding of the variable implications for the better planning (Ahmed & Choudri, 2012). Ahmed and Choudri (2012) indicated that Oman suffered from aridity, soil salinity, recurrent drought, and water scarcity (Ahmed & Choudri, 2012). Frost damage was a common weather hazard in Argentinian agriculture, which has resulted in a total loss of farmers crops (Cortina & Sánchez, 2013). An Australian wine industry study harmonized that transformative climate actions were required to address the changes in agricultural production (Park et al., 2012). Rural farmers in South America reduced weather risk to optimize the soil and crop production to the economies of scale for a good harvest (Clasadonte, Vries, Trienekens, Arbeletche, & Tourrand, 2013).

Africa's agriculture productions have shown risks to its cropping systems due to climate change (Knox et al., 2012). In 2013, it became evident that climate change was an inevitable process within SSA through warming and rainfall deficits (Wheeler & von Braun, 2013). Climate change led to variations in yields, high food prices, low food security, and high childhood malnutrition in SSA (Ringler, Zhu, Cai, Koo, & Wang, 2012).

Research on agricultural climate change adaptation in Tanzania established that the primary sources of information for farmers were neighbors, friends, and the public extension services (Mwalukasa, 2013). The exploration of the gendered responses toward climate change for sustained food security in Northern Cameroon included the subsistence producers and the household-level food production initiatives. Coping choices of livelihood changes was a solution, but the changes influenced food accessibility and consumption choices for the rural communities (Molua, 2012). In contrast, local communities and farmers' in Benin used sustainable strategies to reduce the adverse effects of climate change on crop production through problem sentience and mitigation processes (Teka, Houessou, Oumorou, Vogt, & Sinsin, 2013).

Farmers in Northeastern Ghana employed drought risk management and the reduced vulnerability of rain-fed agriculture by cultivating multiple native drought resilient crops, using different rounds of seeding, and staggering plantings between multiple farms with indigenous soil and water conservation measures to improve moisture retention capabilities of the soils (Derbile, 2013). Some farmers used additional adaptation strategies including migration, agricultural production with fertilizers and green manures, crop rotation, changes in planting dates with new crop varieties, soil conservation, and tillage practices to reduce the climate change effects on production (Field, 2012). These measures guaranteed against total farmers crop failures in Northern Ghana (Derbile, 2013).

Climate change has serious environmental, economic, and social effects on rural farmers in Ghana whose livelihoods depended on rainfall (Fosu-Mensah, Vlek, &

Maccarthy, 2012). The point was climate change affected livelihoods to different extents in Ghana, where there were already extreme climatic conditions (Black, Kniveton, & Schmidt-Verkerk, 2013). Subsistence farmers in Botswana and Ghana were the primary focus area for the global climate change financing adaptation study. Although adaptive behaviors were visible in these African countries, but there was the need for perceptions of climate drive adjustment advising for the community's finance to support the subsistence farmers (Pauw, 2013). This evidence further supported the need for investment in adaptation and mitigation actions toward a food security system that was more resilient to climate change (Kates, Travis, & Wilbanks, 2012).

Afram Plains in Ghana was in the Guinea savannah zone and has two distinct seasons: The dry season from October to March and the rainy season from May to October (Fosu-Mensah et al., 2012). Ghanaian small-scale farmers have an awareness of climate change, but only 44.4% adjusted their farm practices due to a lack of credit and educational facilities (Fosu-Mensah et al., 2012). However, farmers in the Northeastern Ghana were vulnerable to the exposure of drought risk in rain-fed agriculture (Derbile, 2013). Climate change therefore had adverse effects on farmers' cash gained. These effects caused the farmers to default in paying off loans to the financial institutions. To counterbalance these influences, some Ghanaian small-scale farmers used crop diversification, planting of short season varieties, and a shift in planting dates (Fosu-Mensah et al., 2012).

Land Tenure Systems Effect on Agricultural Production

Land tenure security was necessary to the financial institutions because it promoted land investments and the protected farmer's land right (Ma, Heerink, Ierland, Berg, & Shi, 2013). Securing farmers ownership to any piece of land was important to household livelihoods (Domeher & Abdulai, 2012). Chinese farmers on the other hand experienced ownership alteration as the forest management changed from the Fujian province community to the individual farmers. The land tenure rights affected the investment behaviors of farmers with the decentralization of forest management rights from the village communities to individuals to ensure tenure security (Qin & Xu, 2013).

Developed judiciary systems handled land issues and improved rural agricultural infrastructure, which benefitted the farmers (Domeher & Abdulai, 2012). Investigation about land tenure security and investments in Northwestern China explored the effect of perceived tenure security on farmers' decisions to invest in long-term land improvement (Ma et al., 2013). A research study in Africa about land registration and credit linked registration to agricultural investment. From this study, land registration did not stand in isolation for agricultural development because the process did not change the property locations (Domeher & Abdulai, 2012).

In other words, it had been difficult for farmers to use land for collateral because the financial institutions have not considered land registration as a mean for granting farm credits (Domeher & Abdulai, 2012). However, the registration had the potential to promote land tenure security, facilitate market operation, and improve access to agricultural credit to generate investments, raise income levels, and increase economic

growth. The comprehensive land mapping assisted in demarcating boundaries and reduced land border disputes between farmers (Domeher & Abdulai, 2012). Conflict resolutions was a priority in the land registration processes that adequately ensured all parties were satisfied in order to generate investment to sustain agricultural production and growth (Domeher & Abdulai, 2012).

The study of the forest and rangeland absentee landowners' in the United States indicated that owners' have not engaged in active land management practices. Contrarily to this, some few agricultural landowners' dwelling on their sites have maintained the forest and rangeland for future uses (Petrzelka, Ma, & Malin, 2013). The exploration of the potentials and risks associated with urban crop farming identified factors that enhanced productivity and economic viability by improving practitioners' access to land (Odudu & Omirin, 2012).

Land for urban crop farming was available to those owned by public authorities but this constraint impeded tenure security and competition among users (Odudu & Omirin, 2012). The eradication of the forest management rights from village holdings to peasants' ownership encouraged the confidence in land tenure security among farmers' to increase investments (Qin & Xu, 2013). Consequently, some cultivators who cropped small agricultural areas leased out their land to farmers tilling larger sizes (Qin & Xu, 2013). Progressively, fewer farmers cultivated large agricultural land sizes with a significant increase in crop productions (Jose & Padmanabhan, 2015). Tenure systems on land regularization program in Rwanda influenced land availability for married women,

because it prompted inheritance rights without gender biases (Ali, Deininger, & Goldstein 2014).

Agriculture Financing Problems Mitigating Against Farm Production

The significance of agriculture to the evolving world delivered consumer quality foods at reasonable prices, and contributed to the economy development and growth of countries (Vermeulen, Campbell & Ingram, 2012). Agricultural production was the economic backbone of developing countries because it enabled significant economic developments (Yankey, 2013). Agriculture financing in a market economy played an important vibrant role in increasing economic activities (Balaceanu & Apostol, 2012).

Some business leaders overcame the challenges and achieved continuity from generations to generations through expansions and strategic developmental goals (Palacios, Martinez, & Jimenez, 2013). Most companies at the early stages of a startup- required financing in the form of significant investments with cost-effective financing, which permitted for business profitability (Gudov, 2013). Debt and equity provided for the future development planning of small-scale farms that helped to generate employment and reduced poverty (Brownson, Vincent, Emmanuel, & Etim, 2012). Financial resources played a significant role in agricultural activities and addressed the critical elements, which drove farm business operations to a success (Danso & Adomako, 2014).

Agricultural business development strategies boosted farm productions, increased farmers' incomes, lifted peasants out of poverty, and stimulated economic growth (Akudugu, Guo, & Dadzie, 2012). Some rural households in the developing countries however, have different income portfolios, meaning income earnings were not from

agricultural sources alone, but also in off-farm activities (Collier & Dercon, 2013). In contrast, the promotion of non-farm income to farm financing addressed the access to the rural farmer households' income sources (Senadza, 2014).

The lack of investments in financing, innovations, efficient agricultural technologies, and resources affected the small-scale farmers' agricultural productivity (Hounkonnou et al., 2012; Osei-Assibey, 2013). Likewise, the lack of financing for agricultural production reduced innovative investments, new technology to increase productivity and growth (Balaceanu & Apostol, 2012). Supposedly, agriculture sustainability required farmers to adopt new technologies (World Bank, 2014). These technologies were information technology, financing for seeds, fertilizers, and pesticides (Hounkonnou et al., 2012). The promotion of technical change and improved agricultural production technologies have a positive effect on agricultural growth (Akudugu, Guo, & Dadzie, 2012); however, the financial supports for agricultural production were small because of the high credit risks (World Bank, 2014).

Jerven (2014) indicated that African agriculture production lagged behind other developing countries production with budget constraints (Jerven, 2014). Duwal and Sun (2013) further commented on the arduous task of the financial institutions providing adequate resources in the rural agricultural regions (Duwal & Sun, 2013). In addition, there was a significant price raise in agricultural production coupled with the global financial crisis (Meyer & Yu, 2013). Senadza (2014) examined the income supplies of the rural peasants in Ghana and supported the strategy of family income. There were indications that household characteristics, location, and infrastructure also played a role

in expanding the adoption plans rather than on-farm strategy by households (Senadza, 2014).

Management Sustainability Goals Toward Agriculture Production

The regional-scale sustainability index was ideal for this study because it used the sustainability indicators for achieving better control by reducing information gaps, developing community capabilities, and institutional sustainability perspectives (Antwi-Agyei, Dougill, Fraser, & Lindsay, 2012). This index application in the exploration of insufficient fresh ground water supply in Baja California Sur, Mexico, which was beneficial to the community's need (Herrera-Ulloa et al., 2003). Njenga (2006) explored the Kenyan HIV/AIDS service organizations activities with the same sustainability index, which I have also used in my study. The sustainability management ideas simultaneously, assisted the Kenyan and Mexican communities to the advancement of their indigenous sustainability desires (Herrera-Ulloa et al., 2003; Njenga, 2006).

Sustainability goals addressed (a) individuals, (b) organizational, and (c) national levels simultaneously (Lenssen, Dentcher, & Roger, 2014). In addition, the economy, communities, and companies created sustainability management strategies for their visions and developmental growth (Windolph, Schaltegger, & Herzig, 2014). Many events in the 1960s helped agricultural development, the interrelated farming systems, and the farm families (World Bank, 2014). Such events were the social and institutional management strategies that improved the agricultural food production systems (Gitsham & Clark, 2014).

The management practices addressed the communities' sustainability governance with deliberations, probing, and learning that led to new agricultural policy designs (Starik & Kanashiro, 2013). Humanism outlined and shaped future agricultural strategic management by discussing other management practices that helped to solve current farming issues (Starik & Kanashiro, 2013). The systemic sustainability approach dictated the need for changes in the Brazilian's sugarcane production that ensured resources were available to the future generations (Liboni & Cezarino, 2014). Regrettably, on global-scale, only 30% of sustainability programs succeeded because of the frequent lapses in management (Vora, 2013).

Financial institutions' activities affected both the economy and the functioning of rural communities (Lenssen et al., 2014). The study about new businesses initial financing across 20 companies was successful through the discussions and follow-ups that resulted in major variations in funding the new ventures. These companies acquired many forms of financing with divergent configurations that created significant patterns and levels of capitalization (Atherton, 2012). For an example, Woolworth, a retail supply chain in South Africa, implemented, monitored, and evaluated its sustainability management practices with a sound economic, environmental, and social means (Dos Santos, Svensson, & Padin, 2014).

The known drivers of agricultural sustainability included the demographics, natural resources, socio-economic, political, and the institutional management strategies. These drivers helped policy makers in developing strategies to support sustainability goals (Pham & Smith, 2014). In addition, management sustainability strategies brought

about grassroots change for people without power (Pham & Smith, 2014). To support this argument, some Thai farmers' used agric-tourism as a tool in rural development and provided sustainable financial security for the rural peasant families (Prayukvong, Huttasin, & Foster, 2015).

Community-based initiatives created sustainability solutions to farmer's problems (Pham & Smith, 2014). In China, low-interest government loans and support for training measured for promoting the sustainable development of agriculture (Duwal & Sun, 2013). Limited information to farmers, risk aversion, and the high cost of the transaction were barriers to the adoption of alternative agricultural practices (Duwal & Sun, 2013).

Small-scale agriculture was a substitute to industrial farming in the developed world. Nearly 500 million small farms, which were less than two hectares in land sizes were in the developing countries and have good expenditure for promoting growth in the rural communities (Pierce, 2014). Despite this promotional growth, the small-scale cocoa, maize, and cassava farmers' in West Africa cultivated plot sizes that were less than two hectares (Ricketts, Turvey, & Gomez, 2014). To enable the expansion in farm sizes, the Amankwakrom Subdistrict small-scale maize and cassava farmers' needed financial assistance with their seeds, fertilizers, land preparation, planting, weeding, tools for harvesting, transporting, and storage.

Formal Agricultural Financing

Haselip, Desgain, and Mackenzie (2014) opined that small and medium sized enterprises (SMEs), which dominated the African private sector, suffered from many challenges; and lacked access to financing (Haselip, Desgain, & Mackenzie, 2014). Some

SMEs used external sources of financing, informal sources (family and friends), and formal sources (bank loans, leasing, trade credits, and factoring). Indicatively, SMEs have difficulties in acquiring external financing than the larger SMEs do. In addition, beginning and smaller companies have bigger financial challenges toward their initial funding (Pelly & Kraemer-Eis, 2012).

Agriculture financing had a primary role in the social and economic development and played a beneficial role in strengthening farm businesses (World Bank, 2014).

Investment financing was a millennium tool developed to address farmers (a) gender problems, (b) empowerment, (c) poverty, and (d) hunger (Deininger & Byerlee, 2012).

To support these developments, formal credits were the source of aid for farmers because their absences hampered agriculture's adoption to new technologies (World Bank, 2014).

External financing was more accessible to the small medium size enterprises (SMEs) than the small-scale businesses, because they satisfied the strict collateral requirements by the financial institutions (World Bank, 2014). Factoring provided SMEs with large amount of financing than traditional cash flow lending in the Sub-Saharan countries (Berg & Fuchs, 2013).

Credit was an essential policy factor that influenced farming with technical efficiency (TE) (Karimov, Awotide, & Amos, 2014). In this wise, access to formal credit increased agricultural production efficiencies (Deininger & Byerlee, 2012). Financing was an essential tool for changing the lives of poor African families because it reduced extreme poverty and hunger in the rural communities (Deininger & Byerlee, 2012).

Micro-finance intervention in Zambia for instance assisted the small-scale farmers with

farm credits (World Bank, 2014). The South African government also financially supported large number of small-scale farmers to diversified farm productions and they became semi commercial farmers (Aliber & Hall, 2012).

Microfinance provided financial services to the low-income households, reduced poverty, improved farm-level productivity, and generated employment (Awunyo-Vitor, Al-Hassan, & Sarpong, 2014). More importantly, expending of loans to the poor rural farmers increased income generation and business expansions amid flexible terms of repayment (Vijender, Rachna, & Parul, 2012). Agricultural bankrolling also accelerated the supply of resources and farm credits to farmers on a timely basis (Balaceanu & Apostol, 2012).

Osei-Assibey (2012) explored the effects and differences in the financial sources of start-up for micro and small enterprises' (MSEs) in Ghana (Osei-Assibey, 2013). There was a significant association with debt financing and productive growth, but the financing from donations and charities did not have any linkage (Osei-Assibey, 2013). However, there were positive associations between formal financing sources like the formal and semi-formal toward the MSE's growth (Addae- Korankye, 2014).

Characteristics of Formal Farm Financing in Developing and Developed Countries

The formal financial sector was important in increasing agricultural production because it aided in investment services and supported farmers (Awunyo-Vitor et al., 2014). Financing in the agricultural production sector augmented the gap in technology use, research development, and had some positive consequences for agricultural

productivity (Balaceanu & Apostol, 2012). High-risk of agricultural production caused financial institutions not to lend to farmers beyond the marketing stage.

Commercial financial organizations' decisions somehow addressed owner equity and deposit apprehensions (Bhanot, Bapat, & Bera, 2012). Small business managers' made choices of production on their levels of knowledge, time, and competency (Anderson & Ullah, 2014). Negatively, the financial sustainability achievements caused the formal institutions to target prosperous clients with good farming records (Akpanjar, Quartey, & Abor, 2013; Annim, 2012).

Chinese farmers' financial delivery systems demanded factor credits, character, capacity, capital, condition, and collateral as means of receiving finance (Jia, Luan, Huang & Li, 2015). These factors mentioned above restricted and reduced farmers' ability to access financial assistance within the lending institutions. The cultural aspects also mitigated against the availability of rural producer credits (Jia et al., 2015). Agricultural subsidizations in rural China credit markets targeted the achievements of higher possible benefits to the farmers (Jia et al., 2015). Dodson (2014) agreed on some of these factors and added few others. Dodson stated that creditworthiness assessment of small-scale farmers' included education, cooperative associations membership, solvency, profitability, cash flow, and liquidity (Dodson, 2014).

Guanxi business network in China allowed high ranked individuals to receive more grants and financial assistance than their fellow subordinates (Lobo, Leckie, & Li, 2013). The purpose of the Guanxi system was farmers' knowledge-driven to acquire monetary and other resources to expand farm operations, development, and farm business

survivals (Lobo et al., 2013). Dong, Lu, and Featherstone (2012) consequently scrutinized the credit constraints on small-scale farmers' in Heilongjiang province of China and revealed that young farmers' have not leveraged their comparative advantage for hard work under farm credit limitations (Dong, Lu, & Featherstone, 2012). These constrictions have limited agricultural productivity and rural income generation (Dong et al., 2012).

The exploration of the relationship between financial development and agriculture growth in Pakistan integrated economic development activities as a variable of production from 1971-2011 (Shahbaz, Shabbir, & Butt, 2013). Shahbaz, Shabbir, and Butt (2013) used the autoregressive distributed lag bounds, tested, and assimilated the structural breaks for the long-run relationships between financial development and agricultural growth. The findings indicated that economic development had a major positive effect on agricultural growth (Shahbaz et al., 2013). This commercial development has a significant role in boosting sustainable farm productions (Shahbaz et al., 2013).

An exploratory study in the Argentine Pampas revealed major changes in the country's agricultural production that helped farmers' to generate sustainable incomes (Jose & Padmanabhan, 2015). Farmers determined credit availability was usually less than the current debt that equaled to their credit reserves. The Danish farmers' credit volume over a period was proportional to the position change that was higher for dairy and pig farmers more than for the crop producers (Pedersen & Olsen, 2013).

Dzadze, Aidoo, and Nurah (2012) conducted a study to determine the factors, which led to the small-scale farmers' access to formal agricultural credits in Ghana. In support of this study, data collection was from the small-scale farmers and four financial institutions. The descriptive indicators of the study result compromised extension contact, educational level, and saving habits of the farmers to farm credit approval (Dzadze et al., 2012).

Commercial farmers' in Ghana successfully patronage their operations with external loans characterized by shorter payments (Brownson et al., 2012). The formal financial institutions lent with investment resources such as savings, insurance, remittances, and payments (Bhanot et al., 2012). Consequently, the agricultural insurance sheltered financial investments in crop production in Ghana with the German Development Cooperation and Ghana National Insurance Commission as the stakeholders (Nunoo & Acheampong, 2014). Another school of thought was that farmers' did not have access to credit, and sexism restricted women from innovative businesses such as farming and cottage industries (Lourenco et al., 2014).

Characteristics of Formal Rural Farm Financing

Farmers of the American rural farms and the small businesses have an upper hand to access credit as compared to their rural counterparts in the developing countries (World Bank, 2014). The American rural farmers have financial institutions like the agricultural and regional community banks, the farm credit system, and the farm service agencies (World Bank, 2014). The specialized lending programs targeted farm businesses

enlargements in rural areas with the United States Department of Agriculture (USDA), financial services, and loan programs (World Bank, 2014).

In the developing countries, financial institutions challenges were in providing adequate resources to the rural farmers (Duwal & Sun, 2013). The rural farm homes provided food for their families and supported their living (Collier & Dercon, 2013). However, these financial resources did not significantly support the rural families in the developing countries in making ends meet.

Poor farmers who relied on credit were targets of increasing credit access (Tadesse, 2014). Rural development initiatives targeted the entrepreneurial farmers to achieve maximum production influences. Care and implementation over shadowed the potential distributive effects of targeting other farmers regarded as non-entrepreneurial (Rohitha, Rosairo, & Potts, 2016).

The lack of access to credit facilities limited rural farmers' investments, economic activities, and reduced scale-up farming decisions (Akpanjar et al., 2013). Chinese (Non-Governmental Organizations) NGOs assisted the rural farmers with microcredits, but the investment risks and rivalries among the financial institutions have stunted the NGOs development (Xiang, Jia, & Huang, 2014). Farmers in Rwanda specified that the value chain financing linked all levels of farm production to profitability (Kopparthi & Kagabo, 2012). This inability motivated farmers to search for financing through the commercial banks, NGOs, and state-sponsored credit corporations (Yegon, Kipkemboi, Kemboi, & Chelimo, 2014).

Farm investment and credits were crucial in the transformation of the rural communities (Ojiako & Ogbukwa, 2012). The economic value of retaining small-scale farmers led to the economic renovation and the growth of the rural communities (Ojiako & Ogbukwa, 2012). Sustaining and improving the lives of rural households and communities was one-way politicians will foster asset and social investment (Antwi-Agyei, Dougill, Fraser, & Lindsay, 2012).

To add more, the agricultural production was the economic backbone of developing countries, because it enabled improvement and profitable growth (Brownson et al., 2012). On this note, Fletschner and Kenney (2014) studied the demand for financial services by rural households and postulated that credit for consumption generated income through improved productivity of family labor and farms (Fletschner & Kenney, 2014). Subsistence households' credit toward consumption, production, and investment did not financially sustain the agricultural production accomplishments (Fletschner & Kenney, 2014); therefore, supporting the Amankwakrom subdistrict small-scale maize and cassava farmers financing might contribute to farms expansion, increasing yields, and reduction of poverty (Collier & Dercon, 2013).

Banking Institutions Role in Farm Financing

Agricultural credit as a financing tool promoted sustainability, farm expansions, and growth (Kadri, Bunyaminu, & Bashiru, 2013). Enterprise growth was associated with bank financing because these institutions played a major role in the financial systems in the developing countries (Beck, Demirgüç-Kunt, & Singer, 2013; Osei-Assibey, 2013). Banks were cautious to loan credit to SMEs for reasons including: (a) lack of record of

achievement, (b) collateral to advance debt financing, and (c) reliable risk-assessment procedures (Addae -Korankye, 2014). Similarly, banks charged bigger interest rates to SMEs in contrast to the larger firms (Beck, Demirgüç-Kunt, & Singer, 2013). Some banks also charged higher fees and interest taxes to SMEs in emerging nations than in the industrialized countries (Kuntchev, Ramalho, Rodríguez-Meza, & Yang, 2013).

In the same predicament of the SMEs, many rural banks sidetracked their primary goal of providing finances to the rural agricultural production systems (Kadri et al., 2013). Coupled with higher risks aversion some financial institutions did not lend to farmers' prior to marketing level of their farm productions. Meanwhile, inexperienced farmers' faced the largest credit problems from the uncertainties of their farm outputs and inability to make loans repayment on time (Kirschenmann, 2012).

Financial institutions first grouped pertinent small-scale loan applicants into two groups. The first group were the loan seekers who did not apply for farm credits but had an evaluation of their creditworthiness. The second were those who went through the formal loan application processes (Chiu, Khantachavana, & Turvey, 2014). Female farm owners in the Punjab region of India were gender prejudiced with the banks, because of the male-dominated banking sector. Therefore, the loan rejection rates for females were significantly higher than for the male farmers (Sandhu, Hussain, & Matlay, 2012).

Financing through the rural banks contributed to the lives of women farmers who constituted the most disadvantaged people in the rural communities (Deininger & Byerlee, 2012). Rural banks contributed significantly to the women farmers' and the poor with the beneficiaries having more access to healthcare, education, and increased income

(Deininger & Byerlee, 2012). The financial predicaments of some small-scale farmers was ameliorated by formal rural and community banks, micro-finance institutions such as NGO's, savings, loan companies, and the informal institutions (Tobbin, 2012).

Sustainable micro financing was essential to the commercialization of agricultural production and the successful execution of farming ideas (Mago & Hofisi, 2014). Microfinance NGO's in China served as a source of credit in the absence of formal financial institutions (Xiang et al., 2014). In contrast, to increasing farm yields was the solution to African food security predicament, which could be lessened due to the higher agriculture production goals (Grogan, 2013).

Financing and insurance played a successful role in animal production in Southern Benin (World Bank, 2014). The lack of farmers insurance and the high cost of transactions could hinder the successful agrarian financing programs (World Bank, 2014). Bulgaria, crop farmers used agricultural insurance as a risk management strategy to safe guard profit and loss by purchasing premiums for perils and low yields (Lefebvre, Nikolov, Gomez-y- Paloma, & Chopeva, 2014). Agricultural sponsorship in the Amankwakrom Subdistrict might help to institute significant projects like insurance against climate change, registration of land ownership, acquisition, and farm financing. These projects might improve on the small-scale maize and cassava farmer's production, create jobs, and reduce poverty in the Amankwakrom Subdistrict of the Afram Plains.

Informal Farm Financing

Madestam (2014) analyzed formal and informal institutions in the poorly advanced credit markets and postulated that legal financial establishments have accessed

many funds but lacked the ability to control the use of these loans (Madestam, 2014). However, Madestam (2014) agreed to the expending of both formal and informal farm loans to the farmers (Madestam, 2014). Further indications supported the weak legal systems, which have increased the dominance of the informal financing because of variable interest rates from the formal institutions. Some rural farm households received more financial services through the informal financial sector than urban farmers did (Akpandjar et al., 2013). The Chinese government, however successfully improved the informal rural financial market where farmers' loaned about 60% of credit through their local investors (Yuan & Gao, 2012).

MSE's initiations relied on inadequate household savings, remittances and free monies from charitable organizations (Osei-Assibey, 2013). Acquisition of MSE's subsidized interest-free loans was from semi-formal financial institutions like Non-governmental organizations, credit unions, savings, credit banks, and government programs (Danso & Adomako, 2014); however, the subsidized loans were essential for small-scale farm business start-ups in Africa but at the same time, they weakened growth because of contentment and waste (Osei-Assibey, 2013).

Moneylenders, Families, and Friends Role in Farm Financing

Financial sources for businesses startup in Russia were mainly through private and family savings (Gudov, 2013). To support the informal borrowing between families in rural China, lending was noted as a significant economic factor in the agricultural investment and growth (Bhanot et al., 2012). Ojiako and Ogbukwa (2012) postulated that small-scale farmers have more access to informal credit institutions than the formal,

although the latter had a high volume of credit (Ojiako & Ogbukwa, 2012). These researchers' revealed that informal financial institutions had recovered higher loan repayment for loans offered at reasonable interest rates (Ojiako & Ogbukwa, 2012).

Farmers who lacked access to financial institutions resorted and borrowed from moneylenders with higher interest rates (Kopparthi & Kagabo, 2012). Some Ghanaian relatives and friends contracted loans to farmer households who needed informal financial services (Akpandjar et al., 2013). However, the small-scale maize and cassava farmers financing their farms with high-interest loans would not sustain and advance the agricultural business development in the Amankwakrom Subdistrict of Ghana.

Akpandjar along with his fellow researchers' investigated household aiding choices and the elements of financial services in rural Ghana (Akpandjar et al., 2013). The results of the study indicated that alternatives financing services were available and rural households were more likely to search for loans in the informal sector. Lack of financing, innovations, and efficient agricultural technologies affected the small-scale farmers' agricultural production (Hounkonnoua et al., 2012; Osei-Assibey, 2013).

Agronomic sustainability required that the small-scale farmers adopt new technologies to improve production (Akudugu et al., 2012). This goal was not attainable in SSA because of agricultural production catastrophes (Hounkonnoua et al., 2012). In addition, there was no study performed on the financial sustainability challenges for small-scale maize and cassava farmers in Ghana; although this could help these farmers to increase farm-holdings to produce more, create jobs, and reduce poverty.

Emergent Themes from Literature Review

1. Collateral problems in small-scale farm financing.
2. Small-scale farmers' cooperatives organizations' role in farm financing.
3. Research and capacity building for sustainable formal loans to small-scale farmers.

Theme 1: Collateral Problems in Small-Scale Farm Financing

Credit constraint was the primary determinant in small-scale farms performance, development, and growth (Ciaian, Falkowski, & Kancs, 2012). Collateral problems solutions were through agricultural investment alternatives like (a) sole grain contract, (b) guarantee agreement, and (c) corporate farming financing. Middelberg (2013) analyzed these economic alternatives and indicated that the traditional balance sheet financing was the cheapest tool for agricultural financing (Middelberg, 2013).

The analyzation of farm production and input use like land, variable inputs, labor, and capital to farm credit in the Central and Eastern Europe found farm input allocations and efficiency disproportional to credit constraints (Ciaian et al., 2012). Results of this study supported the adverse effect of credit access to small-scale farmers, which indicated substitution of this financial element (Ciaian et al., 2012).

In disbelief, loan borrowers' in emerging markets have rarely adequate assets to use as collateral (Middelberg, 2013). The Northeastern Thailand farmers resolved their collateral problems through the formal financial lenders' who administered collateral-free loans through third party associations and reversed loan terms (Menkhoff, Neuberger, & Rungruxsirivorn, 2012). These lenders also used the third party collateral measures with

efficient supervisions to solve the insurance issues (Hong & Zhou, 2013). Microfinance loans have tighter reimbursement schedules and the financing agencies have negated land ownership as collateral for agricultural loans (van der Merwe, 2015).

Kopparthi and Kagabo (2012) reviewed the relationship between value sequence funding and aiding for the small-scale farmers' in Southern Rwanda with two models, inter alia getting financing and their relationship with improved productivity (Kopparthi & Kagabo, 2012). It was evident that the value chain financing in Southern Rwanda improved the small-scale farmers' production and determined the profitability of the micro-finance institutions (Kopparthi & Kagabo, 2012). Sandhu, Hussain, and Matlay (2012) examined the barriers to financing the small-scale female farmers in India (Sandhu, Hussain, & Matlay, 2012). The study result indicated that women farmers had influences from the behaviors of the male bank managers because of gender preconceptions. Loans acceptance rates by bank managers for female owners was less than for male farmers (Sandhu et al., 2012). This study further contributed to the awareness and the understanding of the barriers to women farmers financing in India.

Theme 2: Small-scale Farmers Cooperatives Organizations' Role in Farm Financing

Management challenges of the twenty-first epoch to the traditional values underlying cooperative associations helped to strengthen competitiveness (Graca & Arnaldo, 2016). Cooperative associations were horizontal assembled groups. Members of cooperative associations were also unions, rather than individual farmers (Zhang & Huang, 2014). Members joined to share technological, market information, build brands, and promoted their products (Borda- Rodriguez, 2014).

Mutual groups, primary, and advanced cooperative associations were the three major form of organizations adopted by the farming communities (Huang, Vyas, & Liang, 2015). Advanced farmer cooperative association was important instruments for their members' welfare, but the lack of financing precluded their efficiency in developing countries (Okem & Lawrence, 2013). The expected role of cooperative associations in accessing cheap rate loans in collaboration was essential in sustaining the small-scale farmers (Ahmed, Suleiman, & Aminu, 2013). Participatory rural cooperative associations led to poverty reduction, good family relationships, and the community coherence (Saunders & Bromwich, 2012).

In mutual groups, farmers voluntarily joined on a reciprocal basis. Farmers had the ownership rights regarding their production, land, and tools (Huang et al., 2015). Cooperative associations collectively owned the farmland and tools because of their working together (Huang et al., 2015). Community share cooperative associations establishments were by allocating specific decision and income rights over the collective assets to the individual small-scale farmers (Huang et al., 2015). Land shareholder cooperative associations emerged because of the problems of land fragmentation and inefficiencies in the factor uses for the small-scale farmers (Ma, Heerink, Ierland, Berg, & Shi, 2013; Zhang & Huang, 2014). Farmer-owned cooperative associations with appropriate institutional arrangements further reduced transaction costs for buyers and introduced accessible rural financing schemes to enhanced provision of assets and technology (Rohitha Rosairo & Potts, 2016).

Farmer cooperative associations in the Western world, however have a few core members in charge of management and marketing (Huang et al., 2015). These core members were usually the initiators of the cooperative associations. Besides, the core members good management and marketing, they also have a network with downstream buyers (Huang et al., 2015). In contrast, cooperative associations tend to have different goals, which did not readily transform into traditional measures of small-scale farmers business performances (Reddy & Locke, 2014). Furthermore, the internal pressure from members tend to weakened cooperative and mutual associations because of the low member participations (Reddy & Locke, 2014).

Development partners' like the United Kingdom Department for International Development, Danish International Development Agency, Swedish International Development Agency, and the US Agency for International Development initiated financing programs (Irwin, 2014). These programs supported the private financial sector areas in Ghana, Kenya, Tanzania, and Mozambique (Irwin, 2014). The programs provided capacity building and financing to cooperative associations to spur investment, created jobs, and distributed wealth (Irwin, 2014).

Family firms, partnerships, and cooperative associations were predominantly in the agricultural communities that enabled the small-scale farmers to exploit their business avenues for financing (Mondelli & Klein, 2014). The agricultural cooperative associations form of governance within the communities created brand values, which were the interchange standpoint of using perspectives to elucidate current conditions under which the state and the market prevailed in organizing economic activities

(Paranque, 2014). Members mostly focused on farming, pooling risks, and obtained services provided by cooperatives such as inputs and marketing services (Huang et al., 2015).

Cooperative associations have emerged and changed the market economy, with about 600,000 farmer cooperatives and 46,000,000 members in China (Zhang & Huang, 2014). There were in-built risks in the traditional and the modern unions with size expansions and heterogeneity in membership (Borda –Rodriquez, 2014). These findings suggested that local cooperative associations faced competitive and human resources risks, while the modern types faced more decision-making and behavioral threats (Zhang & Huang, 2014).

Qinlan and Izumida (2013) indicated that cooperative association memberships was beneficial to small-scale farmers' in the sense that rural credit cooperative banks in Guizhou province of China lent to poor small-scale farmers. These farmers' had limited access to farm credit (Qinlan & Izumida, 2013). The cooperative bank therefore built positive relationships and joint responsibilities between the microlenders and the small-scale farmers (Qinlan & Izumida, 2013).

The agricultural supply chain in China was diversified and experienced transformation in both structure and management (Huang et al., 2015). Agricultural sector organization in China and India have benefitted the commercial agriculture producers, but ironically, the growing small-scale farms sector did not disappear. These developments have improved the traditional agriculture and its institutional underpinning.

Institutional reforms were essential to address accomplishment of the complete agricultural production systems (Huang et al., 2015).

A group of conservative researchers inclined that the small-scale farmers in India used land and water habitats to increase farm production (Kornginnaya, 2013). The local lending institutions supported their farm operations to maximized crop yields (Damodaran, 2012). Small-scale farmers' of Karnataka state in India harnessed group farmer participation in micro financing (Kornginnaya, 2013).

The practice assisted farmers, development agencies, and the agricultural policy management in India to stop the agrarian crisis initiated by the shortages of farm credits and labor (Kornginnaya, 2013). Karnataka cooperative farmers' association settled loans and labor issues through mutual understandings and the self-help actions (Kornginnaya, 2013). The government of India made farm credit available to ultra-poor farmers' because moneylenders' exploited the small-scale farmers with the high interest rates (Mukherjee, 2014).

The feature of Indian agriculture was that a large number of small and marginal holdings were bypassed by the service providers that the transaction costs of dealing with small-scale farmers was higher in risks (Huang et al., 2015). However, the small-scale farmers were incapable of negotiating effectively with other supply chain members because of the scarcity of market information and the scale of production (Pomfret, 2014). To overcome these handicaps the small-scale farmers organized themselves into cooperative associations and producer companies (Pomfret, 2014). The cooperative

associations, various organizations have emerged to help the small-scale farmers to cope with their farming problems (Huang et al., 2015).

Along this trend, constant changes were taking place in configuration of operational holdings in Indian agriculture (Pomfret, 2014). The number of the small-scale farmers who cultivated less than two ha had tremendously increased (Huang et al., 2015). Consequently, the large fragment of agricultural producers' constituted the small-scale farmers who devised ways to cope with the changing demand structure, to compete in the input and output markets, and for availing the extension services and credit institutions (Huang et al., 2015).

Granarolo, a small-scale farmers' cooperative association collected, processed, and sold milk produced to liberate their workers and farmers. The Granarolo cooperative association developed a marketing strategy on social networks, which was a community based on shared values to their pre-existing brands (Battilani & Bertagnoni, 2015). The viral marketing strategy extension to other cooperative association was an important solution for activities rooted to the local community's aspiration (Battilani & Bertagnoni, 2015).

The small-scale vegetable farmers in Sri Lanka harnessed cooperative associations as the characteristics of innovation, opportunity seeking, risk taking, and insinuations for rural development (Rohitha et al., 2016). In support, the external interventions played a pivotal role in the Nicaraguan coffee sector organizational building capacity, responded to buyers' demands, and market-related shocks (Poole & Donovan, 2014). These interventions exerted advantage over cooperative associations' structures

with the aim to increase smallholders' access to important services, such as technical assistance and credit financing (Donovan & Poole, 2013).

Adekoya (2014) proposed that the small-scale farmers in Nigeria involvement in community membership associations helped them to access farm credits and adapt productive agricultural inputs by using improved seeds, fertilizer, and tractor services (Adekoya, 2014). Quality certification schemes were essential for (SMEs) because of income and quality of life of the enterprises owners (Karipidis & Tselempis, 2014). The implemented schemes were in the farmer cooperative associations and the SMEs (Karipidis & Tselempis, 2014). Agricultural risks and inadequate access to credit were severe impediments to cooperative associations' agricultural productivity. They were also two main sources of prospective poverty traps in the developing countries (Shee, Turvey, & Woodard, 2015).

Small-scale collective farmers reversed the trend of high agricultural loan defaults among its beneficiaries (Ojiako & Ogbukwa, 2012). Cabo and Rebelo (2012) however had a contradictory view of this argument by noting that agricultural cooperative associations' policies favored defaulted farmers who demanded substantial farm credits (Cabo & Rebelo, 2012). These ethical behaviors also undermined the lending institutions' goal of contributing to the agricultural development (Cabo & Rebelo, 2012).

Agricultural credits for small-scale farmers were essential as they enabled the establishment and expansion of farms in Oyo State of Nigeria. The small-scale farmers use their loans to hire labor and purchase implements, fertilizers, and seeds (World Bank, 2014). Caisse de Affaires Financieres, a local micro-finance institution in Rwanda,

introduced an inventory credit system and doled out investment loans to its cooperative association's rice paddy farmers (Kopparthi & Kagabo, 2012). The Ugandan small-scale women farmers also teamed up and engaged in fund raising to sustain themselves through the entrepreneurial skills development training (Lourenco et al., 2014).

Researchers' in the Upper Denkyira municipality of Ghana explored the effect of microfinance credit on farmers (Adu-Gyamfi & Ampofo, 2014). This study revealed that farm size, occupation, access to credit, and machinery influenced members to join the farmer-based cooperative associations' in the Eastern Region of Ghana. Amankwakrom Subdistrict small-scale maize and cassava farmers' agriculture might also require financial investments to this extent.

Theme 3: Research and Capacity Building for Sustainable Formal Loans to Small-scale Farmers

Financial market development was essential for the agricultural growth (Kadri et al., 2013). Credit Non-Governmental Organizations (CNGO's) established by international institutions, World Bank, and the charitable organizations provided loans to farmers' excluded from formal and local investors' credits (He & Liao, 2012). The profit and loss sharing efforts promoted the entrepreneurship and encouraged the growth of small and medium scale enterprises (Kayed, 2012). Financial institutions refused granting loans to firms with low growth rates, start-up entrepreneurs, and owners with bankruptcy history (Briozzo & Vigier, 2014).

Osei-Assibey, Bokpin, and Twerefou (2012) studied the determinants of financing preferences of the micro and small enterprises (MSEs) and famed a broad area of

investment avenues beyond what was normally within the corporate financing literature on the rural markets in the developing countries. In support, the new enterprises opted for low cost and informal financing for investment (Osei-Assibey et al., 2012). Access to credit was essential for firms' growth, efficiency, and productivity in the developing countries (Kuntchev, Ramalho, Rodríguez-Meza, & Yang, 2013).

The Nigerian Agricultural and Cooperative Bank Limited successfully granted loans to individual farmers, farmers' groups, and cooperative associations. The bank's effort increased agricultural production, profitability, rural employment opportunities, and improved the living conditions for the rural population (Kanayo, Nancy, & Maurice, 2013). Kayed (2012) also indicated that the World Islamic Bank advocated for financial institutions lent on profit and loss sharing to enticed potential entrepreneurs to establish collateral-based risk sharing (Kayed, 2012).

I endorsed the Muzara'ah–supply chain model for enhancing agricultural investment and productivity for the small-scale maize and cassava farmers in Amankwakrom Subdistrict. Farmers faced a scarcity of financing with the model and were exploited through a high-interest rate (Oladokun, Larbani, & Mohammed, 2015). The positive part of this financial model had based risk-sharing principles with the application reducing moral hazards and increasing agricultural productivity (Oladokun et al., 2015).

The cooperative bank initiated economically investment developments in rural communities devoid of reducing its profit margins. The bank's economic objective was not for profit maximization, but rather for helping farmers (Cabo & Rebelo, 2012). Some

cooperative associations' fortified the small-scale farmers' with cheap credit, economies of bulk purchases, and sales of agricultural outputs ((Frankel, 2015); however, other credit institutions could have a similar goal of increasing the number of poor households loan certification.

The banking system in Ghana consisted of market segments' within which the formal and the traditional informal institutions co-existed with little linkages (Osei-Assibey et al., 2012). Meanwhile the high bank interest rates alarmed farmers' and prevented them borrowing from the microfinance institutions (Adu-Gyamfi & Ampofo, 2014). Nevertheless, national governments' played dominant roles in agricultural development for strategic and economic reasons and determined the drivers of sustainable farm production (Adu-Gyamfi & Ampofo, 2014). However, agriculture production has cross-sectorial implications among which national agencies needed to construct as policy platforms (Adu-Gyamfi & Ampofo, 2014).

Transition

In section 1, I provided circumstantial modalities for the study on the sustainability challenges affecting the small-scale maize and cassava farmers in the Amankwakrom Subdistrict of Ghana. The central research aim of this study was to explore the strategies the small-scale maize and cassava cultivators' have used to secure farm financing. Conceptual framework for the study was the regional-scale sustainability development index.

My literature review supported the fact that Ghana's economy depended on the rural agriculture for sustainable development (World Bank, 2014), but the sector

underperformed, and farms have failed due to inadequate financing (Diwan & Emerson, 2013). Limited resources were the primary cause of farm businesses not expanding (Anderson & Ullah, 2014). I made a supposition for this study because the Amankwakrom Subdistrict small-scale maize and cassava farmers were Ghanaians and lacked farm financing.

Themes that emerged from literature review were (a) collateral problems for small-scale farm investments, (b) cooperative association's role in small-scale farmers' farm financing, and (c) research and capacity building for sustainable formal loans to small-scale farmers. Discussion of the emerged themes and the literature gaps were in section 1 of the study. In section 2, I provided the selected research method, design, and the necessary plan of action for conducting the study. In addition, this section included the arrayed formality of reviewing the financial sustainability challenges influencing the small-scale maize and cassava farmers in the Amankwakrom Subdistrict of Ghana.

Section 2: The Project

In this section, I provided an overview of the study and justified the use of the qualitative research method and the case study design. Additionally, I described my role as a researcher in the data collection processes, my relationship with the topic, and the research participants. I further outlined the eligibility criteria for the small-scale maize and cassava farmers with whom I interviewed, identified the strategies for gaining access to the participants, and established the elements of a good working association with the small-scale maize and cassava farmers in the Amankwakrom Subdistrict.

Furthermore, I discussed the measures that guaranteed the ethical protection of my participants' and identified the instrument to use in my data collection. I provided the techniques for data collection, organization, and analysis for this study. Finally, I provided a detail description of the reliability and validity of my study.

Purpose Statement

The purpose of this qualitative case study was to explore the methods the Ghanaian small-scale maize and cassava farmers who cultivated less than two hectares of land have used to obtain farm financing. Maize and cassava were the staple crops that are important to the community, and improving the financing options for these farms could lead to more profits and create employment opportunities (Martey et al., 2012).

Amankwakrom Subdistrict in the Afram Plains region was suitable for aiding Ghana's food production initiatives and security (Appiah, 2013; Yankey, 2013). The implications for positive social change for this study included the potential to guide all the small-scale maize and cassava farmers in accessing finance to use in expanding their farm holdings.

The farm expansions might help to produce more maize and cassava to meet the food requirements of the farm families, create job opportunities, and reduce poverty in the Amankwakrom Subdistrict of the Afram Plains.

Role of the Researcher

My role as a researcher for this qualitative study included interviewing participants, collecting data with the interview protocol, and assuming responsibility for the relevant ethical assurances as described in the study. I reviewed the Belmont Report regarding the design and execution of the study in order to ensure the protection of the research participants. I was aware of the number of ethical issues that addressed (a) protecting the research subjects, (b) developing and maintaining trust, (c) respecting the research integrity, (d) preventing misconduct and impropriety, (e) personal disclosure, (f) authenticity, and (g) credibility of the research report. The observation of the ethical credibility of my study was through the principles of ethical studies, justice, respect, and beneficence (Aluwihare-Samaranayake, 2012).

The research participants consented to the agreements in which I emphasized the voluntary nature of participation in the study. I gave assurances to the research participants about the confidentiality of the information provided. There were no challenges during my data collection in the study community; however, some previous researchers' contacted the employees of the Ministry of Food and Agriculture to reach out to their participants (Purokayo & Umaru, 2012). Therefore, I sent a letter of cooperation to the Ministry of Food and Agriculture representative as my community partner (Appendix A), who provided me with the contact information of the small-scale

maize and cassava farmers in the Amankwakrom Subdistrict. The Walden Institutional Review Board (IRB) approval number for my doctoral study was 03-03-160358063; it expires on March 2, 2017.

The research instrument, data collection methods, presentation of the findings, and the recommendations were done in a fair manner (Marshall & Rossman, 2014). Handling the rigors of interviewing and clearly presenting the observations was crucial in research studies (Yin, 2014). I interviewed participants who were fluent in the English language with the modified Horizons instrument (Appendix B).

The modern processes of data collections were (a) paper questionnaires, (b) telephones, and (c) personal interviews. Open-ended interview questions were relevant to capturing the ideas and experiences of the research participants and helped to gain an in-depth understanding of the meanings ascribed to the problems under exploration (Aluwihare-Samaranayake, 2012). I developed an interview protocol (Appendix C) with open-ended questions that contributed knowledge to my central research question. My participants also granted their permissions prior to recording the interviews to assure the authenticity of the data (Williamson, Leeming, Lyttle, & Johnson, 2015).

I was impartial and honest throughout the data collection process and focused on the business issue of the financial sustainability challenges affecting the study population. The transcription of the written interview responses enabled the truthfulness of study results (Yin, 2014). I did not bias nor added my own knowledge to the interview responses and had no prior relationship with the participants. However, I have worked in the Afram Plains region from 1993 to 1999 as a Ministry of Food and Agriculture

official. None of my previous academic studies was on the sustainability challenges influencing this population.

Participants

The participants' for this study were the fluent English language speaking small-scale maize and cassava farmers who obtained financing in the Amankwakrom Subdistrict of Ghana. Maize and cassava were important crops to the small-scale farmers in the Amankwakrom Subdistrict, and these crops supported the households' food requirements and were a source of income (Martey et al., 2012). Karimov and associates (2014) indicated that a slight change in the staple crops production led a country closer to poverty (Karimov et al., 2014).

The importance of these staple crops urged me to study the financial strategies of the small-scale maize and cassava farmers. Gaining access to the participants in this research study was through the Ministry of Food and Agricultural representative. Marshall and Rossman (2014) indicated that data accuracy was justified if the collection was from 25 random sampled participants (Marshall & Rossman, 2014). However, due to time, finances, and other constraints, I collected my data from eight English language fluent small-scale maize and cassava farmers who have successfully obtained farm financing. My decision to use a small number of participants (Gray, 2013) yielded a significant information about the farmers' financial sustainability challenges.

The criteria that directed the selection of my study participants were: (a) adult farmers, (b) farmers who were fluent in the English language, (c) farmers who resided in Amankwakrom Subdistrict, (d) farmers who cultivated two hectares or less of maize and

cassava crops, and (e) farmers who have obtained farm financing in the previous years. The best strategy for developing a good working relationship with research participants was when everybody comprehended the stated reasons for the exploration (Klosowski, 2014). The statement reflected the advantages of working together in a research study that may have far-reaching benefits for both participants and the researcher (Klosowski, 2014). I developed interview questions prior to the commencement of the study, which guided me in the data collection processes (Foster, Hays, & Alter, 2013).

The central research question was: What strategies do the small-scale maize and cassava farmers in the Amankwakrom Subdistrict use to obtain farm financing? I have addressed this central research question in my study (Fischler, 2012). Involvement in a study must be unpaid and transpire with informed permission (Cox, 2012; Yin, 2014). Additionally, I provided information to the participants' on the central issue concerning the voluntary research procedures. My task as an interviewer guaranteed that the participants understood the purpose of the small-scale maize and cassava farmers' sustainability study. However, participants who decided not to answer the interview questions for any reason could withdraw from the study.

Research Method and Design

Research Method

There were three main approaches used in research studies, quantitative, qualitative, and the mixed research methods (Marshall & Rossman, 2014). Quantitative research methods included hypotheses to prove or disprove variables that brought about causation by capturing, analyzing, and discussing numerical data (Hanushek & Jackson,

2013). The quantitative methods were associated with statistics; in other words, the quantitative method was about numbers and variables relationships (Marshall & Rossman, 2014).

Boateng (2014) used quantitative research methods to examine the application of logistic regression in African countries' economic growth. The result of the study disclosed that the external capital inflows were direct foreign investments and foreign aid workers' with remittances from net exports (Boateng, 2014). Understanding the individual's perceptions was not useful in the quantitative method because the process inquired about the relationships among other variables evaluations (Marshall & Rossman, 2014).

Mixed research methods required analyzing of quantitative and qualitative data to give credibility to the study (Bryman & Bell, 2015). Makewa (2013) identified the work effectiveness and efficiency of a department's business processing activities by using both the qualitative and the quantitative research methods to strengthen his research study. The result indicated that there were transparencies in the administration efficiency with the installation of pension management information system (Makewa, 2013).

In this research study, I have not used the mixed research methods because of the difficulties I perceived in analyzing the quantitative and the qualitative data. However, I measured and analyzed the successful small-scale maize and cassava farmers' indigenous financial knowledge with minimal statistical information. Therefore, the mixed method was unsuitable for my study because I did not deal with the farmers who have not had knowledge of farm financing.

My selecting of the qualitative method supported the descriptions, explanations, and analyzes of the case (Yin, 2014) regarding the maize and cassava farmers. Akoijam (2013) also used the qualitative methods to explore and analyzed the financial hardships of the rural Indian farmers. Agricultural credits were indispensable because they provided a sustainable livelihood to the rural farmers that ensured sufficient and reasonable interest rates (Akoijam, 2013). I used the qualitative approach and developed a similar concept (Guercini, 2014) of understanding the financial sustainability challenges for the small-scale maize and cassava farmers in the Amankwakrom Subdistrict of Ghana.

Research Design

The five research designs within the qualitative approach were: (a) biography, (b) phenomenology, (c) grounded theory, (d) ethnography, and (e) case study (Yin, 2014). The biographic study guided researchers to dive into the lives of interesting people through an exploration. Researchers applied biographic design to understand history and make a deeper meaning of it (Sparkes & Smith, 2013).

Chan and Lin (2013) used the biographic model to investigate micro and small enterprises (MSEs) in China (Chan & Lin, 2013). The MSE's funding issues required lower credit costs, longer duration of debt payments, small loan payments, accessing nonbanking finances, and economic services (Chan & Lin, 2013). A biographic study was not adequate for my study because the sustainability challenges of the maize and cassava farmers were not biographic problems to explore.

The phenomenological design enabled the illumination of the lived experiences of practitioners and industry specialists' involvement in the provision and promotion of the

factoring services. Granot, Brashear, and Motta (2012) conducted a phenomenological research investigation on Malawian small-scale farmers' measured knowledge, experiences, and attitudes regarding information and communication technology (ICT) to encourage improved agricultural practices among the farmers (Granot, Brashear, & Motta, 2012). Granot et al., (2012) revealed that the Malawian small-scale farmers' were ICT illiterate in changing their farming and marketing behaviors. There existed the need to explain the rationale and principles behind the financial sustainability challenges facing the small-scale maize and cassava farmers. I gave meanings to the maize and cassava farmers' experiences and provided meaning to them. Phenomenology design was unacceptable for my study (Schwartz-Shea & Yanow, 2013) because there was the need for clarifying how the principles fitted into my study

Thematic exploration and grounded concepts were qualitative inquiries used to locate themes and academic constructs (Terry, Le, Terry, & Kirschbaum, 2013). A grounded theory study in Europe on multifunctional agriculture and rural development applied typology for the care farms in the Netherlands. This research study confirmed that the pastoral care farm development arose because of entrepreneurial services for the women farmers (Hassink, Hulsink, & Grin, 2012). The grounded theory was not relevant because it analyzed a selected set of studies by assuring in-depth analyzes of empirical facts and related insights (Wolfswinkel, Furtmueller, & Wilderom, 2013).

Ethnographic research design involved studying a group or culture and making inferences on what directs their behaviors and events (Gray, 2013). A researcher used the ethnographic research design in the investigation of rural Indian farmers' challenges and

suicide rates, and the findings indicated that there was a connection between the farmers' suicide rates and the agrarian crisis. The Indian government provided relief programs by rehabilitating the rural Indian farmers' liberalization (Münster, 2012). Ethnographic design was inappropriate for my study because I have only explored the financial sustainability challenges of the small-scale maize and cassava farmers without referencing their cultures and events.

The case study approach in a qualitative study enabled researchers' to tackle multiple issues within the context of a case (Yin, 2014). Case study contributed to the full assessment of conditions and their similarities with the requirement of my presence in the field (Yin, 2014). A case study of on-site observations and interviews in New Zealand helped to improve the efficiency of construction site logistics through transportation movements (Ying, Tookey, & Roberti, 2014).

Kittinger (2013) evaluated the group who managed natural resources with a case study and found out the group controlled the communal resource users. Data collection was from the small fishing public. This population visibly showed a community-based planning effort (Kittinger, 2013). The case study enabled the researcher to use interview questions to enhance an in-depth grasp of the meanings ascribed to the problem under investigation (Aluwihare-Samaranayake, 2012). Case study design was relevant for this study because it permitted me to learn about the details of the successful financial strategies of the population I explored.

Population and Sampling

The population for this study was the small-scale maize and cassava farmers in the Amankwakrom Subdistrict of Ghana. Rural community based projects in Scotland showed how individuals and groups could eliminate existing tactical issues and grow together as a social enterprise (Smith, 2012). However, in the case of Amankwakrom Subdistrict in Ghana, group activities were difficult because some small-scale farmers were not growing maize and cassava on the same land sizes. Nevertheless, some farmers fitted into the parameters of my study, and there was adequate number of participants' who provided me with abundant and reliable information about the premise of the study.

Researchers maintained methodological truthfulness and assessed other qualitative methods against their internal value measurements. The data saturation processes in my research were through interviewing the sample participants until reaching the point through an initial examination and the stopping benchmark (O'Reilly & Parker, 2012). Adequate participants for this study was from the population I have interviewed and questioned to enhance the generation of new ideas leading to my data saturation level.

Random sampling allowed participants choice to be entirely by chance. Random selection prevented the avenues for which the researcher could influence the sample through biases (Gray, 2013). In some cases, qualitative researchers used the purposive sampling in their study to allow for the selection of eligible participants (Spence, Lachlan, & Rainear, 2016). However, random sampling was relevant to my study because it offered an unbiased way of collecting data from my participants.

Marshall and Rossman (2014) recommended interviewing a limited number of participants to gain an in-depth understanding of the case under study (Marshall & Rossman, 2014). Twenty-five participants' were justified for researches because they were members from whom data could be solicited for a case study (Marshall & Rossman, 2014). However, because of limited time and resources I reduced the number of my research participants' to eight adult small-scale maize and cassava farmers who were adult and fluent in the English language.

Representative sampling from a wider population called for identifying people who were relevant to the research study (Bryman, 2012). The research study about capital structure entrepreneurial businesses in China used small and medium-sized enterprises (SME's) sample for the study (Borgia & Newman, 2012). Researchers' help emanated from the community partners to identify the participants to interview who met the standards for their study (Lichtman, 2014). A Ministry of Food and Agriculture representative served as my community partner who provided me with the contact information of the small-scale maize and cassava farmers for the study.

I used the contact information of the small-scale maize and cassava farmers who have obtained farm financing in Amankwakrom Subdistrict for the study. The random sampling method helped me to focused (Nursing Research Society of India (NRSI), 2013) and learned about the financial sustainability challenges for the small-scale farmers. I listed the names of all the adult and fluent English language small-scale maize and cassava farmers on pieces of paper and deposited them into a bowl for random

sampling. The eight individual names drawn from the bowl formed the sample members of the maize and cassava farmers who participated in the study.

Ethical Research

My study included human beings; therefore, I protected the participants with the consent forms. Involvement in a research study was voluntary with the participants signing the informed consent forms prior to the beginning of the study (Cox, 2012; Yin, 2014). The consent forms, introductory letter, confidentiality agreements, letter of co-operation, and the right to withdraw were the formal documents used in my study.

The type of compensations assigned to the individuals hampered the progress of research studies (John, Loewenstein, & Prelec, 2012). Incentives to participants distracted honesty and truth telling in research studies (John et al., 2012). In accordance, there was no compensation to my research participants in the form of cash. I divulged this information to the participants at the beginning of the interview process about the withdrawing from participating at any time for any reason. An inappropriate reward to obtain compliance or induce subjects to participate in a judgment presented undue influence in research studies (Committee for Protection of Human Subjects Guidelines, 2012).

Participants treatment in this study was ethical and respectful without any manipulation. Due to the Belmont's report on ethical issues which addressed (a) protecting the research subjects, (b) developing and maintaining trust, (c) respecting the research integrity, (d) preventing misconduct and impropriety, (d) personal disclosure, (e) authenticity, and (f) credibility of the research report. To discourse about conducting of

research study outside the United States of America, I have reviewed the IRB guidelines for International Research. The international compilation of Human Research Standards enumerated over 1,000 laws, regulations and guidelines, which governed human subjects in research in 103 countries (Office for Human Research Protections, U.S. Department of Health and Human Services, 2012). In addition, I followed both laws and regulations within Ghana and the United States concerning the treatment of human participants' in a study. I understood the ethical considerations concerning the protection of human research members. I also earned a certificate from the National Institutes of Health Office of Extramural Research demonstrating my proficiency in the moral area (Appendix D).

The written agreement for participation in the study involved the informed consent processes. I provided the consent forms to the study population as a document with the intent of their understanding and agreeing to participate in the study.

Withholding information from the small-scale maize and cassava farmers was unethical; therefore, I provided the detail research study procedures and interventions to them.

I upheld the anonymity of the participants' identities because of confidential and legal issues. The research data was password protected and stored in an electronic folder, which was only accessible to me. I will delete the research data five years after the completion of this study.

Data Collection Instruments

Data collection for qualitative case study resulted from the direct interactions with the research participants (Bryman, 2012). Qualitative data collection methods depended on random sampling and structured instruments, which included the participants'

observations, focus group discussions, and in-depth interviews (Wahyuni, 2012). The instrument I used in collecting my data was semistructured interview questions with a small hand held recorder and a laptop for recording (Yin, 2014). Semistructured interviewing allowed research participants to express anything, which was significant to them (Carlson, 2012).

I used the modified Horizons instrument to obtain answers to the research questions by soliciting verbal responses from the participants (Rea & Parker, 2012). Small hand held recorder and a laptop was used for the recording of my interviews with the small-scale maize and cassava farmers. Conversely, government agencies used research results to govern and provided supports to the needy rural communities (Rea & Parker, 2012).

Locally the Horizons permission letter was found in Appendix B of this study. I revised the instrument and this enabled me to delete the second year's questions from the Horizons instrument because they were not relevant to the study. Questions for this research study was one sided-blank sheet, printed in black ink with Times New Romans font size 12. Interview questions were open-ended to allow my research participants' to offer expanded views and answers. The interview questions have sub-questions randomized to ensure respondents were answering the questions for themselves.

Qualitative researchers ensured validity through trustworthiness, originality, and securing quality data for their studies (Maxwell, 2012). The validity of research work involved information on the observations, inferences supported by data, and the similarity to previous studies (Wools, Eggen & Béguin, 2016). However, member checking in my

study enabled the small-scale maize and cassava farmers to explain their previously made statements.

The inventive test measurements were false if the assumptions were not right the test-retest goals were also defeated (Kline, 2013). These results showed the financial, relational, and the knowledge constraints affecting the participants who were successful in securing loans for their farm operations. For reliability test, I measured the adult farmers' skills in farm financing without questioning their other aspects of farming.

Researchers' listened to the recordings of the interviews and transcribed the interviews (Rowley, 2012). The audio recording comparison with the written replies of the research participants ensured the legitimacy of the data and the interviews. Reviewing the variables for inferences and striving to eliminate researcher's bias, I compared the written interview data with the audio recordings. Transcript reviews included reading from field notes and listening to the recorded transcripts (Wools, Eggen, & Béguin, 2016). The transcript reviews, which prevented threats to validity and internal consistency allowed me to use the research participants' responses on the financial sustainability challenges in the Amankwakrom Subdistrict of Ghana.

Data Collection Technique

Data collection conduction was through face-to face interviews with the small-scale maize and cassava farmers in Amankwakrom Subdistrict (Carlson, 2012). Interview modalities that adhered to the research locality's cultural norms encouraged and removed power differences in the interviewing processes (Danso, 2014). I developed a data collection tool with the title, interviewee/interviewers identification, date(s), location,

interview questions, and provided space for each issue to annotate field notes. In Appendix C is the interview protocol for this research study. I developed alternative methods of interviewing the farmers' in the Amankwakrom Subdistrict community as needed to accord the proper respect for the participants' culture. This design approach reduced any power variances during the interviews and beyond (Tobias, Richmond, & Luginaah, 2013).

Library websites was relevant to the researchers' because the site logs helped to trace the user's behaviors in locating information (Shieh, 2012). Richards and Morse (2012) advised that all interviews was audio-recorded with permission from interviewees (Richards & Morse, 2012). As indicated by Richards and Morse (2012) I sought the permission of the participants' and recorded the interviews with a small hand held recording machine and a laptop.

Web surveys were not compatible with the older generations due to their lack of participation. Video elicitation interviews enabled researchers to integrate data on participants' thoughts, beliefs, and emotions (Henry & Fetters, 2012). However, video interviews were expensive and time-consuming but beneficial to researchers (Holt, 2013).

Researchers' attitudes on data availability and accessibility for journals with data policy provided valuable information on improving data sharing (Zenk-Moltgen & Lepthien, 2014). I used member checking to enable my participants to explain or add to the comments they have already made (Wools, et al., 2016). Moreover, I interviewed the individual participant's one by one, which ensured that members' did not influence others views.

Data Organization Technique

Organizations used data sharing between other corporations that efficiently helped them (Higgins, Taylor, Lisboa, & Arshad, 2014). Ensured procedural analyzes were the primary step for high-quality pragmatic research studies (Eriksson, 2013). I categorized my database organization into different sections as a case study, narrative notes, and interview data. Dates and sub-questions assisted me in the organization of my case study notes, recorded questions, and answers.

Research data depicted the method and design with academic pursuits (Weller & Monroe-Gulick, 2014). I used the qualitative method and a case study design for my study. The conceptual framework for an organizational culture and participatory development through literature reviews proposed for observed findings in a case study (Vorholter, 2012). Quantitative method word count open discourse used a large set of the document (Borglund & Engvall, 2014).

I used reflective journals and available literature information as my transparency process reviews (Wagner, 2012). Data mining permitted system maintenance usefulness in the data collection methods (Prajapati, Bechtel, & Ganesan, 2012). I crosschecked the data collected with the participants. Besides the implementation of mining and statistics support systems, which were less expensive, collecting of numerical data were through the existing sub-systems (Prajapati et al., 2012). Consequently, I organized all files and labeled them, which made meaning to my research study. The Microsoft Excel and the Non-numerical unstructured data indexing and theorizing (NUD-IST) software program files, backup copies of all my research files, and consent forms remained locked in

container for 5 years. I will then shred all files, clean all recordings from my laptop and the hand held recording machine.

Data Analysis

I used data and investigator triangulations in my study because they provided confidence, innovation, unique findings, challenges, and clearer understanding to the sustainability challenges for the small-scale maize and cassava farmers' in the Amankwakrom subdistrict of Ghana. My data triangulation included multiple sources of literature such as journals, doctoral studies, and scholarly seminal books. Investigator triangulation in this study included my research site visit, face-to-face interviews with the participants, field notes, member checking, and transcript reviews (Wahyuni, 2012). Member checking was important quality control process in qualitative studies because it allowed the participants to review their statements for accuracy, credibility, and validity (Harper & Cole, 2012). I have also used the Ministry of Food and Agriculture representative as my community partner who introduced and provided me with the contact information of the small-scale maize and cassava farmers' for data collection.

Analysis tools used in research studies included coding, assigning numbers to interview answers, and identifying the responses to the questions (Denscombe, 2014). In 2011, Luyombya used these analysis instruments to study on information communication technology developments in Uganda. Mixed methods research surveys have multiple approaches to data analysis such as coding, tabulation, and descriptive analysis to validate the quality of the findings (Denscombe, 2014).

I developed a personal identification system, which helped to protect the identity of my research participants. For that purpose, I assigned a pseudonym names to each member to protect his or her identity and confidentiality. The participants' false names were as follows: MC-1, MC-2... MC-8. In addition, I have assured the participants' that there will be no names association in relation to the interview answers. To protect the participants' anonymity and privacy from other people, I transcribed the recorded interviews and analyzed the research data with the Microsoft Excel and the NUD-IST software programs.

Furthermore, I used 10 open-ended questions to collect data for this study. The associated independent problems with my study were: (a) financial constraints, (b) policy formulation, (c) organizational structures, and (d) resource programs. The generated issues comprehended by me promoted the understanding of the small-scale maize and cassava farmers' strategies used in obtaining farm financing in the Amankwakrom Subdistrict of Ghana.

The analysis of the demographic and interview sub-questions 1 and 2 provided me with some background information on my research participants. These questions introduced the participants' to the research question of what strategies the small-scale maize and cassava farmers' have used to obtain farm financing in the Amankwakrom Subdistrict of Ghana. Demographic and economic issues were important in my study of the sustainability challenges influencing the small-scale maize and cassava farmers in Amankwakrom Subdistrict (Kwong, Jones-Evans, & Thompson, 2012). Question 3 through 6 conversely, elicited farm financing information from the small maize and

cassava farmers in the study area. Question 7 helped me to know the participants' collateral requirements of getting informal and formal farm financing. Question 8 challenged my research participants to share their knowledge on the cooperative associations' farm investments in the Amankwakrom Subdistrict. Question 9 elicited answers on how financing helped to improve the maize and cassava farmers' holdings, productivity and farm family income. Question 10 further ascertained from my research participants the means of improving the relationship between the farmers, formal, and the informal financial institutions in the Amankwakrom Subdistrict of Ghana.

Interview Questions

To gain answers to the research question, I developed the following open-ended demographic and discussion questions. The aim of this interview was to explore the financial sustainability challenges influencing the small-scale maize and cassava farmers in Amankwakrom Subdistrict in Ghana.

1. What is your name, age, and educational background?
2. How does your age or education affect you getting farm financing?
3. What farm financing options are available to you in the Amankwakrom Subdistrict? If any, which have you used successfully?
4. How are the formal financial institutions and organizational structures supporting your maize and cassava farm funding?
5. How are the state policies according financial help to the small-scale maize or cassava farmers in Amankwakrom Subdistrict?

6. What informal financial help is available for obtaining farm financing in the Amankwakrom Subdistrict?
7. What collateral requirements are there for small maize or cassava farmers to obtain financing through the formal or informal institutions?
8. How have the cooperative associations' assisted the small maize and cassava farmers? Do you think aiding the cooperative maize and cassava farmers was different from individual farmer investment?
9. How do you remit your farm loans back to the financial institutions after the farming period?
10. What can improve the small-scale maize and cassava farmers' relationship with the financial institutions?

Data Analysis and Interpretation Phases

Phase 1: Sorting and Arranging

Qualitative study required sorting and arranging of predefined elements to elucidate how the research questions relate to the study's exploration (Feig, 2012). I used Mendeley folder, Microsoft Excel, and NUD-IST software programs to sort and arranged my research data. However, every organization defined issues toward research decisions such as the present alternative considerations and other relevant information (Maxwell, 2013). I listened to the interview recordings and transcribed them to gain a deeper understanding of my research data. The uninterrupted reading of the transcripts enhanced further familiarities and appreciation of my study (Aluwihare-Samaranayake, 2012).

Forwarding transcripts to the participants' enabled for the validating and collaborating with the research members' of making changes in the data (Niemants, 2012). The study on the Indonesian pepper farmers', traders' and the supermarket channels used the conceptual arrangements as its framework. The study's result suggested that fair prices have built trust and satisfaction to the farmers' commitment (Sahara & Gyau, 2014).

Phase 2: Labeling or Coding

Data coding aimed at labeling the entire context of events in my study. Coding made it easier for me to search through the data and compared all the data elements (Ferguson, Mathur, & Shah, 2012). The coding stipulated the source of data and its collection premises. Labeling was the first informed source of information gathering and consumers make a better-informed decision based on product labeling (Ferguson et al., 2012). Both labeling and coding assisted me to categorize my data into segments.

Phase 3: Identification of Themes

Themes identification helped me to look for ideas, patterns, and similarities in my research data. The thematic research analysis was a character that availed for a suitable data analysis approach (Ponnam & Dawra, 2013). This technique supported small sample sizes, data reduction, and scale development (Ponnam & Dawra, 2013). The identified themes for this study were to the regional-scale sustainability development index on agricultural financing for the small-scale maize and cassava farmers. Harnessing the issues identification was beneficial in this research study because of the participants' number and the limited data collected.

Phase 4: Research Reporting

The empirical researchers' used fewer less expensive computers and hand held gadgets to report on their work (Ochola, Stachowiak, Achrazoglou, & Bills, 2013). In support, a study on the Portuguese companies indicated the use of low priced computers which led to discoveries and improvement for the firm (Stanley et al., 2013). Some qualitative research investigators' focused on studying the participants' and gathered data through interviewing.

Phase 5: Data Interpretation

Researchers' interpretation of collected data was through lessons learned by understanding the study and referencing the data with existing literature. Quantitative text analysis in open data and archival discourse supported the harmonization of words used, more user-friendly, and business oriented focus (Borglund & Engvall, 2014). The interview questions helped me to elicit eight different answers on the research participants' knowledge of finance, policy, organizational structure, and resource programs.

The analysis of the demographic and interview questions 1 and 2 provided me with the background information and introduced the participants to the research question of what strategies the small-scale maize and cassava farmers' have used to obtain farm financing in the Amankwakrom Subdistrict of Ghana. Question 3 through 6 elicited farm financing information from the small maize and cassava farmers in the study area. Question 7 helped me to obtain information on my research participants' collateral requirements of getting informal and formal farm financing. Question 8 challenged my

participants to share their knowledge on cooperative associations' farm investments in the Amankwakrom Subdistrict. Question 9 elicited from the maize and cassava farmers on how financing helped to improve their maize and cassava farm holdings, productivity, and family income. Question 10 ascertained from my participants the means of improving the relationship between the farmers, formal, and the informal financial institutions in the Amankwakrom Subdistrict of Ghana.

These pre-conceived outlines set the goal of exploring the economic sustainability challenges facing the small-scale maize and cassava farmers in the Amankwakrom Subdistrict of Ghana. However, the individual sustainability problems mentioned were essential to this study and measured the descriptive nature of the issue. In addition, there were data presentations in figures, tables, and notes for the primary issues about the small-scale maize and cassava farmers' financial constraints.

Reliability and Validity

Reliability

The Horizons instrument on government index (A) was valid and reliable because it measured the insufficient fresh ground water supply in Baja California Sur, Mexico (Herrera-Ulloa et al., 2003). Horizons instrument was an innovative tool used to benchmark and measure government policies on curbing the HIV/AIDS pandemic on the global level (Njenga, 2006). The benchmarking and the measurement of government policies could represent the essential reliability point of the Horizon instrument.

Reliability of a tool was however, the degree of measurement for the repeated study under similar circumstances by different researchers that yielded the same results

(Henriques et al., 2013). The suggestion was that the replication of the small-scale maize and cassava farmers study with the Horizons instrument gave the same results. Similarly, to addressing the other reliability issues in this study, the Horizons instrument's modification in this study measured the factors that were unique to the financial sustainability challenges faced by the small-scale maize and cassava farmers in the Amankwakrom Subdistrict of Ghana. Furthermore, the audio recording transcriptions comparison with the written responses assisted me to make sure that there was no deviations in my data collection.

Validity

Validity derived from a study, authentically measured the scope and the goal of the investigation's dependability, creditability, transferability, and conformability (Niemants, 2012). Social media monitoring was difficult to compliment with an in-depth qualitative research study because the latter had more advantages of validity and truthfulness (Hesse-Biber & Griffin, 2013). Researchers' lived experiences further advanced the conceptual development and trust within the study (Christopher, 2014).

There were two types of validity: domestic and external. Policymakers applied research findings in studies that met internal and external validity status because the research instruments were capable of measuring the intended goals (Niemants, 2012). Another school of thought indicated that intellectual capital research have not accumulated more knowledge because of the inconsistencies in prior research studies (Dumay, 2014). However, the critical methodological review processes could defuse this

thought. The adoption of the external validity was essential, because of its degree to sample generalizations (Dumay, 2014).

Dependability: Dependability referred to when researchers' replicated their study and obtained the same results as previous (Franklin, Allison, & Gorman, 2014). The case study researchers' identified areas of improvement by highlighting particular aspects and ensured quality research outcomes (Pedrosa, Naslund, & Jasmand, 2012). However the integrated risk management and other essential goals in balance scorecard identification was more risk-based for management practices (Soderholm & Norrbin, 2013).

Credibility: Credibility ensured that qualitative research results were accurate perspectives of the research participants (Albu, Albu, & Alexander, 2013). Qualitative research coding enhanced reliability and validity, while triangulation addressed validity establishment. Primary and secondary data collection through semistructured interviews assisted in financial reporting and analyzing of accounting regulations (Albu et al., 2013). Exploration of China's logistics study addressed the primary research phase, but there were chances for improvement in China's logistics changing trends (Liu, 2014).

Transferability: Transferability in qualitative research was the degree to which generalizations related to other locations outside the study locality. Understanding of the nature of qualitative research study through embedded findings and theoretical strategies was possible by analyzing quality studies (Kapoulas & Mitic, 2012). Researchers' selected important members of the sample to examine the financial organizations setups in Romania (Albu et al., 2013). The hidden phenomenon of scientists' on dirty workers'

exploration highlighted the understanding and negotiating of their occupational professionalism (Southgate & Shying, 2014).

Confirmability: Confirmability was the degree to which research results were the same with other researchers (Marshall & Rossman, 2014). The core information systems commencement opened up science research paradigm with different types of knowledge processes from a single study (Baskerville, Kaul, & Storey, 2015).

Data saturation: Data saturation accomplishment was by interviewing the sample participants until reaching the point through an initial enquiry and stopping principle. Additional formal interviews would not have produced new insights for the research (Rapp, 2015). A sample from the Amankwakrom Subdistrict population was the eight adult English fluent small-scale maize and cassava farmers who had obtained farm financing. The level of saturation in this study was when the members gave me the same responses.

Validity and data collection through triangulation used various sources of data, comparison, and verification to ascertain any slight variations in a research study (Denzin & Lincoln, 2011). I used the source as the triangulation method for the small-scale maize and cassava farmer participants' viewpoints, compared and contrasted them with the literature review information (Yin, 2014). The validity results of this research study of financial sustainability challenges influencing the small maize and cassava farmers in the Amankwakrom Subdistrict was representative to the Ghanaian situation. Replication of these research results in Ghana further enhanced the external validity of my study.

Transition and Summary

I used this research study to learn about how the small-scale maize and cassava farmers obtained farm financing in the Amankwakrom Subdistrict of Ghana. I contained all the ethical standards to conduct this research from data gathering, analysis, interpretation, and storage. Moreover, I accomplished the data collection process with face-to-face interviews with the small-scale maize and cassava farmers, and recorded their responses on my laptop and on a small hand held recording machine. I used reliability, validity, and data saturation to align my study with member checking, which allowed my research participants to review their responses. Furthermore, I used the Mendeley folder, Microsoft Excel, and NUD-IST software program to analyze my research data.

In section 3, I described, interpreted the findings, and made a detailed discussion of how the results related to professional business practices. These implications consisted of the improvement of farm financing for the small-scale maize and cassava farmers in the Amankwakrom Subdistrict, financial institutions, and the informal investment sector in the Afram Plains. The section concluded the study with the application to professional practice, interpretation of the findings, implications for social change, recommendations, and quest for further research studies, reflections, and conclusion.

Section 3: Application to Professional Practice and Implications for Change

Introduction

This section comprised of a detailed description of the outcomes from conducting this study. Included are an overview of the study, presentation of the findings, application to professional practice, implications for social change, and recommendations for action and further studies. The section ended with the reflections on my experience and conclusions.

Overview of Study

The purpose of this qualitative case study was to explore the methods small-scale maize and cassava farmers used to obtain farm financing in the Amankwakrom Subdistrict of Ghana. Data collection consisted of reading the text of interviews with the research participants, noting words that they used frequently, and assigning meaning to the derivative thematic expressions. I accomplished the data collection process with face-to-face interviews with the eight small-scale maize and cassava farmers who previously obtained farm financing.

Presentation of the Findings

The central guiding research question was: What strategies do the small-scale maize and cassava farmers in the Amankwakrom Subdistrict use to obtain farm financing? In this subsection, I discussed the participants' responses, the process of data analysis with Microsoft Excel and NUD-IST software program, emerged themes, and the conclusions that helped me to address the central research question. This research study

consisted of multiple procedures that started with interviewing the eight participants. I analyzed the participants' responses as detailed below.

Average Age of the Eight Research Participants

The average age of the participants I interviewed was 49 years. The oldest participant was 65 and the youngest 40 years. A majority of the participants have a middle school certificate as their highest educational qualification.

Sources of Financing for the Small-Scale Maize and Cassava Farmers

The participants identified four sources of financing for their farm operations. All the respondents mentioned bank loan availability as the means and source of financing; hence, Table 1 shows a 100% response rate. The source of financing with the lowest rate of mention were the moneylenders. A few of the respondents (MC-3 and MC-7) did not mention any available source of farm financing. Four sources of financing were identified in the field data. I discovered that bank loans were the preferred options used by the small-scale maize and cassava farmers, because all the respondents chose bank loans as their means of farm financing. This was inconsistent with the literature I reviewed, which indicated the significance of financing to the small-scale maize and cassava farmers' productivity and growth. Gudov (2013) indicated that companies at the early stages of their startup required financing in the form of significant investments with cost-effective funding, which allowed for their expansion and profitability.

Table 1.

Participants Source of Farm Financing

Source of Financing	%
Bank Loans	100
Susu Groups (Local money saving)	88
Money Lenders	75
Relatives and Friends	88

Note. Sources of Financing for the Small-scale Maize and Cassava Farmers Adapted from the Amankwakrom Subdistrict Field data, 2016.

Seventy-five percent of the participants interviewed indicated that their failure to acquire farm loans was due to their level of education. According to these participants, the most important factor for the successful acquisition of farm financing was credit worthiness. For example, MC-4 indicated that his ability to pay back the financed loans on time was what mattered most. The World Bank report (2014) supported MC-4's argument, which stated that financial supports for agricultural production was small because of the high credit risks. This meant that, after farmers exhibited trustworthiness in repaying farm loans; financial institutions were more comfortable to grant additional farm loans to the trusted few. MC-2 and MC-5, who represented 25% of the participants, were of the view that educational qualifications had some level of influence on their ability to obtain farm financing. Their reasoning was that they would need to read the contractual document to understand and sign the agreement before obtaining farm loans.

Informal Support for the Small-Scale Maize and Cassava Industry

I discovered that six main sources of informal financing for the maize and cassava farmers were prefinancing of the production process by market women, susu groups, moneylenders, families, friends, or some other businesspersons.

Table 2

Participants Informal Financing Sources

Informal Financing Sources	%
Market Women Pre-financing	12.5
Susu Group	87.5
Money Lenders	87.5
Families	87.5
Friends	87.5
Business Persons	87.5

Note. Participants Informal Financing Sources Adapted from the Amankwakrom Subdistrict Field data, 2016.

The table above showed the participants distributed responses. Farmer MC-1 specifically indicated that some market women aided the farmers by prefinancing their farm production. Market women loan repayments came after harvesting the crops, through the collection of food produce for sales in a quantity equitable to the total investment or according to the agreement with the farmers. All the other informal means referred to the usual approach to sourcing financing for small-scale maize and cassava farms, paying the loans back after harvesting or on the sales agreements.

Availability of State Policies and Support Structures for the Small-scale Maize and Cassava Farmers

All participants indicated that there were available state policies in the form of the provision of some farm inputs to the farmers on credit. Repayment was after harvesting the maize and cassava produce. Participant MC-2 indicated that he had subsidies on certain agricultural inputs such as fertilizers, seedlings, and ploughing. This was an indication of the Ghana government's involvement in aiding the small-scale maize and cassava farmers in the Amankwakrom Subdistrict. One hundred percent of the participants indicated that apart from the availability of these government policies in the subdistrict, the informal and formal financial institutions supported the funding of their farm loans.

Collateral Requirements for Farm Financing

All participants indicated that there was a collateral requirement needed for the successful granting of farm loans from the financial institutions. The participants mentioned the following items that constituted the collateral requirements for their farm loans financing: (a) guarantors, (b) use of farmer's own property, (c) membership of a cooperative association, (d) the amount of contributions made with the informal susu groups, (e) farmers' savings at the bank, and (f) quality and quantity of harvested farm output.

Table 3.

Collateral Requirements by the Financial Institutions

Type of institution	Type of collateral	%
	Guarantor	100.0
Formal sector	Use of farmer's own property	100.0
	Membership of a co-operative association	62.5
Informal sector	The amount of contributions made with the susu group	62.5
	Farmer's saving at the bank	25.0
	Quality and quantity of farm produce harvested	37.5

Note. Collateral Requirements by the Financial Institutions. Adapted from the Amankwakrom Subdistrict Field data, 2016.

I discovered from the interviews that the formal means of acquiring loans by the small-scale farmers was mostly through the guarantor and property approaches. All respondents indicated that the informal financing avenues were available by using guarantors and farmers own properties to secure the farm loans.

The Benefits of the Small-Scale Farmer Membership with Cooperative Associations

One hundred percent of the participants reported that aiding the process of financing was through the farmer's involvement in the cooperative associations. The farmers supported that these cooperative associations' investments accorded financing and brought some form of unity among the small-scale maize and cassava farmers. Participant MC-8 specifically mentioned the unity that the cooperative associations' formation brought to their members. MC-8 also elaborated that the unity among the members goes a long way toward enhancing productivity.

In view of the benefits, 90% of the participants agreed on the efficacy of belonging to cooperative associations. Participant MC-7 agreed that loan financing and support went to the cooperative association members more than to the individual farmers. These responses meant that cooperative associations' investments affected larger numbers of the small-scale maize and cassava farmers than the individuals. On the other hand, participant MC-7 reported that he did not care whether financing was for cooperative association members or individuals. This participant maintained that the financial institutions' duty should be to finance the small-scale maize and cassava farmers.

The Benefits of the Small-Scale Farmer's Loan Repayment

Figure 1 depicts the available means and channels by which the small-scale maize and cassava farmers' in the Amankwakrom Subdistrict repaid their farm loans. Participants' interview responses indicated that 100% believed the farm loan repayment was a good sign for the financial institutions and weighted on the credibility of the small-

scale maize and cassava farmers. This weight influenced the farmer's ability to receive future farm financial assistance. One of the key monitors for accessing farm financing was the small-scale farmer's credit worthiness. Three different methods of loan repayment was uncovered: (a) repayment of only interest element and paying the principal at the agreed date, (b) monthly repayment of loans and interest component, and (c) payment of both loan principal and interest component after the farming season or at an agreed date. The two most commonly used methods for repayment of farm loans by the small-scale maize and cassava farmers were the first two methods. These were more common among the maize and cassava farmers probably because of the nature of their agricultural production activity.

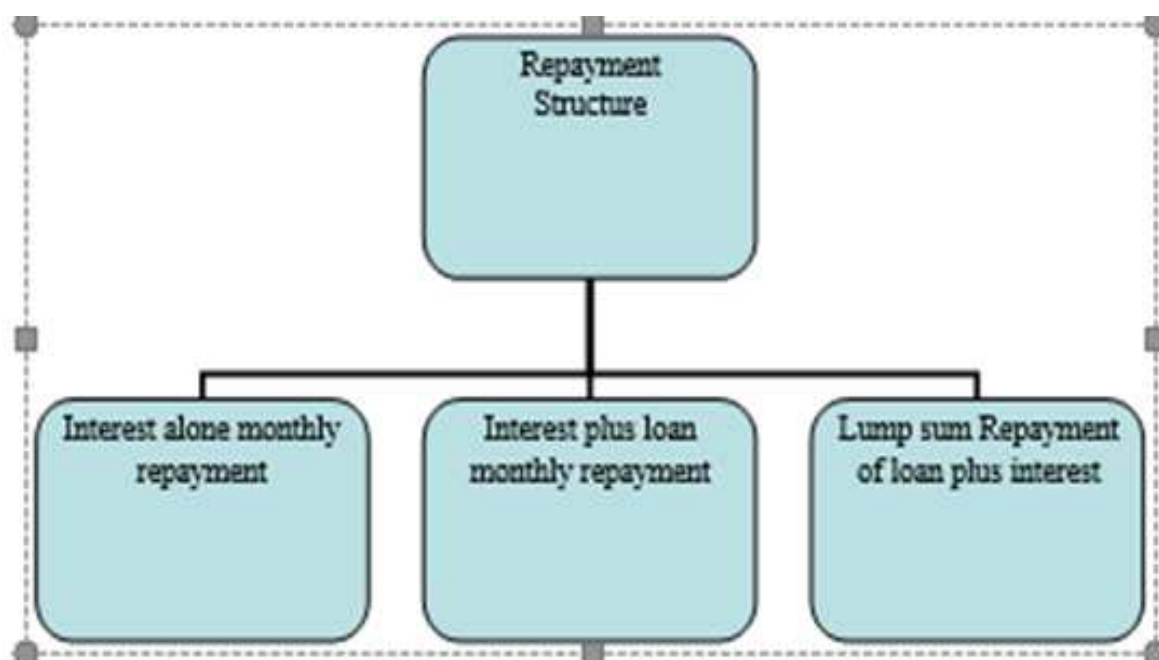


Figure 1. Structure of the small-scale maize and cassava farmers' loan repayments. Adapted from the Amankwakrom Subdistrict Field data, 2016

Improving the Farmer and Financial Institutions Relationship

One hundred percent of the participants responded that improvements was feasible between the small-scale maize and cassava farmers, and the financial institutions.

The participants enumerated on the following items:

- Small-scale farmers were encouraged to pay promptly their farm loans in order to build trust to enable for the future provision of more farm loans.
- Financial institutions should monitor the small-scale maize and cassava farmers to use their loans only for farming purposes.
- Financial institutions should release loans on time to the small-scale maize and cassava farmers because the loans were for farm operations that were time bound.
- Financial institutions and the small-scale maize and cassava farmers should endeavor to have good communication between each other. This might erode any form of misunderstandings leading to mistrust.
- Financial institutions should encourage teaming up among the small-scale maize and cassava farmers and allocate funds to only properly formed cooperative associations.

The structure below (see figure 2) depicted the cycle of farm financing and the factors that affected the suave transfer of loans from the financial institutions to the small-scale maize and cassava farmers. I obtained the elements of the figure from the small-scale maize and cassava farmer participants' responses, which revealed how the financed loan elements revolved between the financial institutions and the small-scale

maize and cassava farmers. All participants responded that anytime the financial institutions granted loans to the small-scale maize and cassava farmers (whether as cooperative association or individuals), the institutions were expecting to receive their principal and interest back.

These participants indicated that the financing period varied depending on the contractual agreements, but this was not supposed to influence their ability to pay back the farm loans. The flow chart cycle influences two main factors: (a) financial institutions method of granting farm loans, and (b) farmers' trust and farm loans repayment. Participants suggested that the financial institutions should monitor the use of the loans given to the small-scale maize and cassava farmers.

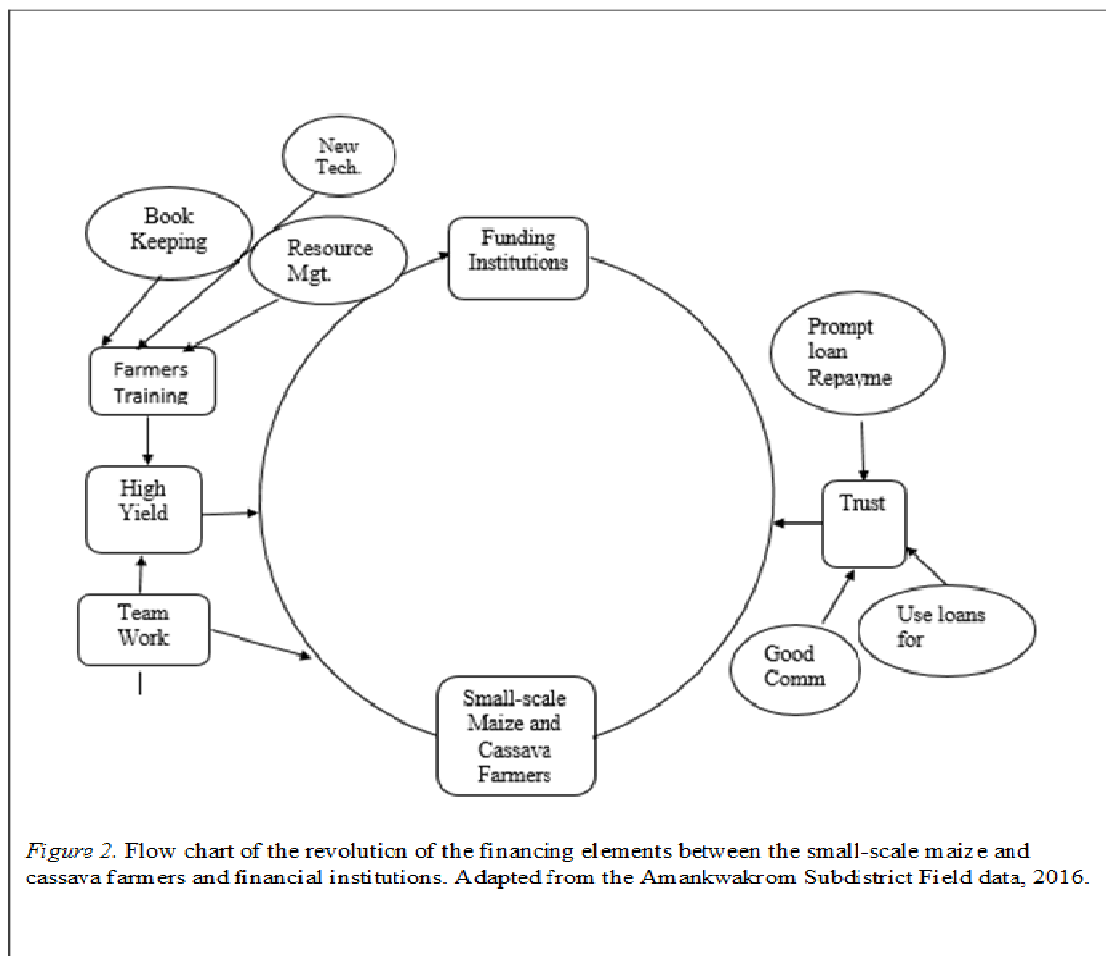
Trust building was essential to the financial institutions because the farmers promptly pay their loans. All participants elaborated that through the trust building both parties could maintain good communication between the financial institutions and the small-scale maize and cassava farmers in case of any eventuality. I gathered from the participants' responses that the presence of trust was a strong motivator to the small-scale maize and cassava farmers financing process.

Repayment on the other hand was feasible with farms expansions and increased yields. High yields, according to the participants have the tendency to improve credit worthiness of the small-scale maize and cassava farmers because they have enough to sell and make money to cater for their needs. However, high yields influenced was through two activities like training of the small-scale maize and cassava farmers and the cooperative associations membership benefits. Participants advised for proper

bookkeeping, farm management techniques, and the employment of new technologies in cultivating the maize and cassava farms. The participants responded that the financial institutions and the government should give more aid in the process of increasing the yields of the small-scale maize and cassava farmers.

Cooperative associations' formation helped the small-scale maize and cassava assisted each other and provided some form of guarantee to each other when accessing farm loans and repayments to the financial institutions. The above statement was indicative that the cooperative association's formation directly influenced the repayment process and indirectly helped the small-scale maize and cassava farmers to obtain financing to increase their farm sizes. Small-scale maize and cassava farmers monitored each members farming activities because the farmer's credit dishonesty affected all the cooperative association members credit level with the financial institutions.

The thematic analysis of the Amankwakrom Subdistrict small-scale maize and cassava farmers' data responses indicated there were no deficiencies in agricultural financing. However, Jerven (2014) indicated that African agriculture production was behind other developing countries production with financial constraints, which implied that funding was not adequate to boost the small-scale agricultural activities into steady growth. The revelations suggested that small-scale maize and cassava farmers did not benefit from farming financing in the Amankwakrom Subdistrict, unless they were in cooperative associations, had collateral requirements for the financing institutions, and had a good loans repayment history.



Conflict between small-scale maize and cassava farmers and the big industry had a strong effect on the public image of the cooperative associations because it spawned a powerful influence on the customers and became a core element of the cooperative's business identity (Battilani & Bertagnoni, 2015). The absolute turning point for the cooperative association's organizational form has to occur, but if not a slow decline was expected (Grau, Hockmann, & Levkovych, 2015).

Lack of credit, ideal input use, and limited marketing prospects contributed to disinvestment in farmer cooperative associations (Shee, Turvey, & Woodard, 2015). The increased independent directors, board members' experiences, and size was measured by total annual sales, reduced agency costs in cooperatives, and mutual associations in New Zealand; however, borrowing from members rather than the financial institutions reduced agency cost, and increased profitability in cooperatives and mutual associations (Reddy & Locke, 2014).

Uninsured risks and lack of access to credit forced farmer's cooperative associations to embrace low-risk and return undertakings, which resulted in persistent deficiency (Shee et al., 2015). Failures in the financial institutions have not occurred in the cooperative and mutual associations, although there were concerns regarding accountability, transparency, and performance issues (Reddy & Locke, 2014). Micro-insurance and credit programs improved the new approach of the cooperative associations elucidating financial products and services. Improved access to credit and snagged risk management, alleviated many of the short run limitations, encouraged technology implementations, and growth in the extended time (Shee et al., 2015).

Unity of cooperative associations on products enabled pooling of resources and made the investment in machinery feasible (Huang et al., 2015). The geographically based cooperative associations' establishments was to promote communication and cooperation between their local members. Lower input costs and better marketing information was available to the cooperative associations (Zhang & Huang, 2014).

Community share cooperative associations' establishments was by allocating specific decision and income rights over the collective assets to the rural individuals (Huang et al., 2015). Land shareholder cooperative associations' emerged because of the problems of land fragmentation and inefficiency in factor use from the small farm sizes, low value added production, and high transaction cost to farmers (Ma et al., 2013; Zhang & Huang, 2014). The farmer-owned companies with appropriate institutional arrangements reduced transaction costs for buyers and introduced accessible rural finance schemes to enhanced provision of assets and technology (Rohitha et al., 2016).

A fundamental motivation for creating cooperative associations was the conflict between tenant's and small-scale farmers' versus large agricultural landowners' and the large dairy industries. Landowners had no incentive to encourage the growth of the business, run by sharecroppers and tenant farmers (Battilani & Bertagnoni, 2015). Cooperative associations tend to have diverse concurrent and other conflicting objectives. In summary, an economic and business development, social inclusion, and empowerment of cooperative associations' members (Borda-Rodriguez & Vicari, 2014). The organizational capacity of farmer cooperative associations created viable enterprises (Battilani & Bertagnoni, 2015).

Cooperative associations in low-income countries adoption to agricultural technology factored and influenced resource poor farmers (Borda-Rodriguez & Vicari, 2014). Tadesse (2014) mentioned the advantage of profitable investments including the use of improved crop varieties, chemical fertilizers use, and sustainable land management practices (Tadesse, 2014). In low-income countries, households' measurement was

through livestock ownership, the more animals they had the wealthier they were to purchase chemical fertilizers (Tadesse, 2014).

These wealthy families were less likely to participate in the local credit market as they had better savings to use in purchasing fertilizers and improved seeds without credit contracts (Tadesse, 2014). Changes in the input structure of larger firms affected the inputs of small-scale farmers, such as seeds, fertilizers, and pesticides. The input cash outlay has resulted in more reliance on credit institutions by the low-income farmers (Huang et al., 2015).

Providing sustainable financial services for agriculture continued to be a challenge despite billions of dollars spent in subsidies to strengthen the financial institutions (Meyer, 2013). Critics have argued that the market-oriented reforms implemented after the collapse of the directed credit paradigm have failed because agriculture still received a small share of total formal credits (Pomfret, 2014). Collateral requirements were a hindrance to rural financing and this lack prevented farmers from securing loans through the formal financial institutions (Bote et al., 2014).

Researchers advocated for the rollback of reforms, active governmental interventions like the restoration of state-owned agricultural development banks and the reintroduction of interest rate ceilings on agricultural loans (Meyer, 2013). The sphere of agricultural financing, the interrelation between the financing institutions and the government ushered a rural collateral programs to help the small-scale farmers (Emerole et al., 2014; Jolovic, Njegovan, & Cavlin, 2014). These initiatives led to some farmers' producing above the subsistence level (Jolovic et al., 2014).

Traditional financing has not significantly affected borrowers' incomes and farming activities in West Bengal (Maitra, Mitra, Mookherjee, Motta & Visaria, 2014). Assistance to this community was through (a) the modified loan features, which assisted in the financing of farmers, and (b) assigned five member farmer groups to apply for trail loans with joint liability (Maitra et al., 2014). The trail loans increased the cultivation of potatoes and farm incomes by 17% to 21%, and attracted riskier farmers on the average. Most trail loans repayment achieved higher percent and lower administrative costs (Maitra et al., 2014).

The Serbian's financial institutions structure did not support the small-scale farmer's production (Jolovic et al., 2014). These inadequate financing systems led to the poor agricultural performance (Bote et al., 2014). Financing was a barrier to the beef cattle farmers' in Indonesia as well (Asnawi, Sirajuddin, & Lestari, 2014).

The financial services in Indonesia were from the banks and the government, but the accessibility of funding was comparatively low (Asnawi et al., 2014). Small-scale farmers' collaterals for loans was on their relationships and visits to the financial institutions (Weber & Ahmad, 2014). Financial institutions encouraged the beef famers to implement their animal husbandry businesses to meet the credit schemes and loan offers. Unfortunately, some of the beef farmers still face difficulties obtaining loans (Asnawi et al., 2014).

The farmers in Uganda used a model that prompted the government to support the small-scale farmers with collateral to access financial services through the rural agricultural development banks (Munyambonera, Mayanja, Nampewo, & Adong, 2014).

Small-scale farmer's failure to meet the stringent collateral requirements contributed to the serious levels of financial marginalization and poverty in the rural areas (Weber & Ahmad, 2014). These small-scale farmers devised an innovative approach of using their livestock for collateral in rural areas of Zimbabwe (Bote et al., 2014). Innovative approach with the cattle banking helped the small-scale farmers' in asset-building initiatives and encouraged them to open bank accounts. The cattle banking approach uplifted the livelihoods of the small-scale farmers because the innovative strategy overcame financial challenges in the rural communities in Zimbabwe (Bote et al., 2014).

Repayment of agricultural loans by small-scale farmers had been a problem in the developing countries (Anigbogu, Onugu, Onyeugbo, & Okoli, 2014). Agricultural lending institutions protected themselves through variety of ways, for an example, farms with a high value of assets relative to debts were more creditworthy and granted loans (Ifft, Kuethe, & Morehart, 2013). These policies helped the small-scale farmers to gain farm incomes and induced them to implement (Ifft et al., 2013).

In some circumstances, the banking and financial institutions did not disburse funds to the small-scale farmers from the lack of collateral and a good loan repayment history (Haron, Said, Jayaraman, & Ismail, 2013). The non-disbursement plan helped farmers' with limited to few financing choices (Bote et al., 2014). However, financing played a primary role in the agricultural development of the communities (Ojiako & Ogbukwa 2012).

Access to agricultural loans for young and beginning small-scale farmers shaped financial institutions perceptions as a trade-off between risks and farm net income

(Kauffman, 2013). A good loan payment history defined a healthy farm operation (Emerole et al., 2014). Loan repayment regulations in Poland made it difficult to provide affordable financing for the small-scale farmers (Fogarasi, Wieliczko, Wigier & Tóth, 2014).

Researchers in Riau and South Kalimantan provinces in Indonesia found the small-scale farmers' financial problems been caused by the loan scheme and the behavior of the farmers (Nugroho, Dermawan, & Putzel, 2013). The financial problems included a minimum loan amount to a large number of small-scale farmers to manage (Nugroho et al., 2013). In Serbia, warehouse receipts issued by public warehouses represented a proof of ownership of deposited farm produce (Mirovic & Bolesnikov, 2013).

Warehouse receipts proved the ownership of a specified quantity and quality of stored agricultural products. These receipts were issued for a period of one year or longer than the lifetime of the agricultural product (Mirovic & Bolesnikov, 2013). Farmers sold the warehouse receipts to prevent loan defaults (Addae-Korankye, 2014). However, farmers could not pay the loans; the financial institutions sold their products to retrieve the loans (Mirovic & Bolesnikov, 2013).

The agricultural credit sources and acquisition for the small-scale farmers in the Idemili community of Anambra State in Nigeria indicated that the amount of loans repaid was a significant predictor of agricultural credit for the future farm financing (Ijioma & Osondu, 2015). Although, the agricultural financing was the pre-requisites for the small-scale farmers to increase on their harvest. A study in Nigeria revealed that the farmers' socio-economic progress was through loan repayment obligations, which affected their

future credit granting (Anigbogu et al., 2014). Improved access to farm implements and fertilizers helped to increase farm yields and net income (Idoge, 2013).

The regional-scale sustainability index application was relevant to this study because of the practical proposal of developing the community capability and the sustainability enhancements. Findings of the study was that the small-scale maize and cassava farmers obtained loans if they were in cooperative associations, have a good loan repayment history and were able to provide the collateral requirements for the financial institutions. The index conversely provided a sustainable local learning strategy for the financial institutions and guided the small-scale maize and cassava farmers' in obtaining farm finance in the Amankwakrom Subdistrict. This improved the financial institutions method of granting loans and curbing the farmers' financial difficulties toward their farming operations.

The availability of loans to the small-scale maize and cassava farmers' in the Amankwakrom Subdistrict helped to retain more farmers' in these staple crops production. Farm loans availability to the small-scale farmers led to increases in farm sizes and higher yields. Invariably, the sustainability index helped to increase the financial investments options for the small-scale farmers, generated rural employment, and increased the maize and cassava production in the Amankwakrom Subdistrict.

Applications to Professional Practice

Credit played an important role in the economic transformation of the rural areas. Access to credit was the fundamental element in raising agricultural production (Ojiako & Ogbukwa 2012). Accordingly, credit acquisition and application for the small-scale

farmers' agriculture promoted productivity, increased food security, and reduced poverty in the rural communities (Ijioma & Osondu, 2015).

Findings from the study revealed that the financial services for the small-scale cassava and maize farmers' in the Amankwakrom Subdistrict were adequate. However, farmers have to be in cooperative associations, have the collateral requirements for the financial institutions, and have a good loan repayment history to benefit from these services. The small-scale maize and cassava farmers in the Amankwakrom Subdistrict stated that they did not have difficulties in accessing funds. Enhanced funding was available to the small-scale maize and cassava farmers, and they reminded each other to pay back their farm loans on time.

These findings might guide and teach all small-scale maize and cassava farmers how to obtain farm loans from the financial institutions in Amankwakrom Subdistrict. Availability of farm loans to these small-scale farmers might lead to farms expansion, which might enable them to produce above the subsistence level. The farms expansion was a positive goal because the maize and cassava were staple food crops of the community and this might lead to hunger prevention and poverty reduction (Martey et al., 2012).

The study findings might provide an understanding of the proper method of financing which was necessary for moving the maize and cassava farmers forward. These findings were important to the development partners' and other stakeholders' when studying the phenomenon of inefficiencies in the small-scale farmers' farm financing. In addition, these findings might influence the financial institutions, policy makers in Ghana

and other West African countries on the need of providing adequate farm loans to the small-scale farmers to use in expanding their farms and increasing yields.

Implications for Social Change

The implications for positive social change included the prospective for this exploratory case study to lead to a better understanding of the financial needs of the small-scale maize and cassava farmers in Amankwakrom Subdistrict of Ghana. Appreciable increase in farm sizes and yields had some efficiencies in the production processes (Brownson et al., 2012). Decreasing the number of financial inadequacies in the farm production processes might lead to retaining more small-scale farmers to cultivate maize and cassava in the Amankwakrom Subdistrict.

Improved financial investments might benefit the small-scale maize and cassava farmers in Amankwakrom Subdistrict to generate private investments, employment, and increase food production above the subsistence level. Security of farm families occurs when the small-scale farmers have increased farm yields, which might lead to reliable income to reduce poverty in the study area. These efforts might enable the small-scale maize and cassava farmers to contribute to the commercialization of food production initiatives and the agricultural growth of Amankwakrom Subdistrict in the Afram Plains (Yankey, 2013).

Recommendations for Action

The research findings revealed that some small-scale cassava and maize farmers in Amankwakrom Subdistrict were able to receive loans from the financial institutions. The reason was that they were in cooperative associations, were able to provide the

collateral requirements demanded by the financial institutions, and had a good loan repayment history. I recommended that the other small-scale maize and cassava farmers should join cooperative associations, which served as a collateral base. All small-scale farmers who needed farm financing should look for financial institutions that offer good interest rates other than relying on the local moneylenders' and relatives.

The Ghana government regulation of the financial institutions should develop special interest rate loan packages for the small-scale maize and cassava farmers. More importantly, the Ghana government should continue to provide financial assistances to the small-scale maize and cassava farmers' in Amankwakrom Subdistrict. This might give the small-scale farmers the base to organize themselves into formidable associations' for further financial providence.

Reversal of the financial inefficiencies in the small-scale farmer's production might help to increase farm sizes and yields for more profit. The Ghana government in collaboration with the financial institutions, private sector, and small-scale farmers should devise strategies that best fit these financial deficiencies. This opinion aligned with De Carvalho and Barbieri (2012) study, which specified that new system approach was necessary for establishing a sustainable agricultural production. Therefore, the improvement in the financial services might benefit the small-scale maize and cassava farmers in Amankwakrom Subdistrict to generate private investments, employment, and increase food production above the subsistence level.

The results of this study was useful to the small-scale maize and cassava farmers in the Amankwakrom Subdistrict, Afram Plains District Assembly, Ghana government,

academicians, and other entrepreneurs in the Sub-Saharan region. My research participants will receive one or two summary page of the results. The public will have access to the study through the Walden University library database and ProQuest. I will also present the study findings to the small-scale farmers and the Afram Plains District Assembly. Further presentation of the study findings will be through training seminars offered by the Ministry of Food and Agriculture in the Afram Plains of Ghana.

Recommendations for Further Research

The study of the small-scale maize and cassava farmers' method of financing farms in the Amankwakrom Subdistrict is valuable, because it might help to increase production. This study was exclusively for Amankwakrom Subdistrict, and, therefore, the sample number of participants was not essentially representative of the all-rural areas in Ghana. Future studies in Ghana and across the Sub-Saharan Africa can examine the financial difficulties of the small-scale farmers.

Qualitative researchers should examine why some small-scale maize and cassava farmers who had farm loans did not increase their farm sizes to produce more output. Other recommended topics of future studies should explore on the financial institutions relationship with the small-scale maize and cassava farmers' who were not members of any cooperative associations and had no good loan repayment history. Investigating other aspect as part of further studies might assist in ascertaining the additional needs of the small-scale maize and cassava farmers.

Future studies could explore the potential contributions of Ministry of Food and Agriculture Extension officials in assisting the small-scale farmers' in increasing farm

yields. The changes in production pattern has resulted in increased demand for services provided by the agricultural personnel (Huang et al., 2015). These services for the small-scale farmers were essential for the comprehensive growth of agricultural production.

Participants' responses from data collected indicated the strengthening of the Ministry of Food and Agriculture extension support services, therefore this might lead to the credence for further study. These support services might include bookkeeping, farm management, and scientific farming. Inclusively planting of high yielding seeds and optimum fertilizer applications to crops might enable more farmers to go into maize and cassava farming in the Amankwakrom Subdistrict.

The lack of funds, transportation, and accommodation were the limitations I encountered in my data collection process. Researchers and participants' under-going shorter period of interviews have led to members' bias and inability to recollect events. To curb these shortcomings, the researchers, community partners, and the research participants should plan to extend the interviewing period.

The extended time might alleviate the participants from experiencing discomfort in disclosing their personal financial information to the researchers. Researchers should endeavor to spend longer period in their research communities to be acquainted to the research participants. To address these concerns, the Universities and Colleges from which the student researchers' emanated should support with financial assistance to help alleviate these financial difficulties.

Reflections

I have explored the perceptions and experiences of the eight small-scale maize and cassava farmers' method of obtaining farm financing in the Amankwakrom Subdistrict of Ghana. To describe their perceptions objectively, I did away with my personal biases and relied on the participants' responses to understand their experiences. The participants reviewed the transcripts for accuracy and confirmed those were the true reflections of their responses.

Throughout the research process, I adhered to the protocols established in my IRB application. The participants cooperated with me and provided relevant information on the subject of study without any due expectation of obtaining gifts and funds from the financial institutions and me. My participants' accessibility was good and they appeared enthusiastic throughout the interviewing process. However, the responses from participants revealed new information that my literature review did not contain. The new information was small-scale farmers' accessibility to high yielding seeds, bookkeeping, good farm management practices, preservation of farmers output to sell at high priced season, and the education of farmers by the ministry of food and agricultural extension officials on the scientific method of farming.

The farm financing information revealed to me through the participants interviewing were as follows: (1) the small-scale maize and cassava farmers' membership benefits from cooperative associations, (2) the collateral requirements demanded by the financial institutions from the small-scale farmers, and (3) the benefits of the small-scale farmers' good loan repayment history toward farm financing.

Conclusion

Interviews were conducted with eight participants to explore their perceptions regarding the financial needs of the small-scale maize and cassava farmers in Amankwakrom Subdistrict. Three themes emerged from the participants' responses, (a) cooperative associations' membership (b) collateral requirements for the financial institutions and, (c) small-scale farmer good loan repayment history. The need for farm financing was more important in the rural communities because it raised productivity and reduced the spread of poverty (Ijioma & Osondu, 2015). Ijioma and Osondu indicated that this unavailability led to the small-scale farmers' producing for subsistence consumption (Ijioma & Osondu, 2015).

To increase the maize and cassava crops production, the study findings could guide the other small-scale farmers to gain access to farm financing in the Amankwakrom Subdistrict. All Ghanaian farmers should take a cue from the small-scale cassava and maize farmers of Amankwakrom Subdistrict regarding how to obtain of farm finance. Because this strategy continued to work for these farmers in accessing farm loans.

Findings from this study might provide the understanding that will assist the policy makers, business entrepreneurs, and other stakeholders. This understanding and the assistance might lead to developing new strategies that will converse the financial needs of the small-scale maize and cassava farmers in the Amankwakrom Subdistrict of Ghana. The study expanded upon the small-scale farmers' financial knowledge in the existing literature.

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Appendix A: Letter of Cooperation

Franklin Komla Atadja



January 10, 2016



Ministry of Food and agriculture
P.O. Box 4, Amankwakrom, Ghana

Dear Sir,

Subject: Sustainability Challenges for Small-scale Maize and Cassava Farmers in the Amankwakrom Subdistrict of Ghana.

I am a student at Walden University, School of Management, who is working on a research project for the university's academic requirement. The study is to explore the sustainability challenges facing the small-scale maize and cassava farmers' in your sub-district. The research study is primarily to learn about the financial gaps existing in funding for the small-scale maize and cassava farmers. In otherwise, the investigation addresses how small-scale farmers' obtained financing which when identified may serve as a guide to other farmers' in obtaining farm loans to expand on their farm sizes.

I will like you to share the contact information of the adult English language-speaking small-scale maize and cassava farmers' with farms less than two hectares who had their farms financed with me. I will treat the participants' identities and responses with strict confidence. I will keep the interview data in safe lock and destroy these information five years after the completion of my study. I will share the summary one or two pages of this research results with the farmers and you if requested. Please sign your electronic signature or email on this letter and return to me if you have accepted this offer.

Sincerely,

Franklin Komla Atadja

Electronic signature of the Researcher.

Franklin.Atadja2@Waldenu.edu

Community Partner's name

[REDACTED]

Electronic signature of the community partner

[REDACTED]@gmail.com

Appendix B: Permission Letter to Use AIDSQuest Interview Questions

Subject : Use of Horizons Interview Questions from AIDSQuest

Date : Thu, Mar 06, 2014 12:31 PM CST

From : [REDACTED]

To : [franklin atadja <franklin.atadja2@waldenu.edu>](mailto:franklin.atadja2@waldenu.edu)

Hi Franklin Komla Atadja,

Thank you for your interest in using the interview questions from the Population Council's AIDSQuest. You are welcome to use/modify any question from AIDSQuest as needed. In addition, as you have already agreed, please acknowledge the original organization within the doctoral document.

If you have any more questions, please let (n.d.) me know.

Cheers,

[REDACTED]

Population Council
4301 Connecticut Ave NW Suite 280
Washington DC 20008

Tel: [REDACTED]

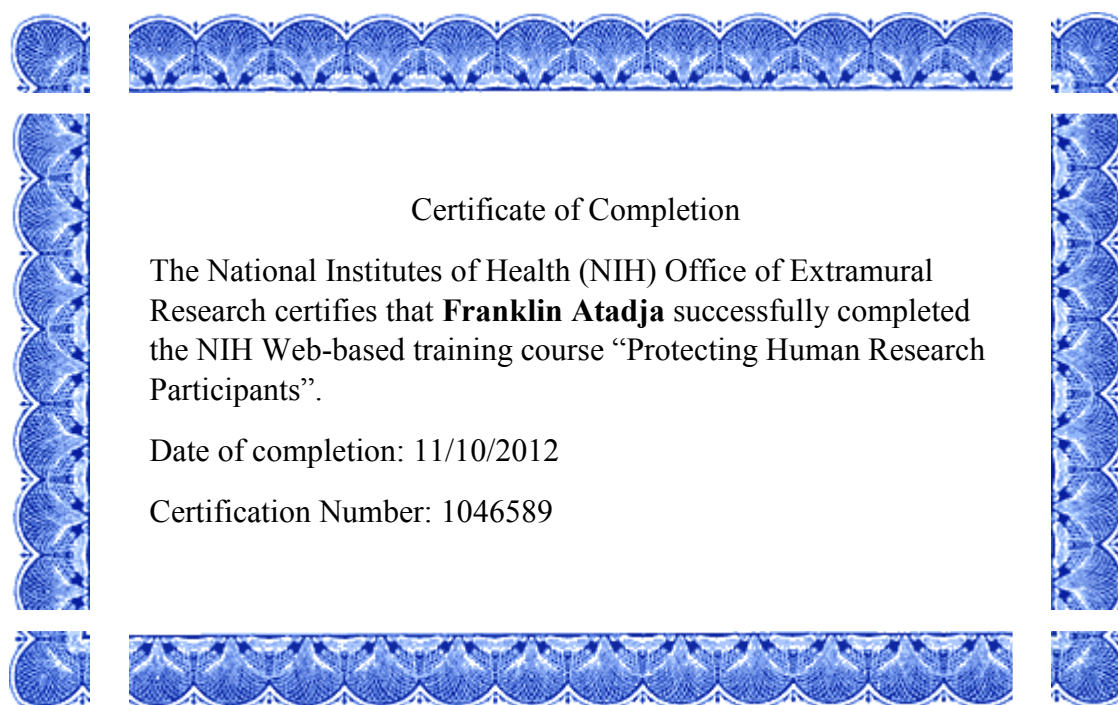
Skype: pcdc-[REDACTED]

Appendix C: Interview Protocol

The aim of this interview is to explore the financial sustainability challenges influencing the small-scale maize and cassava farmers' in Amankwakrom Subdistrict in Ghana. Participants' in the interview will be the eight English fluent farmers' who will be questioned to share their maize and cassava farm financing experiences and knowledge. All members will go through the same set of questions as outlined in the interview protocol and questions:

1. The researcher will introduce himself and give a brief overview of the interview purpose and the time required for it.
 1. The researcher will give a copy of the consent forms to the participants to read and sign before the start of the interview. The participants will be advised by the researcher to ask any question or seek any clarifications as necessary.
 2. The participants will sign two consent forms one for themselves and the other for the researcher.
 3. The interviewing duration is twenty-five minutes and will be audio-recorded.
 4. The interview will commence by asking the participant the interview questions and record responses.
 5. I will thank the participant and stop the recording to end the interview.

Appendix D: National Institutes of Health (NIH) Certificate of Completion



Appendix E: Demographic and Interview Questions

Interviewer.....

Interviewed Date.....

Location.....

To gain answers to the research question, I developed the following demographic and interview questions.

1. What is your name, age, and educational background?
 2. How does your age or education affect you getting farm financing?
 3. What farm financing options are available to you in the Amankwakrom Subdistrict? If any, which have you used successfully?
 4. How are the formal financial institutions and organizational structures supporting your maize and cassava farm funding?
 5. How are the state policies according financial help to the small-scale maize or cassava farmers in Amankwakrom Subdistrict?
 6. What informal financial help is available for obtaining farm financing in the Amankwakrom Subdistrict?
 7. What collateral requirements are there for small maize or cassava farmers to get financing through the formal or informal institutions?
 8. How have the co-operative associations' assisted the small maize and cassava farmers?
- Do you think aiding the co-operative maize and cassava farmers was different from individual farmer investment?

9. How do you remit your farm loans back to the financial institutions after the farming period?
10. What can improve the small-scale maize and cassava farmers' relationship with the financial institutions?