EVALUATION

Final Performance Evaluation of the Agriculture Development and Value Chain Enhancement II Activity

March 31, 2021

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FINAL PERFORMANCE EVALUATION OF THE AGRICULTURE DEVELOPMENT AND VALUE CHAIN ENHANCEMENT II ACTIVITY

March 31, 2021

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CONTENTS

ACRONYMS

ACDEP	Association of Church-based Development NGOs
ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Assistance
ACET	African Center for Economic Transformation
AERC	African Economic Research Consortium
AGRA	Alliance for Green Revolution in Africa
AMPLIFIES	Assisting Management in the Poultry and Layer Industries by Feed Improvement and Efficiency Strategies
BMGF	Bill & Melinda Gates Foundation
BSO	Business Service Operators
CAPI	Computer Assisted Personal Interviewing
Danida	Danish International Development Agency
DFID	Department for International Development
DO	Development Objective
ET	Evaluation Team
FAO	Food and Agriculture Organization
FAW	Fall Army-Worm
FGD	Focus Group Discussions
FtF	Feed the Future
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit, GmbH (German: German Society for International Cooperation, Ltd.)
GoG	Government of Ghana
IFAD	International Fund for Agriculture
IFPRI	International Food Policy Research Institute
IP	Implementing Partner(s)
IR	Intermediate Result
ISSER	Institute of Statistical, Social and Economic Research
METSS	Monitoring, Evaluation and Technical Support Services
MiDA	Millennium Development Authority
NBSSI	National Board for Small Scale Industries
NEPAD	New Partnership for Africa's Development
OB	Outgrower Business
PHL	Post-harvest Loss
TOR	Terms of Reference
SARI	Savanna Agriculture Research Institute
SOW	Statement of Work
SSP	Safe Spray Providers
UNDP	United States Development Programme
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WIAD	Women in Agriculture Development

EXECUTIVE SUMMARY

PROJECT BACKGROUND AND PURPOSE

In an effort to address some of the challenges facing the agricultural sector in Northern Ghana, USAID/Ghana awarded a Cooperative Agreement No. AID-641-A-14-0001 2014 to a consortium led by ACDI/VOCA to implement its Agricultural Development and Value Chain Enhancement II (ADVANCE II) Activity, as a follow-on to the successful initial ADVANCE activity which ended in March 2014. The other partners in the consortium were TechnoServe, Association of Church-based Development NGOs (ACDEP) and PAB Consult. ADVANCE II was scheduled to end in September 2018. However, a no-cost extension to the agreement led to the end date of May 2019. There was a final cost extension that moved the end-date further to April 30, 2021.

The ADVANCE II activity was designed with careful consideration for the context of Ghana's overall agricultural sector development policies and the USAID Ghana mission's FtF program to ensure optimal system performance. With this background, the goal of the ADVANCE II activity was to increase the competitiveness of the maize, rice and soybean value chains in northern Ghana. The project therefore designed and implemented activities that sought to: a) strengthen incentives for investments, build local capacities, and broaden and/or catalyze relationships for increased productivity; b) expand access to markets and trade; and c) strengthen local capacities for an improved enabling environment.

The development objectives of the ADVANCE II activity were, therefore, underpinned by the hypothesis that **if** interventions were carefully planned and executed to achieve: i) increased productivity in targeted commodities; ii) increased marketing access and trade; and iii) strengthened local capacity, **then** these changes would ultimately lead to improved competitiveness of the maize, rice and soybean value chains.

The purpose of this final performance evaluation is to examine the extent to which the goal and objectives of the Agriculture Development and Value Chain Enhancement II (ADVANCE II) activity had been achieved and to establish how interventions contributed towards achieving the following USAID/Ghana's Intermediate Results (IR): 2.1) Increased Competitiveness of Major Food Value Chains; 2.2) Improved Enabling Environment for Private Sector Investment; and 2.3) Improved Resiliency of Vulnerable Households and Communities and Reduced Under-Nutrition.

EVALUATION DESIGN, METHODS AND LIMITATIONS

A combination of evaluation approaches was adopted to ensure that best practices were applied at each stage of the evaluation. The approaches included participatory evaluation, the "theory of change" (TOC) approach and gender-integrated evaluation.

Qualitative and quantitative data were obtained from both primary and secondary sources. Secondary data was obtained through a comprehensive desk review of the output of the program monitoring system, project reports and documented studies that provided relevant information for making decisions about the attainment of expected programmed results. Primary data were obtained via telephone interviews with project beneficiaries; namely, sampled smallholder farmers and out-grower businesses, key informants of stakeholder organizations as well as focus groups of other relevant stakeholders selected from the beneficiary districts. Robust data quality control measures were established to maintain data quality throughout data collection, management and analysis. The quantitative data were analyzed using the STATA 15 statistical software application whereas the qualitative data were analyzed thematically. Simple descriptive statistical analyses were used to a large extent. Both the qualitative and quantitative data were triangulated to derive strong evidence to support findings and conclusions.

FINDINGS CONCLUSIONS AND RECOMMENDATIONS

Evaluation Question1: **To what extent has the ADVANCE II Activity achieved its intended goal and objectives as stated in the project results framework?**

Findings: The extent to which the ADVANCE II goals, its three intermediate results and eight immediate outcomes had been achieved were established by examining 15 performance indicators. Nine (9) of the indicators reported in this evaluation had their LOP targets exceeded. The targets for the remaining six indicators were missed marginally and with the values achieved falling short of the target values between 3% and 13.3%. Even those indicators for which targets were not achieved had average of yearly values that often exceeded the baseline values. The total number of direct beneficiary smallholders was reported to be 131,493, exceeding the life of project(LOP) target by 3.5 percent. Achievement of the three intermediate result and the targeted number of direct beneficiaries demonstrate attainment of increased competitiveness within the value target chains. In spite of these impressive performances by the ADVANCEII Activity, limited access to finance was reported in the FGDs as a threat to the growth of some enterprises and most smallholder operations.

Conclusion: It is concluded that the project objectives were achieveed to a very large extent to motivate attainment of the ADVANCE II goal of increased competiveness of the maize, soybean and rice value chains in Northern Ghana.

Recommendation: Based on its effectiveness in enabling the achievement of the project, the ADVANCE II OB model should be incorporated in the design of future follow-on value chain or market systems project. Future activities must intensify efforts at increasing access to finance. Providing timely feedback to farmers when their loan applications are unsuccessful will be helpful in their quest to seek future funding It is also recommended that the Village Savings and Loans Scheme (VSLS) should be strengthened in order to support women improve on their application of productivity-enhancing technology and practices in the agricultural value chain.

Evaluation Question 2: What is the effect of the ADVANCE II Activity's out-grower business model on the productivity and profitability of the project's beneficiary smallholder farmers and out-grower businesses?

***Findings*:** Using 2019 production figures reported from the survey conducted as part of this evaluation exercise, the average yields per hectare for smallholder farmers' maize, rice and soybean increased by about 45%, 189% and 56% respectively, compared with the baseline data of 2013. Although beneficiary maize and rice farmers experienced respective increases in their gross margins by 123%, and 60.5%, for the periods under comparison, the average gross margin of soybean farmers remained unchanged. It was also found that, the increased productivity motivates increased profitability.

Based on the responses from interviews with the project managers and focus groups, it is noted that adoption of good agronomic practices, improved technologies and better post-harvest and business management practices complemented with increased access to quality inputs and market linkage were the drivers of the recorded increase in productivity and subsequent profitability.

Even when beneficiary men and women smallholders were reported to have received the same levels of support from the project, the women's productivity and profitability in maize and rice production tended to lag behind those of their male counterparts. While the recorded beneficiary men's average yield in maize, soybean and rice were respectively, 2.2, 2.9 and 1.3 metric tons per hectare, beneficiary women's yield for the same crops average respectively, 1.7, 2.2 and 1.5 metric tons per hectare. The relatively low productivity and profitability of the beneficiary women could have implications for their ability to purchase and use productivity-enhancing inputs.

***Conclusion*:** The findings imply overall increases in productivity and profitability of beneficiary smallholder farmers' of the target value chains. This notwithstanding, significant disparities exist

between men and women's levels of increase in productivity and profitability with benefits skewed in favour of men.

Recommendation: Future crop value chain enhancing activities must increase the focus on targeted support for improving women's productivity. Successful collaboration between the project and the input companies, OBs, FBOs, and local input dealers in the communities promoted agricultural input networks that made input available to smallholder farmers. This strategy should be sustained and scaled in future projects to ensure improved access to adequate inputs for smallholder farmers and especially women and the youth.

An investigation into why increased productivity in soybean production could not lead to increased profitability in production of the crop is recommended to identify the bottlenecks and how they can be addressedin the implementation of similar activities in future.

Evaluation Question 3: How has the ADVANCE II Activity collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice, and soybean value chains in Ghana?

Findings: Responses from key informants confirmed significant coordination of the ADVANCE II Activity with other USAID projects, other donor projects, GOG institutions and some private sector organizations. Responses from interviews with some key informants and FGD participants suggest that ADVANCE II's coordination with other development partners had often been more beneficial to relatively larger enterprises. Coordination with FINGAP for instance helped INTEGRO Agric Venture Capital Limited to purchase ADB's shares in Agricare and Vester Oil Mills Ltd to secure equity funding via Cynergy Capital. These two enterprises were enabled to purchase increased volumes of maize and soybean and, hence, provided ready markets for beneficiary smallholder farmers. However, about 74% of smallholder farmers interviewed reported that their ability to apply technologies for reducing postharvest losses had been as a result of collaborative effort between the ADVANCE II activity and other projects. In addition, partnership with the Ministry of Food and Agriculture (MOFA) at the national and operational levels spanned several activities, such as participating as a member of the Fall Armyworm (FAW) National Task Force and its district-level activities, conducting actor-led field demonstrations, and providing access to the input subsidy. The collaboration drastically reduced the impact of FAW infestation. These are some evidence to show that substantial benefits had been derived from the coordination with other development partners. Other benefits derived include avoidance of duplicative effort by partners seeking similar goal to increase competiveness of the target value chains.

Conclusion: Based on these observations, it is concluded that coordination with private sector entities, GoG institutions, related projects and organization was adequate to improve the enabling environment for private sector investment, ensure efficient and effective management of resources, and eliminate duplications of effort while seeking to achieve the goal of competitiveness of maize, soybean and rice value chains in northern Ghana.

Recommendation: Because the various coordination platforms established during ADVANCE II were effective and resulted in efficient management of resources while eliminating duplication of efforts, it is recommended for USAID to ensure that a future project would maintain and sustain coordination between the project and other development projects in addition to the appropriate structures that were put in place e.g., CCC, METSS platform and joint learning programs facilitated by USAID. There is also the need to maintain and sustain coordinaton with MoFA, GHS and other GOG agencies for sustainability of these projects.

Evaluation Question 4: What are the prospects for the sustainability of the results produced by the ADVANCE II Activity?

Findings: The outcomes of the project themselves present adequate incentive for actors of the value chains to willingly make business decisions that ensure the sustainability of their benefits from the

project. Eighty-two percent(82%) of the respondents in the survey were optimistic about the sustainability of the positive changes introduced into the value chains of the target crops through the project interventions. The creation of OB networks introduced a sustainability strategy into the project's OB model by shifting the implementation of key activities to the networks. Further, ADVANCE II's coordination with local entities, (i.e., GOG and the private sector) to deliver most of the interventions built some capacities to ensure that the production and marketing technologies, as well as, management practices promoted through the project, and their resultant outcomes would be sustained. The project also built capacities of local NGOs such as Sung Foundation, RAINS and YARO, to ensure sustainability of interventions and outcomes. These observations notwithstanding, the following present some threats that must be addressed in future value chain projects:

- OB networks were created only in the Northern Regions. Thus, the sustainability benefits from networks are clearly non-existent in the southern maize belt.
- There was no evidence of a clear maintenance plan for equipment (tractors, shellers, threshers, reapers, dryers, etc.).
- OB Networks were not adequately resourced to carry out some of their responsibilities. For instance, the networks are not fully-formed to take full responsibility to deliver on their functions, including raising funds for the networks.
- Though unintended, ADVANCE II collaboration with RMG, a key private sector partner in the seed sub-sector, promoted the use of hybrid seeds.,. This involved a private sector-led investment in imported hybrid seeds which were introduced to farmers through field demonstrations. The practice was reported by some key informants as presenting unfair competition to nascent local seed producers

Conclusion: Beneficiaries' willingness to make and implement operational decisions that ensure sustainability of outcomes from the ADVANCE II activity, as well as, the building of local NGOs and GoG entities capacities demonstrate the existence of individuals and local institutions that have the capacity to sustain results of the interventions. Besides, shifting the facilitation of activities to OB networks presents a very practical sustainability strategy. But the strategy faced some initial problems that can be resolved through additional capacity strengthening efforts.

Recommendation: More networks be created and especially, within the southern maize belt. Having in place, clear maintenance plan for all equipment and facilities that are obtained through the grant scheme is recommended. Working with OB Networks to institute resource mobilization and management structure is strongly recommended for ensuring that their primary responsibilities are performed to ensure their sustainability and that of all gains made. In addition, future value chain development interventions should give priority attention to increasing the farmers' understanding of requirements, privileges and responsibilities of available crop insurance policies. Some effort to facilitate linkages to service providers of crop insurance cover at affordable premiums while ensuring transparency in the management of the scheme is necessary to transform future value chain development.

Evaluation Question 5: What are the lessons learned and best practices, and from which stakeholders or beneficiaries?

Findings: Key lessons learned during the implementation of ADVANCE II activities include the following: a) adoption of modern farming methods required several demonstrations; b) VSLAs present usefull alternatives toaddress smallholder access to credit; c) targeted grant has become important stimulus for agricultural transformation; and d) collaboration among development partners yield substantial effectiveness and efficiency benefits. In addition, the private sector participants realized that: a) there are opportunities in the northern sector for productive businesses within the maize, rice and soybean agricultural value chain; b) investment in smallholders' access to productivity enhacement inputs grows the sources of quality inputs for up-stream businesses; and c) private extension service is feasible when the providers are also beneficiaries of the end product.

Responses from key informants suggest that the best practice worthy of scaling up is adopting private sector-led approach in which strong, mutually beneficial relationships, hinged in transparency are built among and between actors of the value chain.

Recommendations: Based on the lessons learned and knowledge about unintended outcomes, the following recommendations are made for consideration in design of future crop value chain enhancing activities:

- The private sector-led approach to value chain development promoted strong and mutually beneficial relationships, among and between actors of the value chain. It is, therefore, recommended that the OB model, as a strategic approach, should be adopted and scaled in future USAID value chain or market systems projects, to be more resilient.
- To increase access to finance by women smallholder farmers, in the face of limited opportunities to secure input credit from financial institutions, a future value chain or market systems project should mainstream the VSLA concept. Additionally, future projects should introduce new models to support additional livelihood endeavors by women farmers to increase their productivity and profitability.

EVALUATION PURPOSE & QUESTIONS

EVALUATION PURPOSE

The purpose of this final evaluation of the project is to examine the extent to which the project's goal and objectives of ADVANCE II have been achieved. It is intended to assess how the implementation of the ADVANCE II activity's interventions have contributed specifically towards achieving the following USAID/Ghana's Intermediate Results (IR): 2.1) Increased Competitiveness of Major Food Value Chains; 2.2) Improved Enabling Environment for Private Sector Investment; and 2.3) Improved Resiliency of Vulnerable Households and Communities and Reduced Under-Nutrition.

This evaluation sought to ascertain the success or otherwise of the ADVANCE II activity components, i.e., investigate which components worked well or did not work, and identify the factors that influence the observations. Thus, beyond compliance with the Agency's Evaluation Policy, the evaluation will provide USAID, its implementing partners and stakeholders with data on outcomes, best practices and lessons learned. It was also intended to systematically generate knowledge to facilitate effective learning about value chain programming. The evaluators were also expected to make recommendations based on conclusions from the findings to guide successful future program design and development.

EVALUATION QUESTIONS

The specific objective of the final evaluation of ADVANCE II activity is to derive answers to the following research questions, to be used as evidence for drawing conclusions about the project's performance:

1. To what extent has the ADVANCE II activity achieved its intended goal and objectives as stated in the project's results framework?
    a. Has the project produced the desired results (outputs and outcomes), and/or meeting each of its three Intermediate Results and project goal of "Increased competitiveness of the maize, rice and soybean value chains in Ghana"?
    b. Which of the project activities are the most and least effective at increasing the competitiveness of the focus value chains?
    c. What challenges and opportunities have been identified during project implementation that could have influenced outcomes and IRs?
    d. Have the results of the women and youth from the project implementation been different from their men counterparts?
    e. Did the application of sustainable environmental practices contribute to achieving expected results?
2. What is the effect of the ADVANCE II activity's out-grower business model on the productivity and profitability of the project's beneficiary smallholder farmers and out-grower businesses?
    a. What is the level of productivity, profitability and incomes of beneficiary smallholder farmers?
    b. What is the level of profitability of the nucleus farmers and aggregators?
    c. What factors are the drivers of productivity and profitability of smallholder farmers and nucleus farmers?

d. Were productivity and profitability of women and youth beneficiary farmers different from their men counterparts?

3. How has the ADVANCE II activity collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?

    a. Was there adequate knowledge sharing structures and processes to foster learning from other USAID projects to enhance activity implementation and increase the competitiveness of the three target value chains?

    b. Did the beneficiaries of ADVANCE II apply technologies developed and promoted by the Agricultural Technology Transfer Project?

    c. To what extent did the beneficiaries of the ADVANCE II activity have their access to finance through linkages with the Financing Ghanaian Agricultural Project of USAID/Ghana?

    d. To what extent did collaboration between ADVANCE II and the Agricultural Policy Strategy Project drive efforts at providing an enabling environment for the competitiveness of the rice, maize and soybean value chains?

    e. What were the links between ADVANCE II activity and USAID Resiliency in Northern Ghana project, and could those links contribute to the competitiveness of the three target value chains?

4. What are the prospects for the sustainability of the results produced by the ADVANCE II activity?

    a. How practical and effective was the ADVANCE II strategy for sustaining any gains made towards increasing the competitiveness of maize, rice and soybean value chains?

    b. What is the degree of collaboration between ADVANCE, the Ministry of Agriculture and the Local Authorities to ensure ownership and sustainability of gains from the project?

    c. Have project beneficiaries saved regularly in order to finance future investments after the project?

    d. To what extent are resources and capacities at individual, organizational or sociopolitical levels available to ensure the continuation of results?

    e. What risks and potentials are emerging as a result of ADVANCE II implementation and what measures have been taken to mitigate those risks?

5. What are the lessons learned and best practices and from which stakeholders or beneficiaries?

    a. What lessons were learned from the various categories of stakeholders/ beneficiaries?

    b. Which two practices, in your opinion contributed most to the good results achieved:

    c. Which of the best practices must be scaled up to continue increasing the competitiveness of the three target value chains?

    d. What, if any, unintended consequences can be attributed to the ADVANCE II activity?

PROJECT BACKGROUND

CONTEXT

Average Growth in the Agricultural Sector for the period between 2010 and 2015 was 3.5%, a significant deviation from the projected 6.0% per annum. The lowest growth rate of 0.8% was recorded in 2011 and the highest of 5.7% in 2013. This low growth rate was attributed to the poor performance of the fisheries (-8.7%) and forestry/logging (-14%) sub-sectors coupled with poor rainfall in amount and distribution which resulted in low crop production.

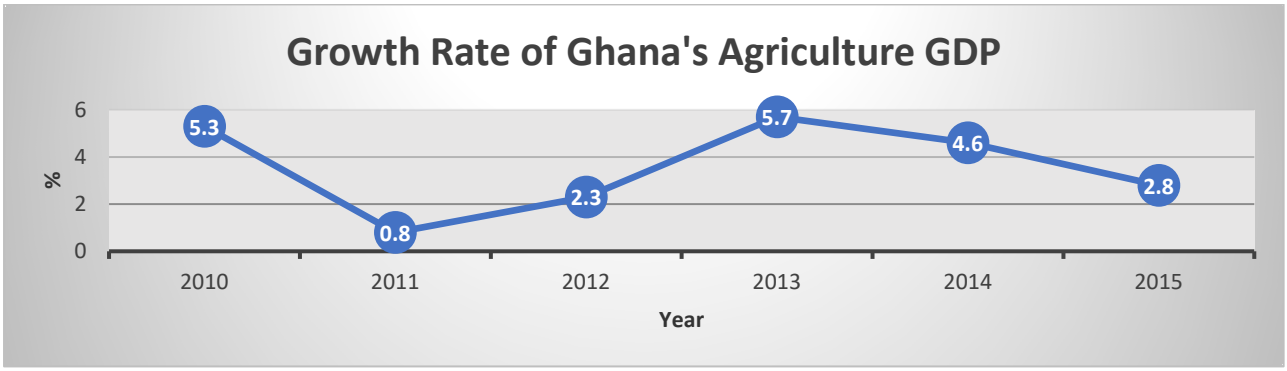

Figure 1: Real Annual Gross Domestic Product (GDP) Growth Rate of the Agricultural Sector 2010 – 2015

Source: Ghana Statistical Service, 2017

The contribution of the crops sub-sector, excluding cocoa, to agricultural GDP at 2017 prices, increased from 61.1% in 2011 to 66.7% in 2015. With the exception of rice, cereal production exhibited a general downward trend within the same period.

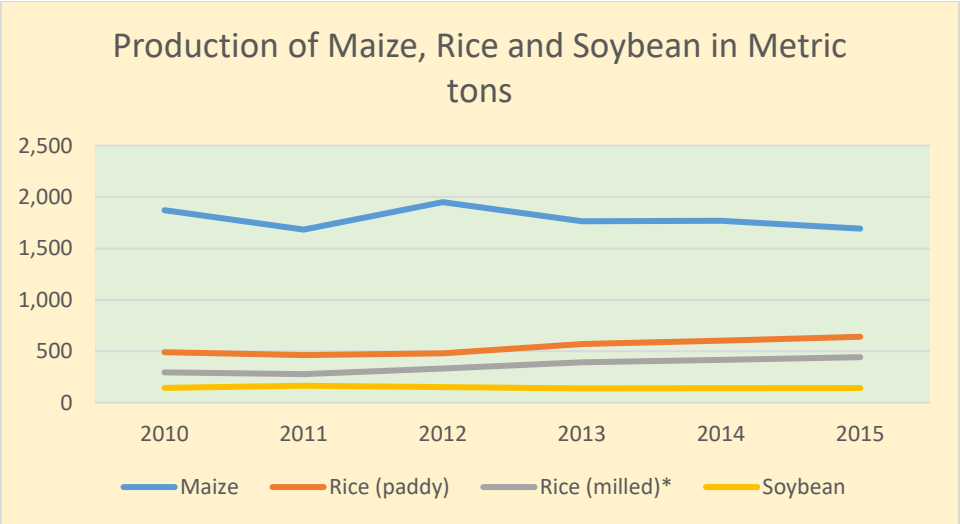

Figure 2: Annual Production of Maize, Rice and Soybean

Source: Annual Performance Report, Ministry of Food and Agriculture (MoFA APR), 2016

The crop production landscape in northern Ghana has been predominantly rain-fed. Farmers have been mostly smallholders with an average land size of 0.81 ha and still use basic farm implements. Thus, they recorded low yields for staple crops, weak implementation of sustainable land management policies and strategies at the community level, had limited access to markets and had very low incomes. Such smallholder producers had limited access to agro-processing and operated in

a policy environment subject to several anomalies along the agricultural value chains. The situation is aggravated by inadequate infrastructure (e.g. road networks and storage facilities) that further creates market inefficiencies and affect the competitiveness of their produce in urban markets.

In an effort to address some of these challenges, USAID/Ghana awarded a Cooperative Agreement No. AID-641-A-14-0001 2014 to a consortium led by ACDI/VOCA to implement its Agricultural Development and Value Chain Enhancement II activity (ADVANCE II), as a follow-on to the successfully implemented initial ADVANCE activity which ended in March 2014. The other partners in the consortium were TechnoServe, Association of Church-based Development NGOs (ACDEP) and PAB Consult. ADVANCE II was scheduled to end in September 2018. However, a no-cost extension to the agreement led to the end date of May 2019. Thereafter, a cost extension moved the end-date further to April 2020 to enable the project to continue to support the value chain actors with services and inputs to complete the 2019-2020 cropping season.

The ADVANCE II activity was designed to contribute to the achievement of Intermediate Results of USAID/Ghana's Feed The Future (FTF) Strategic Objective 3 (Improved Nutritional Status, especially of women and Children) and Strategic Objective 4 (Inclusive Agricultural Sector Growth). The project designing phase carefully considered the context of Ghana's overall agricultural sector development policies and the USAID/Ghana Mission's FTF program to ensure optimal system performance. With this background, the goal of the ADVANCE II activity was to increase the competitiveness of the maize, rice and soybean value chains in northern Ghana.

THE ADVANCE II THEORY OF CHANGE

The theory of change that motivated the design of the ADVANCE II activity suggests that there were three functions of agricultural value chain competitiveness, namely, agricultural productivity, market access and trade and enabling environment, which were engendered through the following dimensions of competitiveness: a) clear incentives for investment; b) strong local capacity; and c) mutually beneficial relationships. Within this multidimensional framework, ADVANCE II sought to channel resources through eight immediate outcomes (shown in Annex IX) that impact both the functions and dimensions of value chain competitiveness and lead to: a) strengthened incentives for investments, build local capacities, and broaden and/or catalyze relationships for increased productivity; b) expanded access to markets and trade; and c) strengthened local capacities for an improved enabling environment. The interactions among these intermediate results were expected to contribute substantially to the achievement of the project's goal.

Underpinning the theory was the role of private sector actors, including men and women farmers, as the drivers of competitiveness, while the Government of Ghana (GOG) and local stakeholders if empowered, can lead as facilitators, catalyzed through the project's capacity building, learning and investment, and innovation promotion.

The development objectives of the ADVANCE II activity were, therefore, underpinned by the hypothesis that **if** interventions were carefully planned and executed to achieve: i) increased productivity in targeted commodities; ii) increased marketing access and trade; and iii) strengthened local capacity, **then** these changes would ultimately lead to improved competitiveness of the maize, rice and soybean value chains which was the goal of the ADVANCE II activity. Achievement of the project goal was expected to contribute to achieving the USAID/Ghana's FTF Strategic Objectives 3 - *Improved Nutritional Status, especially of women and Children* and Strategic Objective 4 - *Inclusive Agricultural Sector Growth*.

THE ADVANCE II RESULT FRAMEWORK

Programmed activities were expected to produce eight immediate outcomes and three intermediate results that will contribute together towards the realization of the project goal as depicted in the Advance II result framework in Annex IX.

It was envisaged that the following activities, when implemented effectively would produce the expected outcomes:

a) **Intermediate Result 1.1: Increased productivity in targeted commodities**
   - Activity 1.1.1: Develop Outgrower Business Management Program
   - Activity 1.1.2: Support NFs and Aggregators to facilitate outgrower credit
   - Activity 1.1.3: Partner with UDS to launch NF Business Intern Program
   - Activity 1.1.4: Facilitate Lead Firm Outgrower Scheme
   - Activity 1.1.5: Build capacity of production service providers
   - Activity 1.1.6: Increase access to mobile market information services
   - Activity 1.1.7: Financial literacy for smallholders and Farmer Based Organizations (FBO)s
   - Activity 1.1.8: Develop and disseminate Good Agricultural Practices (GAPs) and conservation farming protocols
   - Activity 1.1.9: Facilitate commercial partners to implement demonstrations
   - Activity 1.1.10: Collaborate with Information and Communication Technology (ICT) and the private sector to expand agricultural programing

b) I**ntermediate Result 1.2: Increased Market access and trade**
   - Activity 1.2.1: Capacity building of partner financial institutions
   - Activity 1.2.2: Increased bankability of out-grower business
   - Activity 1.2.3: Ghana Grains Council (GGC) partnership to manage grains warehouse receipting system
   - Activity 1.2.4: Improve investments in and access to post-harvest handling (PHH) equipment and storage facilities
   - Activity 1.2.5: Improve on-farm PHH practices
   - Activity 1.2.6: Strengthen transport sector services
   - Activity 1.2.7: Business Development Service (BDS) provision to lead firms
   - Activity 1.2.8: Expand market linkages with lead firms and NFs
   - Activity 1.2.9: Launch of Innovation and Investment Incentive (I3) fund
   - Activity 1.2.10: Organize agribusiness fairs and international investment conferences
   - Activity 1.2.11: Increase smallholder capacity to market collectively
   - Activity 1.2.12: Promote female FBO Leadership

c) **Intermediate Result 1.3: Strengthened local capacity**
   - Activity 1.3.1 Conduct a policy advocacy assessment
   - Activity 1.3.2: facilitate advocacy Capacity Building for local institutions including FBOs, associations and other stakeholders
   - Activity 1.3.3: Build capacity in Grass-Roots advocacy
   - Activity 1.3.4: Support GGC national level policy work on grades and standards, weights and measures, non-tariff barriers and cross border trade
   - Activity 1.3.5: Facilitate investment through the district and national investment plans
   - Activity 1.3.6: Facilitate women's access to investments
   - Activity 1.3.7: Deliver Organizational Capacity Building to build capacity so that local organizations can become eligible for USAID funding
   - Activity 1.3.8: Local capacity building through knowledge management and learning.

Activities implementation responsibilities of member institutions of the consortium are provided in Annex 1Table A1.3. As the prime contractor, ACDI/VOCA provided overall management, technical direction and administrative services; reporting to USAID; coordinating with other donor activities; and overseeing sub-awardees' activities. Coordination among partners was driven by the Chief of Party (COP) through an ADVANCE II Management Steering Committee comprised of the leadership of the partner organizations.

Modification Two to the Cooperative Agreement No. AID 641-A-14-0001in 2014 saw an expansion in geographic coverage into the maize belt of the Bono and Bono East (which previously constituted the Brong-Ahafo) and Ashanti Regions. The expansion objectives fitted seamlessly into the

ADVANCE II results framework under IR 1: Increased maize productivity, and IR 2: Increased Access to Markets and Trade. The results framework for the expansion is presented as follows:

I. *Intermediate Result 1: Increased agricultural productivity in targeted commodities*
   - Objective 1: Increased adoption of hybrid maize seed and related good agricultural practices.
   - Objective 2: Enhanced provision of specialized agricultural training to Nucleus Farmers and associated smallholders.
   - Objective 3: Improved the input supply chain.
   - Objective 4: Improved post-harvest handling practices

II. *Intermediate Result 2: Increased market access and trade of targeted commodities*
   - Objective 5: Increased market linkages with end buyers

ACTIVITIES FOR THE EXPANDED PROGRAM

Objective 1: Increase adoption of hybrid maize seed and related good agricultural practices

Objective 2: Provide specialized agricultural training to Nucleus Farmers and associated smallholders

Objective 3: Improve the input supply chain

Objective 4: Improve post-harvest handling practices

Objective 5: Increase market linkages with end buyers

EVALUATION METHODS & LIMITATIONS

EVALUATION APPROACHES

The evauation adopted a combination of three evaluation approaches which are:

a) A participatory/inclusive evaluation which comprised consultating representatives of USAID/Ghana and other stakeholders from the private sector, relevant GoG institutions, and relevant Implementing Partners (IPs) of USAID;

b) "Theory of change" (TOC) approach for determining causal links between the interventions that the project had supported from February 2014 to the end of 2019, and the results achieved; and

c) Gender integrated evaluation which systematically considered gender dimensions at various stages of the evaluation process.

DATA TYPE AND SOURCES

The type of data, their sources and procedures for their collection, with the aim of providing responses to each evaluation question are summarized in the Evaluation Design Matrix presented as Annex 1. Data were obtained from both primary and secondary sources.

METHODS OF DATA COLLECTION

Data were obtained from both primary and secondary sources. Secondary data was obtained through a comprehensive desk review of the output of the program monitoring system, project reports and documented studies that provided relevant information for making decisions about the attainment of expected programmed results.

Primary data were obtained via interviews with project beneficiaries, namely, sampled smallholder farmers and out-growers, key informants of stakeholder organizations as well as focus groups of other project participants selected from the beneficiary district. The combination of data collection techniques deployed enabled the gathering of both qualitative and quantitative data. The techniques discussed in subsequent sub-sections enabled the Evaluation Team (ET) to generate reliable data for providing evidence-based responses to the evaluation questions.

Desk review of existing project documents

A review of project documents such as strategy documents, work plans and project progress reports was a major source for understanding the project and what it sought to achieve. The Project Management team meticulously compiled and made available all relevant documents requested by the evaluation team. They also provided relevant input for revising and finalizing the evaluation work plan. Data obtained from the project's reports were useful for establishing trends in outcomes of project intervention and for determining the extent to which project objectives had been achieved.

Key informants' interviews

Twenty-four (24) persons from stakeholder organizations including the ADVANCE II activity government and non-government partner institutions, and private sector entities were purposefully identified during the initial stages of the assignment and contacted for interviews as key informants.

A checklist of questions was used in semi-structured interviews to seek responses that have informed the ET's response to the evaluation questions.

Meetings for interviews via telephone or via virtual means were scheduled at the convenience of the respondents. This approach was used to adhere to the COVID-19 safety protocols while conducting such an exercise. All Consultants of the evaluation team participated in conducting the interviews with key informants. The list of interviewed key informants is provided in Annex 4.

Interviews with Focus Groups

Thirteen (13) focus groups from the districts listed in Table A8.1 (Annex VIII) were interviewed using the Zoom computer application. The participants were purposively selected from the sampled districts where they operate. The composition of the groups included smallholder farmers, the out-grower businesses (Nucleus farmers and aggregators (middlemen)), input dealers, Business Service Operators (BSOs), Financial Institutions, Buyers, Processors, etc., who had benefitted from the project and were within the selected districts. The discussions generated information for responding to the evaluation questions related to the sustainability and effectiveness of the project interventions. They were good sources for verifying some of the findings from reviewed project documents and for identifying some of the unintended outcomes. The District Agriculture Officers were very instrumental in organizing the groups for discussions. The FGDs were moderated by trained enumerators with the supervision of the Evaluation Team.

Discussions with focus groups offered the opportunity to elicit opinions from a relatively large number of project beneficiaries within a limited timeframe. A good blend of individuals who were either beneficiaries of the various project interventions or collaborators for the implementation of ADVANCE II offered the opportunity for great insights.

The Survey of sampled crop farmers and census of other beneficiaries

Data Collection Instruments:

A structured questionnaire was used to elicit data from project beneficiaries to address the evaluation questions. Approval for the data collection instrument was sought and obtained from the Monitoring, Evaluation, and Technical Support Services (METSS) project II Project.

Sampling:

Per the ADVANCE Activity Monitoring, Evaluation and Learning (MEL) Plan (p81), there were 135,600 direct project beneficiary smallholder farmers and out-growers. Based on that population, a sample size was estimated at a 95% confidence level with a 50% response distribution and a five percent margin of error.[1] This response distribution was conservatively selected considering the uncertain situation created by the spread of the novel COVID-19 disease and leading to a decision to interview respondents via telephones. The estimation resulted in a sample size of 383. Initial examination of the beneficiaries' data revealed that only 39% of the beneficiary smallholders had access to telephones. But the selection of only respondents who had telephone numbers introduced a tendency of sampling bias. To address this bias, the sample size was doubled and rounded up to 800. In addition, probability techniques were adopted at subsequent sample selection stages. The sample size also made adequate provision for all intended stratifications.

A cluster sampling technique in which districts within regions formed the clusters was used for the survey. Based on the distribution of the target population, the estimated sample size was proportionally allocated among sampled districts within the project's zone of influence: i.e. Northern Region, Savannah Region, North East Region, Upper West Region, Upper East Region, Ashanti Region, Ahafo, Bono East and Bono Regions. A two-stage sampling process was used. The first stage entailed a stratified random selection of 40 districts categorized under two domains (i.e., districts dropped in 2017 and those kept) within the zone of influence. The probability proportional to size (i.e., number of listed farmers in the region) technique was used at this stage of sampling. The distribution of districts and respondents by region is presented in Table A1.4 in Annex I.

The second stage involved a stratified random sampling of 20 beneficiary farmers from each district, using a sampling frame of the ADVANCE II activity's list of beneficiary farmers categorized by gender and crop farmed/traded in each of the 40 districts selected at the first stage. Figure 3 depicts the

[1] Raosoft Sample Size Calculator Software (www.raosoft.com).

process of selecting respondents from each district. Considerations for gender balance was key in the selection of respondents.

The Southern maize belt had no beneficiary rice farmers on the ADVANCE activity baseline data. The respondents were mostly maize farmers and female out-grower (smallholder) farmers were not always available.

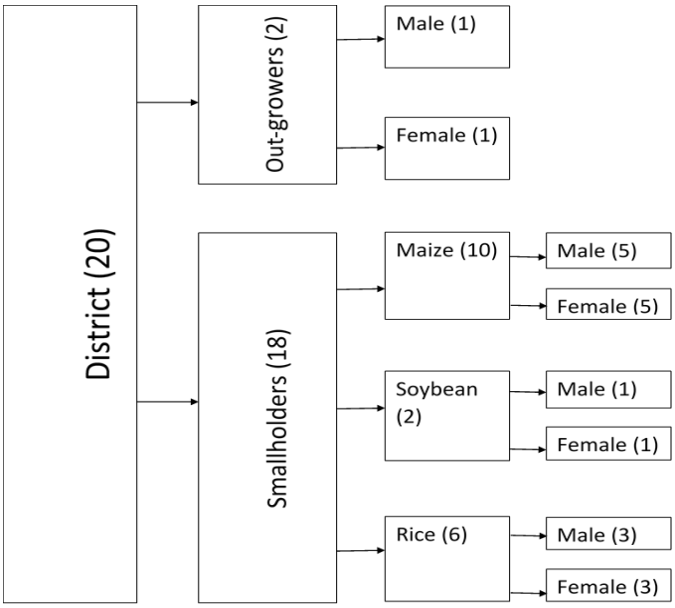

Figure 3: Distribution of Respondents per Sample District

DATA PROCESSING AND ANALYSES

The quantitative data were analyzed using the STATA 15 statistical application. Simple descriptive statistical analyses have been used to a large extent. Descriptive statistics of response to each evaluation question has been reported. Data for the outcomes indicators were derived through such basic quantitative techniques. Depending on thedefinition, most of the indicators required either a simple count of observations or the application of basic mathematical procedures. Possible gender differences in the benefit accruing from project interventions was investigated using the *group-by* function in the STATA software package. Estimations of crop yields are computed to investigate productivity while estimations of gross margins per hectare are used to measure profitability. This measure of profitability is complemented with a regression analysis that enabled an investigation of factors that influenced profitability.

Qualitative analysis, whichinvolved mostly the examination of the data to identify common themesand presented in descriptive formats were used for drawing conclusions about relevance, effectiveness and sustainability were used to support evidence derived through quantitative procedures. In other words, manual coding and triangulation of key findings were used to support the quantitative outcomes. This included estimation of percent responses in favor of expressed viewpoints about the evaluation questions. To draw reliable conclusions regarding responses to the evaluation questions, data obtained from the various sources were triangulated to derive strong evidence to support decisions. An evaluation matrix indicating the analytical methods used to address each of the evaluation questions is presented in Annex II A. The approaches for gross margin estimation and investigation of factors affecting farm profitability among smallholder farmers are presented in Annex II B and C respectively.

LIMITATIONS OF THE EVALUATION METHODOLOGY

Restrictions occasioned by COVID-19 Pandemic

To cope with the situation of restrictions on social gatherings, the ET resorted to conducting the enumerator-training sessions through virtual means which presented some challenges to the data collection. The scheduled interview sessions also suffered from intermittent internet interruptions and was also not very effective for monitoring group work during training.

Poor telephone connectivity led to the rescheduling of most FGDs several times because it was usually very difficult to get through to members of the groups while poor internet connectivity extended time for discussions beyond its scheduled time. The Agriculture Officers were also instrumental in mobilizing prospective members of the focus groups. In spite of the challenges presented by virtual media of communication used, the groups expressed some excitement about being part of an evaluation that used the technology for the first time in their communities.

Telephone Interviewing

Due to the COVID-19 pandemic, the team had to resort to telephone interviews to collect data from sample respondents. The use of telephone interviews with farmers was a fairly new approach and presented a few challenges. First, not many farmers had telephones and in some instances several farmers relied on one person's phone number. Again, some farmers had changed numbers and were difficult to reach while others had working phone numbers, but could not be reached due to poor connectivity. These challenges were accommodated by extending the duration of the survey by two weeks. Secondly, the virtual technique eliminated any possibility of validating farmers' responses with their farm records even if they had them or getting assistance from a household member who might be better informed about the phenomena for which data was being sought. Third, the long interview on the telephone left some respondents fatigued or in a hurry to attend to household chores and provided quick responses to end the conversation. This concern was quickly identified and addressed by suspending the interview for resppondents to take breaks or a need to attend to some chores. The interviewers scheduled a continuation of the interviews at the farmers' convenience.

FINDINGS, CONCLUSIONS & RECOMMENDATIONS

Evidence obtained through the various data gathering and analytical procedures are used in responding to all the evaluation questions in this section. Each of the sub-sections that follow is focused on findings for an evaluation question. Overall, 665 out of the sampled 800 smallholder farmers were successfully surveyed across the ten old administrative regions with a response rate of 83.13%. The gender composition of the respondents was 36% female and 64%, male. As many as 45.5 % of them did not have any formal education while 7.3% had received post-secondary education. One focus group discussion event was held in each of the 13 selected districts (comprising 99 participants with 90% and 10% male and female composition respectively) while 24 key informants were interviewed.

FINDINGS

Evaluation Question 1: to what extent has the ADVANCE II project achieved its intended goal and objectives as stated in the project results framework?

Question 1 Findings

EQ1.1 Has the project produced the desired results (outputs and outcomes), and/or met each of its three Intermediate Results and project goal of "Increased competitiveness of the maize, rice and soybean value chains in Ghana?

Responses from key informants' interviews and focus group discussions revealed that the project, as intended, developed and implemented a simplified value chain approach, in which smallholder farmers were linked to various services that enabled beneficiaries to access markets, finance, inputs, equipment, and information. The various services were provided through larger commercial farmers and traders who had the capacity and incentive to invest in those services to support smallholder production. The linkages created also built the capacity of smallholder farmers for increased efficiency in production and post-harvest handling practices. These approaches together constituted the much-lauded ADVANCE II outgrower business model (see Figure 4**)** that horizontally and vertically integrated the various actors and services in the maize, rice and soybean value chains while supporting both emerging commercial agriculture and smallholders.

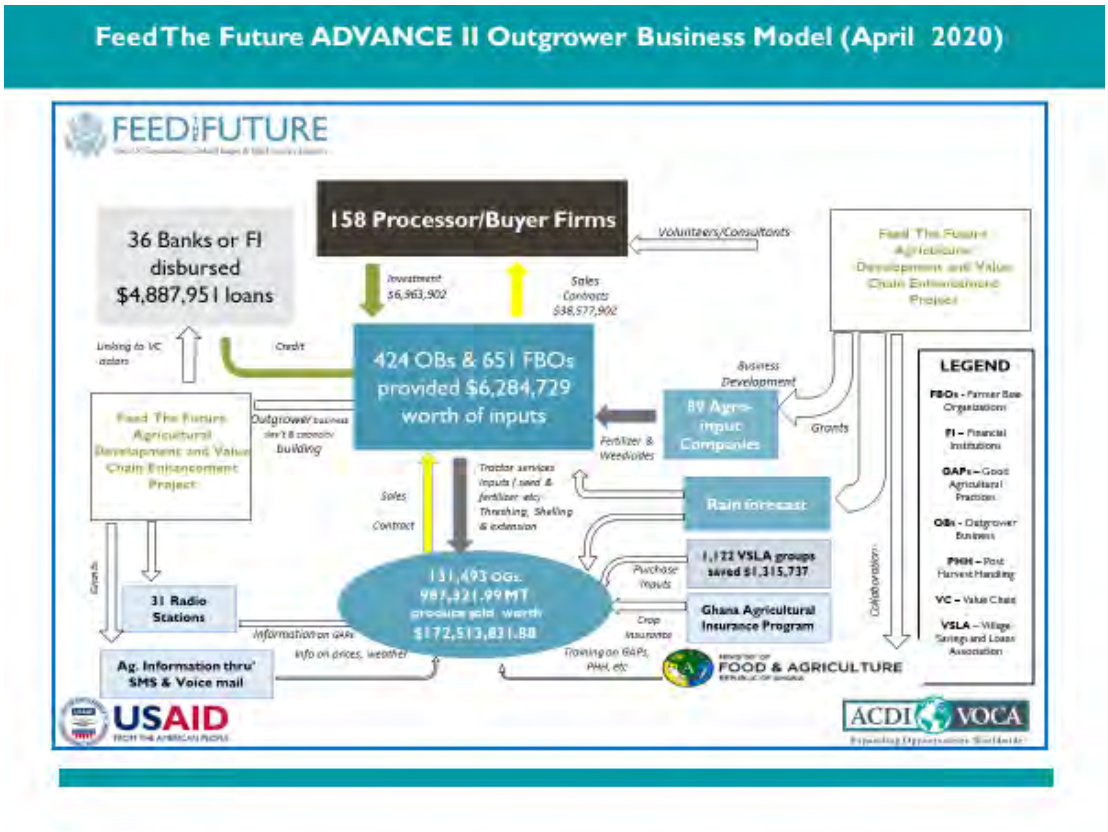

Figure 4: ADVANCE II Outgrower Business Model

Findings from the review of the project work plans and implementation reports revealed timeliness in the execution of planned activities. The effectiveness of these timely services was expected to be manifested as achievement of outcomes specified in the project's result framework. In this sub-section, findings on the outcomes of the ADVANCE II activity and their links to the interventions mentioned above are discussed to confirm the validity of the project's underlying theory of change.

The achievements of the ADVANCE II activity are presented in Table A6.8 (Annex VI), using a summary of data reported annually for the performance indicators of the projects. Five indicators that were introduced in the final year during the cost extension and marked the start of the Global Food Security Strategy (GFSS) implementation, are not evaluated for performance because they were reported for only one year, Besides, there were no baseline data for comparison.

Based on the reported data for the project's performance indicators presented in Table 5, as well as findings from focus group discussions and the survey, the extent to which immediate outcomes were achieved are reported as follows:

a) **Immediate Outcome 1.1.1- Increased adoption of productivity improvement technologies and practices**; The number of smallholder farmers and others who had applied improved technologies or management practices as a result of USG assistance, exceeded the target for each year of activity implementation as shown in Figure 5. This notwithstanding, the life of project (LOP) target for the indicator was not achieved.

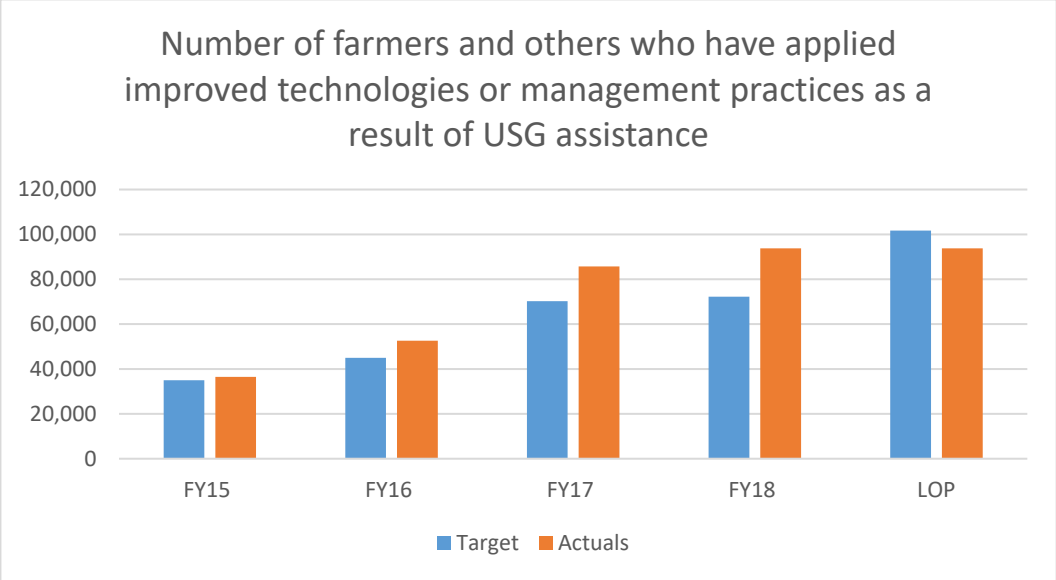

Figure 5: number of farmers and others who applied improved technologies and management practices.
Source: Compiled from Annual Reports of the ADVANCE II

b) **Immediate Outcome 1.1.2 - Strengthened incentives for smallholder investment in new technology, services and practices:** The indicators used for measuring attainment of this result are **"***Number of hectares under improved technologies or management practices as a result of USG assistance***" and "***Number of private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) that applied new technologies or management practices as a result of USG assistance***".** Evidence from Table 1 show that almost all yearly targets were generally, exceeded. The only exeption was in the first year when the target for the number of hectares under improved technologies and management practices was not met.

Table 1: Reported Data for indicators for measuring strengthened incentives for smalholder investment

	2015		2016		2017		2018	
	Targets	Actuals	Targets	Actuals	Targets	Actuals	Targets	Actuals
Number of hectares under improved technologies or management practices as a result of USG assistance	52,500	37,179	45,000	48,275	70,200	72659	72,200	73,873

Number of private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) that applied new technologies or management practices as a result of USG assistance	300	483	338	366	338	783	338	423

c) **Immediate Outcome 1.1.3 - Strengthened systems for service provision and input distribution:** The data reported yearly for the two indicators that were used in determining the achievement of this result are presented in the Table 2. The evidence show that yearly targets for both indicators were always exceeded.

Table 2: Reported data on Indicators used in measureing strengthened systems for service provision and input distribution

	2015		2016		2017		2018	
	Targets	Actuals	Targets	Actuals	Targets	Actuals	Targets	Actuals
Number of private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG assistance	400	467	450	836	450	498	450	994
Number of individuals who have received USG supported short-term agricultural sector productivity or food security trainings	30,000	36,618	58,500	67,182	60,000	85,384	48,375	63,072

d) **Immediate Outcome 1.2.1 - Increased availability and use of affordable/sustainable services**: The targeted value of agricultural and rural loans were not always met as depicted in Figure 6. Responses from the survey also show that only 37.6% of small holders indicated an ability to access financial services through their interaction with the ADVANCE II activity. However, the value of loans reported for each year often exceeded the baseline value and suggested significant improvement resulting from the ADVANCE II activities.

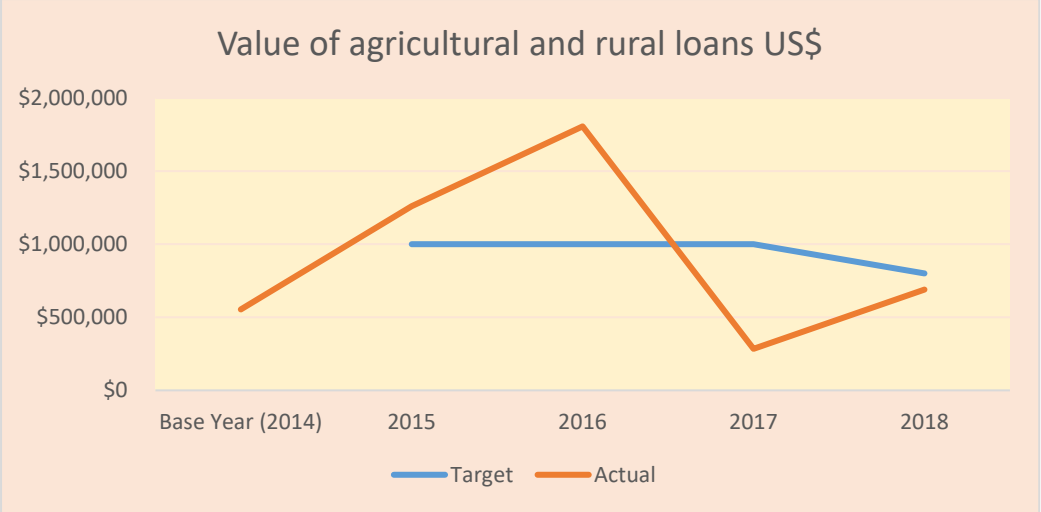

Figure 6: Value of Agricultural ans Rural Loans

e) **Immediate Outcome 1.2.2 - Improved capacity of women and men to participate in markets:** The "*value of new private sector investment in agricultural sector or value chain (US$)*" exhibited increases beyond the yearly target values for 2015 and 2016 but targets for the remaining years were not met as presented in Figure 7. In the end, the indicator fell short of meeting its life of project target by 6.6%.

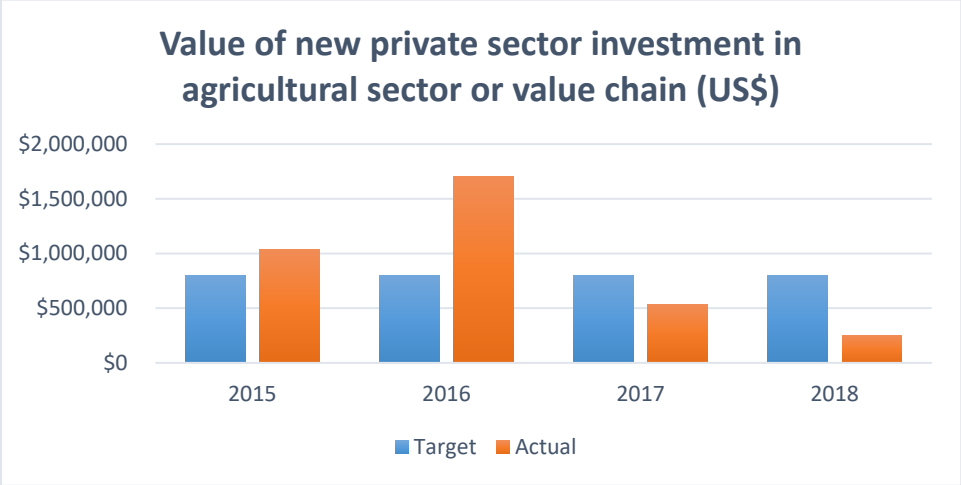

Figure 7: Value of New Private sector Investment in Agricultural Sector or Value Chains

f) **Immediate Outcome 1.2.3 - Increased private sector investment to support value chain development, expanding benefits from market participation for women and men:** The two indicators used in evaluating attainment of this result are "*Number of value chain actors accessing finance*" and "*Number of firms (excluding farms) or Civil Society Organizations (CSOs) engaged in agricultural and food security-related manufacturing and services now operating more profitably (at or above cost) because of USG assistance*". Yearly performance in terms of these indicators are depicted in Table 3. The data show that yearly outcomes measured via the two indicators exceed their targets, with exceptions only in the first year.

Table 3: Reported data for indicators associated with increased private sector investment

	2015		2016		2017		2018	
	Targets	Actuals	Targets	Actuals	Targets	Actuals	Targets	Actuals
Number of value chain actors accessing finance	200	100	225	226	225	155	300	590
Number of firms (excluding farms) or Civil Society Organizations (CSOs) engaged in agricultural and food security-related manufacturing and services now operating more profitably (at or above cost) because of USG assistance	30	28	50	123	75	225	225	379

h) **g) <u>Immediate Outcome 1.3.1</u> - Strengthened advocacy capacity of Value Chain actors to address enabling environment constraints:** Yearly targets for the "*number of organizations/ enterprises receiving capacity building support against key milestone*" were neverachived but the number increased steadily throughout the period of activity implementation. Though the activity might not have met the yearly targets its ability to build the capacities of 46 out of a target of 50 organization/enterprises over the five-year period is fairly impressive. In the survey, 68.3% expressed the conviction that their capacity for advocacy had improved as a result of the ADVANCE II interventions.**<u>Immediate Outcome 1.3.2 -</u> Strengthened capacity to implement Value Chain development and become eligible for USAID funding**: The indicator used for measuring the attainment of this result is "*Number of awards made directly to local organizations by USAID*". The targeted number of awards for the year was five which was achieved.

The extent to which the three intermediate outcomes of the ADVANCE II activities which depict the three functions of competitive value chains were achieved are presented as follows:

A. **<u>Intermediate Result 1.1Increased productivity of targeted commodities</u>**: Per the theory of change, achievement of immediate outcomes 1.1.1, 1.1.2 and 1.1.3 as discussed above, is expected to lead to increased productivity of target commodities. This is verified and reported here using data reported for gross margins per hectare of maize, rice and soybean, the indicators used by ADVANCE II for measuring increased productivity of the crops and are presented in Figures 8, 9 and 10. The gross margin per hectare for beneficiary farmers fluctuated around an average of US$ 787 for maize, US$ 752 for rice and US$ 575 for soyean, all of which were increases over their respective baseline value reported in Table A6.8. Despite these positive outcomes, yearly targets for gross margins per hectare of these crops were not always met.

   Crop yields of these beneficiaries were reported to have increased from an average of 1.38MT, 0.9MT and 0.9MT per hectare for maize, soybean, and rice respectively in 2013 to as high as 5.62MT and 2.49MT per hectare in some cases of maize and soybean respectively in 2019 and 3.44MT per hectare for rice in 2017 (ADVANCE II, 2020).

   The average yield and gross margins per hectare for the crops which were estimated from data obtained through the survey, suggest increases in productivity and profitability when compared

with the baseline data. Responses from FGDs and the survey also attest to increases in farmers' output and sales. Most farmers had maintained their plot size and applied the good agricultural practices, including improved technology to increase their crop output. Seventy-eight percent (78%) of the smallholder respondents in the survey attributed achievement of their goals of increased production and sales to the support they received from the ADVANCE II activity. Some leaders of the Outgrower Business (OB) networks interviewed as key informants confirmed that smallholders' maize output had increased from between 5 and 7 bags (approximately 500kg – 700 kg) per hectare to as much as 25-30 bags (approximately 2.5 MT – 3.0 MT) per hectare on account of the project interventions such as training in good agronomic proctices, as well as, facilitating access to agricultural inputs and markets through effective linkages (see a summary of key informant interviews in Annex VII).

Participants of the focus group discussions (FGD) interviewed also expressed general satisfaction with the activities of the ADVANCE II and the subsequent outcomes (see Annex VIII for a summary of FGD responses). Majority (about 80%) of the group members perceived that training in better production, harvesting, storage and management practices, as well as, facilitation of improved access to agro-inputs and, financial resources enabled them to improve the quantity and quality of their products and increased their gross margins. Focus groups reiterated the opinion that linkages facilitated by the project, between producers and processors of the three target crops provided some motivation for increased production by smallholders because of the ready market for their produce, and provided relatively more reliable sources of the quality crop for Outgrower Businesses (OB). It was generally acknowledged that strengthening of the Outgrower Businesses (OBs) had stimulated stronger business relationships between OBs and several value chain actors, and positively impacting their agribusiness enterprises. Nevertheless, about 20% of the focus group discussion participants expressed contrary opinions and alluded to their inability to obtain any financial resources through the project as a source of dissatisfaction.

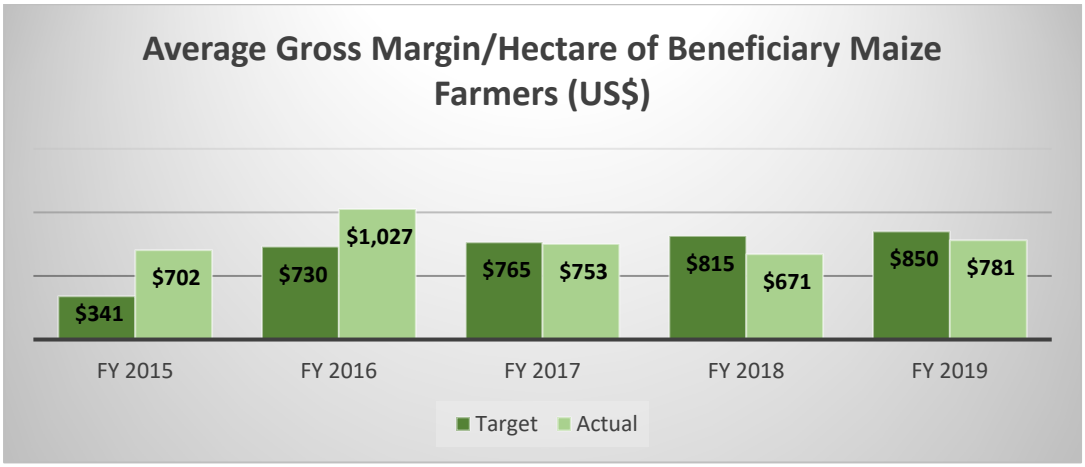

Figure 8: Gross Margin per Hectare of Beneficiary Maize Farms
Source: Derived from Data in Annual Reported

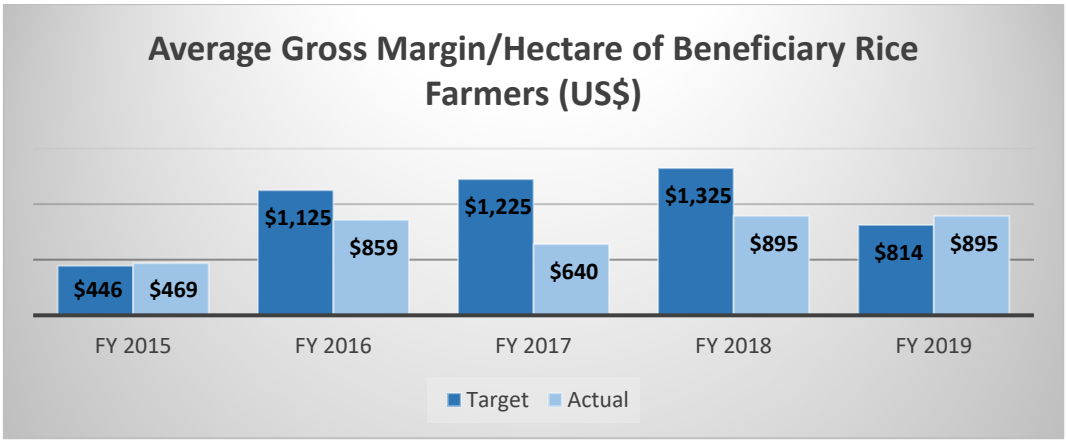

Figure 9: Gross Margin per Hectare of Beneficiary Rice Farms
Source: Derived from Data in Annual Report

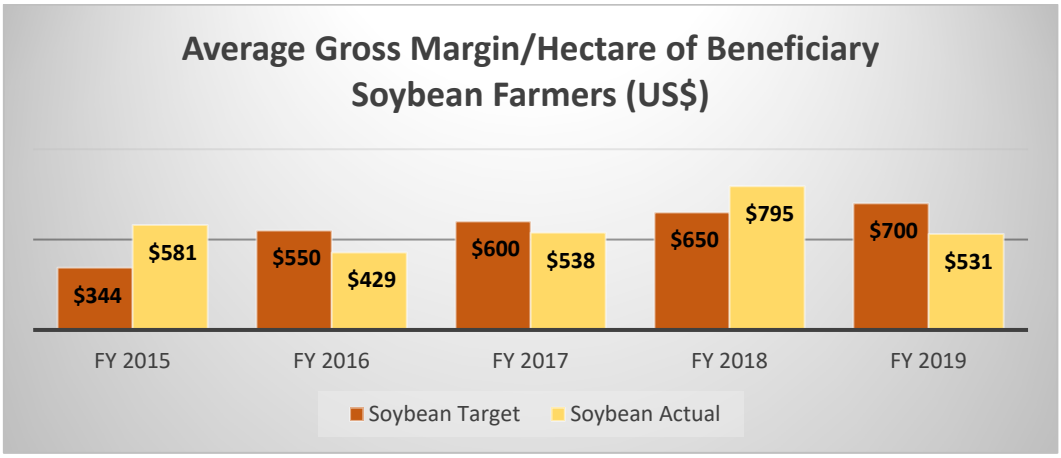

Figure 10: Gross Margin per Hectare of Beneficiary Soybean Farms

Source: Derived from Data in Annual Report

B. **Intermediate Result 1.2 - Increased Market Access and Trade**: The "*value of incremental sales (collected at farm-level) attributed to FTF implementation*" is the primary indicator used in determining the level of achievement of this second intermediate outcome. Data for this indicator, reported during the period of ADVANCE II activity implementation and presented in Figure 11 show that yearly targets set for this indicator were always met, It indicates an achievement of the intermediate outcome. The immediate outcomes that were expected to have contributed to the attainment of this outcome are "*Increased availability and use of affordable/sustainable services", "Improved capacity of women and men to participate in markets", and "Increased private investment to support value chain development, expanding benefits from market participation for women and men*" While the yearly targets for the third immediate outcome have been reported above as having been achieved, the targets for the indicators used in evaluating the other two immediate outcomes were missed narrowly (See Table A6.8). The "*value of new private sector investment in agricultural sector or value chain (US$)*" for example missed its life of project target by a 6.6 percentage point. 47% of respondents smallholders from the survey expressed improved ability to negotiate better trade term on account of the capacity building they received therough the ADVANCE II activity. Thus, some progress was made with regard to increasing market access and trade to suggest achievement of the result.

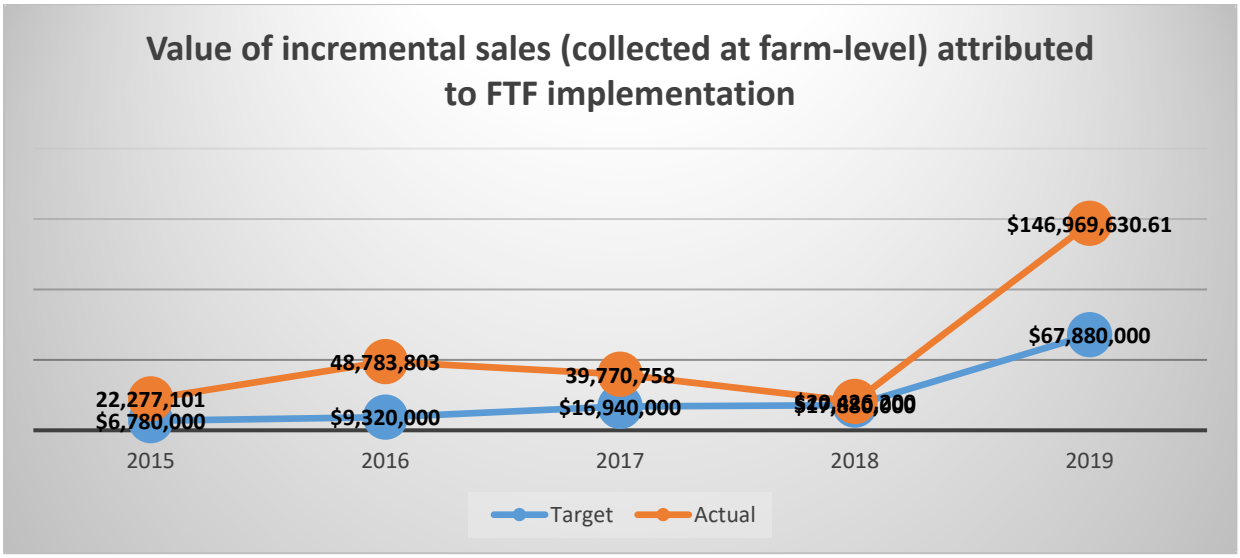

Figure 11 : Value of Increamental Sales attributed to FTF ImplementationSource: Derived from Data in Annual Reports.

C. **<u>Strengthened Local Capacity for Advocacy and Activity Implementation</u>**. The primary indicator that was used for evaluating this intermediate outcome is *"number of organizations/ enterprises identified as high potential for future awards*". Data presented in Table A6.8 suggest the achievement of the life of projet target for this indicator. "*Strengthened advocacy capacity of Value Chain actors to address enabling environment constraints*" and *"Strengthened capacity to implement Value Chain development and become eligible for USAID funding"* are expected to contribute to achieving the subject imtermediate outcome. While data in Table A6.8 also show that target for the latter was successfully achieved, the target for the former was marginally missed. Responses from 62% of respondents from the survey suggest improvement in beneficiary women's capacity for production trade negotiations, advocacy and leadership on account of ADVANCE II interventions.

With regard to evaluating the accomplishment of the ADVANCE II activity goal, the indicator used is the number of direct project beneficiaries. Though not a good measure of the competitiveness of the value chain, the number of direct beneficiaries when combined with other indicator provides a reasonable indication of the extent of coverage of the changes that might have taken place. It was reported in the ADVANCE II 2019 annual report that 131,493 smallholder farmers producing maize, soybean and rice benefited from various activities and thereby exceeding its life of project target of 127000. This evidence, coupled with the attainment of the intermediate outcomes that together demonstrate the existence of a funtionally competitive environment, suggest significant increase in the competiveness of the maize, rice and soybean value chains within the Zone of Influence.

EQ1.2 Which of the project activities are the most and least effective at increasing the competitiveness of the focus value chains?

The interventions by the ADVANCE II activity are grouped into nine categories as presented in Figures 12 and 13. Relatively larger proportions of beneficiary smallholder benefitted from capacity enhancing activities, including training for improved production and post-harvest management practices and capacity building for business development. The next activity that attracted fairly large

participation was facilitated access to farmers' inputs. These three categories of interventions also saw the highest participation by nucleus farmers. Facilitated access to post-harvest infrastructure had the lowest proportion of beneficiary smallholders and nucleus farmers. This notwithstanding, all the categories of activities seem to have been beneficial to both smallholder and nucleus farmers despite the larger proportions for the latter which is likely influenced by its smaller sample.

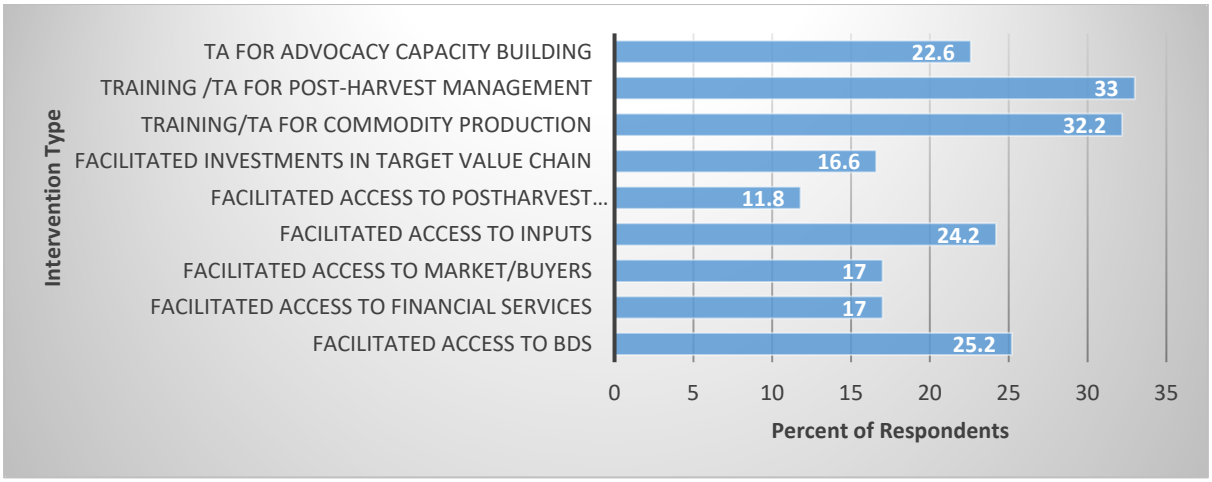

Figure 12: Average percentage of smallholder farmers surveyed that benefited annually from various categories of ADVANCE II interventions

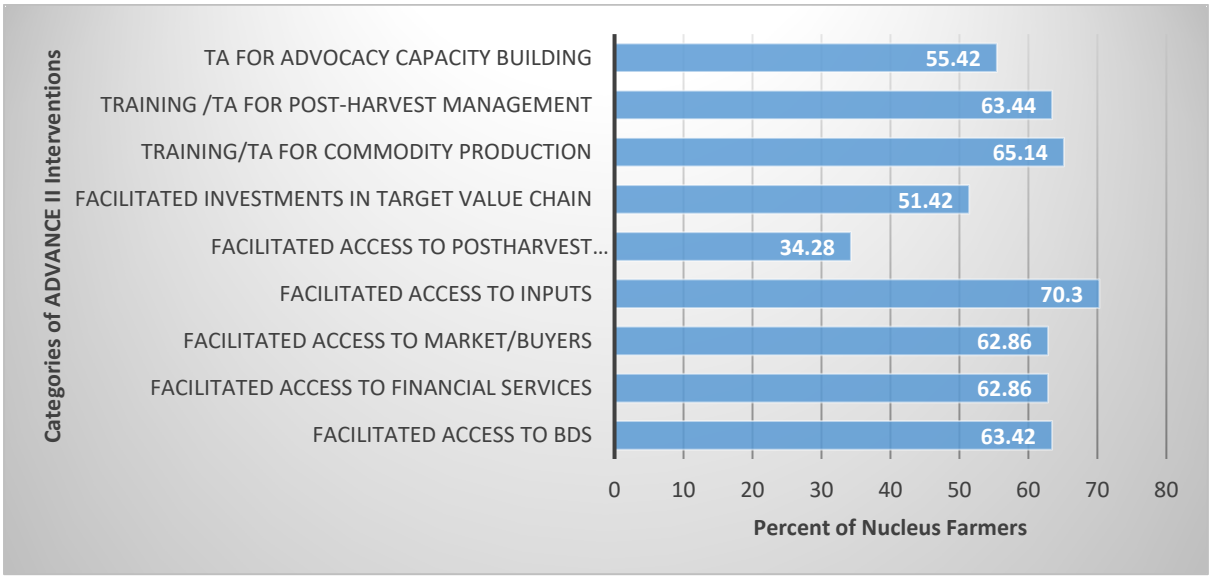

Figure 13: Average percentage of nucleus farmers surveyed that benefited annually from various categories of ADVANCE II interventions

Attempts to elicit respondents' opinions on the activities that were most important for achieving the intended outcomes could not yield precise responses. The responses depended on the type of support received by the respondent and, thus, no single activity was cited to have topped the list for all actors of the value chains. The general view expressed in both focus group discussions and key informant interviews was that all the intervention activities were important and it was difficult to identify which of them were more effective than others.

However, the three interventions that were mentioned consistently as being very effective were: a) training in the use of improved technology and business practices; b) linkage of Outgrower businesses to produce buyers who can sponsor schemes with inputs on credit; and c) facilitation of farmers' access to production inputs and services.

Most of the key partners of the project cited the adoption of a more comprehensive private sector approach to agricultural transformation by the ADVANCE II project as the driving force behind successes made. The approach included partnership with private sector firms including Agricare, Agrisolve, RMG and OBs to invest in outgrower schemes as examples. This view point seems to reinforce the opinion expressed by the project managers that the holistic approach of the Outgrower business model was the key factor for the successes made. In the survey, about 74% of the respondents perceived ADVANCE II project's method of delivery to be effective in achieving the project's intended results. Further, 67% of the farmers perceived the project's method of intervention delivery to have contributed to timeliness and reduced cost of accessing its benefits.

Two interventions that were consistently noted to not have worked satisfactorily were: a) facilitating access to loans from formal financial institutions; and b) aspects of conservation agriculture. The project management team observed that applications of promoted practices such as hand dug planted basins, agroforestry and cover cropping for soil moisture conservation did not produce expected results.

EQ1.3 What challenges and opportunities have been identified in the course of project implementation that could have influenced achievement of outcomes and IRs reported?

Even though the financial institutions including Sinappi Aba sought to enhance farmers' and especially rural women's access to finance during the implementation of ADVANCE II Activity, actors of agricultural value chains, especially smallholder farmers still had difficulty in accessing finance to grow their enterprises. A major threat that the project could not control was the high-interest rates on loans, ranging from 28-32% across sectors from formal financial institutions. In addition, stringent repayment conditions did not make such loans attractive to actors in the value chains of agricultural produce. Thus, only 37.6% of small holders indicated an ability to access financial services through their interaction with the ADVANCE II activity. These were disincentives for business expansion within the sector.

Key informants of partnering financial institutions were emphatic about a fact that savings of smallholder farmers did not increase even when their output and sales were reported to have increased. According to the farmers, after providing better living conditions and education for their families, there was very little or no money left to save. Thus, they depended on credit facilities each year to sustain their production units.

The ADVANCE II activity did not hesitate to explore opportunities offered by both government and private sector entities to address some of the financial needs of actors of the value chains. The introduction of Village Saving and Loan Associations (VSLA) led to weekly group contributions that provided pools of funds intended for purchasing input during the ensuing farming season.

The Government of Ghana (GoG) flagship program, "Planting for Food and Jobs", which was initiated in 2017, offered a significant opportunity for leveraging additional input resources to benefit the beneficiary smallholder farmers. The ADVANCE II activity embraced the opportunity to partner with the Ministry of Food and Agriculture (MoFA) because of their common objective of increased competitiveness of value chains of selected crops that included maize, rice and soybeans.

The introduction of MTN MoMo accounts for farmer groups also presented opportunities for smallholders to save part of their revenues and use themfor purchasing their inputs during the ensuing farming season. ADVANCE II facilitated a bulk payment access platform through MTN which was reported by key informants, to have enhanced trade among actors of the value chain and improved access to short-term loans. Thankfully, the initial risk posed by new entrants who innocently revealed group password was identified early and adequate training was provided to curb their exposure to fraudsters.

Still, with the ICT infrastructure, SMS messages about how to respond to fall armyworm (FAW) infestations served to reduce the virtual space between information sources and smallholders. Reliance on this basic ICT medium proved to be effective in accelerating farmers' abilities to respond to the FAW crisis.

Another opportunity worthy of note is the willingness of key value chain actors to work with women and youth which had proven to increase inclusiveness in the market system and access to resources and services.

While the introduction of farmers to insurance scheme offered an opportunity for reducing farmers' aversion to risk, the lack of transparency in management did not make it attractive to some key informants. Some farmers who had participated in the scheme did not benefit from the scheme as expected, at the time they made claims following damages from invasion by the fall armyworm.

Farmers with a limited orientation to businesslike operations often defaulted on their repayment of credited input even when in-kind repayments were expected. When the market price exceeds the contract price, some farmers diverted their output for sale on the open market. The element of trust is important for successful contractual arrangements between outgrowers and purchasers. In addition, the rather low levels of literacy among smallholder farmers made their training quite difficult.

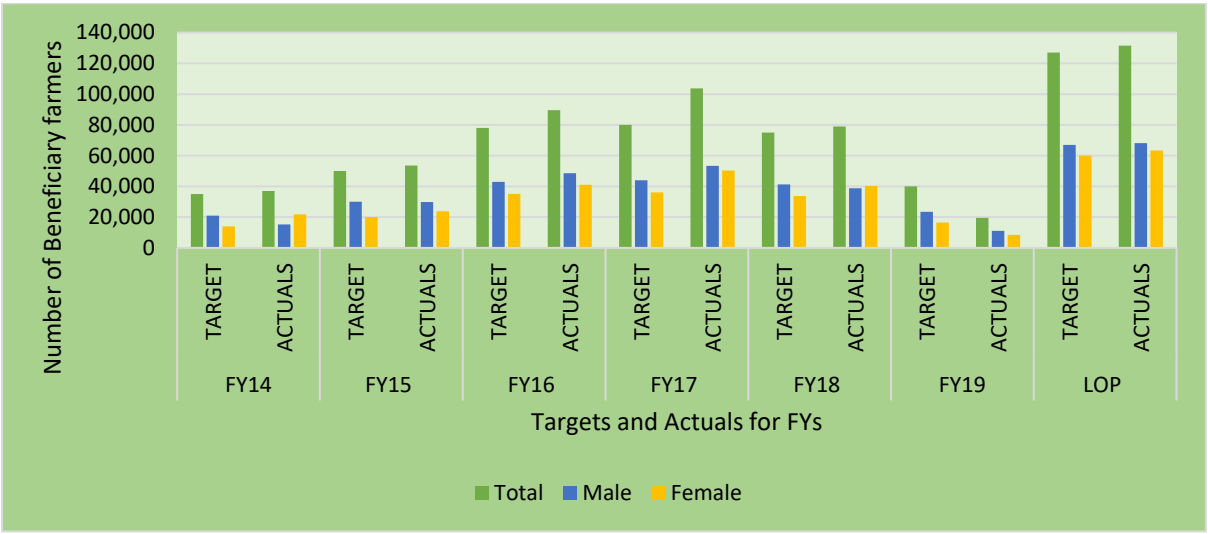

Figure 14: Direct beneficiaries of the ADVANCE II activity

EQ1.4 Have the results of the women and youth from the project implementation been different from their men counterparts?

Evidence presented in Figure 14 demonstrates that women's participation in the ADVANCE II activity has been fairly high and has always exceeded the annual targets set by the project. The

project sought inclusiveness in its approaches to intervention delivery. All persons-related indicators had data disaggregated for males and females. In confirmation of the data reported by the project, about 80% of smallholders and 92.9% of nucleus farmers in the survey supported the view that women's participation in the project was high. About 87% of the respondents also expressed the opinion that technologies promoted through the project considered the needs of both men and women. The ADVANCE II activity also reported a higher percentage increase in the adoption of technologies and management practices by women, compared to their male counterparts

However, women participants' involvement in crop trading was observed to be quite limited. Two key informants who were also purchasers of maize reiterated men's dominance in trading within the three value chains ADVANCE II supported. One of them added that only about five percent of the aggregators he purchased produce from were women. This view was confirmed by some leaders of OB networks who had observed that women smallholders usually left the negotiation for prices to the male members within their households.

The proportion of beneficiary women farmers who access loans from formal financial institutions tended to be lower than that of their male counterparts. A key informant – a representative of a financial institution-- reported that only 38% of the beneficiaries of its loan facility were women. In his opinion, women tend to be more risk-averse but had better repayment rates.

Data on youth's participation in the project was introduced only during the last year of project implementation. It was also during its last year of implementation that the project introduced a women-specific performance indicator, i.e., percentage of female participants in USG -assisted programs designed to increase access to productive economic resources when it introduced women-specific advocacy intervention.

EQ1.5 Did the application of sustainable environmental practices contribute to achieving expected results?

The ADVANCE II Activity's effort at promoting conservation agriculture and climate change mitigation techniques was widely appreciated. The sustainable environmental practice promoted included mulching with grass and crop residue, use of soil rippers for minimum tillage, use of planted basins, cover cropping and agroforestry, and drought-resistant/tolerant varieties. The project collaborated with the Ghana National Fire Services (GNFS) and Environmental Protection Agency (EPA), National Disaster Management Organization (NADMO), and MOFA to reduce the trend of reoccurring bushfires in targeted areas identified in aerial maps.

ADVANCE II provided a grant and technical support through the LPG grant program to Youth Harvest Foundation, a local NGO, to implement an advocacy action on the safe disposal of agrochemical containers. Specifically, the advocacy grant aimed at influencing the EPA in designating disposal sites, enforcing by-laws to regulate and control the handling and disposal of agrochemical containers, and increasing knowledge about the causes and effects of unsafe handling and disposal of agrochemical containers.

While 72% of the respondents in the survey expressed the opinion that sustainable environmental practices promoted through the project were applied widely by beneficiary farmers, close to 20% were of contrary opinions. Key informants' responses to the same question revealed similar divided opinions. The labor intensity of conservation practices and its associated costs were cited as disincentives for adopting some of the on-farm environmental conservation practices despite the education provided by the project and its partners. The project did not have any performance indicator to solely track the adoption of the environmental conservation practices promoted and their outcomes, however, these practices were reported as part of the overall adoption of soil genetics and pest management practices. Responses from an interview with the activity managers

suggest that almost all of the beneficiary farmers adopted at least one or more best technologies and management practices.

Question 1 Conclusions

Conclusion on achievements:

The evidence presented above show that the immediate outcomes, intermendiate results and the goal of the ADVANCE II activity were achieved to a very large extent. Nine (9) of the 15 indicators of the ADVANCE II Activity reported in this evaluation had their LOP targets exceeded. The targets for the remaining six indicators were marginally missed with deviations from the target values ranging between 3% and 13.3%. Even those indicators for which targets were not achieved exhibited fluctuations around average values that often exceeded the baseline values. The trend suggests a generally high level of achievement of all expected outcomes.

Achievement of the three intermediate results, *Increased productivity of targeted commodities, Increased Market Access and Trade, and Strengthened Local Capacity for Advocacy and Activity Implementation*, together with the ability to reach out to 131,493 direct beneficiaries are indications that the goal of increased competitiveness of the maize, rice, and soybean value chaines was achieved to a large extent.

These achievements were made on account of a well intergrated set of interventions of which: a) linking outgrower businesses to produce buyers who can sponsor schemes with inputs on credit; b) facilitating access to agricultural inputs and services; c) providing training on use of improved technologies and business practices; and d) ADVANCE II's ability to take advantage of existing opportunities in working with relevant GoG and private sector organizations for effective delivery of interventions to actors of the target value chains were adjudged to be most effective. The ADVANCE II Activity seized the opportunities presented through a) Government of Ghana (GoG) flagship program, "Planting for Food and Jobs"; b) introduction of MTN MoMo accounts for farmer groups; c) SMS messages about how to respond to fall armyworm (FAW) infestations; and d) willingness of key valuechain actors to work with women and youth groups to enhance the delivery of needed interventions to smallscale farmers. These not withstanding, a few challenges, beyond the control of the Activity, such as high interest rates and farmers' limited orientation to businesslike dealings present some threats to gains made.

While women's participation in the ADVANCE II activity has been fairly high and always exceeded the annual targets set by the project, their involvement in crop trading and access to loans lagged behind those of their male conterparts.

Question 1 Recommendations

Recommendations from the findings:

- Based on its effectiveness in enabling the achievement of the project, the ADVANCE II OB model should be incorporated in the design of future follow-on value chain or market systems project.
- Future value chain enhancement project implementers should design innovative ways to intensify the facilitation of stronger linkages between OBs and other value chain actors, including formal financial institutions, with emphasis on creating opportunities for these actors to better understand each other's needs and requirements, to the mutual benefit of all.
- A future project should establish mechanisms for leveraging GoG policies and agricultural

programs such as the new FASDEP III and the Government's flagship "Planting for Food and Jobs" program to enhance access to production resources by smallholder farmers and other value chain actors.

Evaluation Question 2: What is the effect of the ADVANCE II project's out-grower business model on the productivity and profitability of the project's beneficiary smallholder farmers and out-grower businesses?

Question 2 Findings

EQ 2.1: What is the level of productivity, profitability and incomes of beneficiary smallholder farmer?

Data obtained from the annual surveys of the project implementers indicated that average smallholder gross margins (GM) per hectare of maize increased from US$278 in 2013 to US$781 in 2018, gross margins per hectare of soybean increased from US$289 in 2013 to US$535 in 2018 and average gross margin per hectare of rice increased from $255 in 2013 to $906 in 2017. Also, smallholder farmers obtained yield productivity increase from 1.38MT/Ha in 2013 to 5.62MT/Ha in 2019 production season for maize; 0.9MT/Ha in 2013 to 2.49MT/ha in 2019 for soyabean . and 0.9MT/ha in 2013 to 3.44MT/ha in 2017 for rice. This data was verified using 2019 production figures reported from the survey (see Table A6.4, Annex VI). The estimated average yields per hectare for smallholder farmers' maize, rice and soybean increased by about 45%, 189% and 56% respectively, compared with the baseline data of 2013. While increases in gross margin per hectare were, respectively, 123%, 60.5%, and -0.2% for the same crops during the periods under comparison.

Responses from the beneficiary smallholders in the survey also revealed that about 73% of them attributed increases in their productivity to the support they received from the ADVANCE II activity, while only 46% linked increases in their profitability to the project activities (Table A6.7 in Annex VI). Indeed, while the average productivity of soybean farmers increased by 56%, their average profitability did not seem to have increase at all. The implication is that increases in productivity did not always motivate increases in profitability as would be expected.

EQ 2.2: What is the level of profitability of the nucleus farmers and aggregators?

Information gathered from the key informant interviews (Annex VII) suggest that nucleus farmers or out-grower businesses (OB) were profitable with profit margins commensurating with the scale of business activity. Each business unit (i.e. output marketing, tractor service provision, input retailing, prefinanced input, and shelling/threshing services) operated by nucleaus farmers are also profitable. From the interview with ACDI/VOCA (see Table A7.2, Annex VII), a survey conducted by the ADVANCE II project in 2019 showed the share of average operating gross margin per OB as follows: 18% for output marketing, 19.8% for tractor services, about 1% for input retailing, and about 33% for shelling/threshing services. From the focus group discussions, outgrower businesses were reported to be very profitable, with impressive profit margins, depending on the scale of business activity. The average gross margin per enterprise was estimated, using data from the survey, to be about USD16,480 (see Table A6.3 of Annex VI for the average annual profitability of nucleus farmers in the 2019 major farming season).

EQ 2.3: What factors drive the productivity and profitability of smallholder farmers and nucleus farmers?

Findings from an empirical regression analysis which sought to determine factors that drive the profitability of beneficiary smallholders show that levels of education completed, years of farmers'

experience, and yield have positive relationship with profitability (see Table A6.5, Annex VI). It suggest that improvements in these variables will increase gross margins (i.e., profitability). Other farmer-specific attributes such as gender and marital status were not found to be significant. A general expectation that increased yield would lead to increased profitability is therefore, confirmed in this analysis. The exception noted in this evaluation is the case of soybean farmers and more so with male soyabean farmers whose average gross margin per hectare dipped slightly by less than 1% compared to the the baseline value.

Information from the project's management team (Table A7.2, Annex VII) and focus group discussions (Annex VIII) indicate that increased adoption of good agronomic practices, improved technologies and better post-harvest and business management practices complemented with increased access to quality inputs and market linkage were the drivers of productivity and profitability.

EQ 2.4: Were productivity and profitability of women and youth beneficiary farmer different from their men counterparts?

Productivity and profitability of both female and male smallholder farmers was higher than the baseline values except in the case of male soybean farmers whose average gross margins fell slightly below the average base year value. However, these efficiency indices were lower for beneficiary women maize and rice farmers compared to their men counterparts except in the case of soybean. The productivity figures for maize and rice among beneficiary women farmers was respectively, 23% and 24% lower while that for soybean was 15% higher than that for men. Similarly, profitability of beneficiary women farmers was lower for maize (56%) and rice (41%) but higher for soybean (7%) relative to profitability of beneficiary men farmers (Table A6.4). Additionally, the model for inclusive agricultural transformation mainstreamed youth participation and access to production resources and markets which enhanced their production (Table A7.3).

Question 2 Conclusions

Conclusions drawn from the evidence presented above are as follows:

The gross margins of beneficiary smallholder maize, rice and soybean farmers increased substantially by 45%, 189% and 56% respectively, relative to the value established for 2013, on account of the ADVANCE II activity. The overall productivity increased substantially. Although the maize and rice farmers experienced corresponding increases in their profitability, the average profitability of soybean farmers remained unchanged.

Increased adoption of good agronomic practices, improved technologies and better post-harvest and business management practices complemented with increased access to quality inputs and market linkage were the drivers of recorded increase in productivity and subsequent profitability.

Even when beneficiary men and women smallholders were reported to have received the same levels of support from the project, the women's productivity and profitability in maize and rice production tended to be lower than those of their male counterparts. The reverse occurred in the case of soybean production. Since maize is the major cash crop in Northern Ghana, women's low productivity and profitability in its production imply low incomes for women and with implications for their use of productivity-enhancing inputs. Although higher, the productivity and profitability of women engaged in rice farming is marginaly higher than that of their male counterparts.

Question 2 Recommendations

- To address the gaps identified in the performance of women it is recommended that a future value chain project should leverage the potential of the Outgrower Networks that have been established in the various zones of influence, to sustain their outreach programs targeted at women and youths.
- It is further recommended that the established OBs created by ADVANCE II should be assisted, in a follow-on project, to adopt and mentor women and youths to enable them to transition to become fully-fledged OBs which would subsequently provide targeted support to women and youth to promote increased adoption of new technologies and management practices that will lead to increased productivity and profitability.
- It will be worth investigating why the average gross margin per hectare of soybean farmers did increase when the average yield increased.

Evaluation Question 3: How has the ADVANCE II project collaborated with other relevant usaid projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value chains in ghana?

Question 3 Findings

EQ 3.1: Was there adequate knowledge sharing structures and processes to foster learning from other USAID projects to enhance activity implementation and increase competitiveness of the three target value chains?

The design of USAID/Ghana's program for the Feed the Future initiative implied required effort for coordination among activities of its Implementing Partners (IP). ADVANCE II's sustainability strategy revolved around facilitating profitable, equitable, and inclusive business relationships and promoting the private sector's role in supporting, expanding, and benefitting from maize, rice, and soybean value chains.

Table 4: Number of Sampled Farmers who benefited from Other Projects

Indicator	Maize	Rice	Soybean	Overall
% of farmers who have benefited from other related projects aside ADVANCE II project	13.1	18.9	28.6	15.2
% of farmers who benefitted from USAID Project	3.9	11.3	10.2	5.6
% of farmers who benefitted from other donor program	6.7	4.7	12.2	6.8
% of farmers who benefitted from Private sector project	2.5	2.8	6.1	2.9
% of farmers who benefitted from other projects through ADVANCE II project team	3.3	1.9	4.1	3.2
N	510	106	49	665

Source: Survey Data

Coordination among USAID projects

Coordination among activities under the Mission's Economic Growth program was key for successful program implementation. Thus, the Mission instituted formal collaboration structures and processes, and hosted periodic implementing partners' meetings. As a unique approach to foster coordination and communication among other Feed the Future projects in Ghana, ADVANCE II led the formation of the collaborative Circle of Chiefs of Party (CCC) which enabled the COPs and their deputies to meet quarterly and deliberate on issues of mutual interest. At the CCC meetings, projects identify mutual coordination opportunities, share operational lessons and fundamentally discuss and share knowledge on technical interventions to enhance the overall impact of the FtF program in Ghana. Interactions through these meetings fostered knowledge sharing and ensured efficiency in the management of resources, reduced possible chances of duplicating efforts while they pursued attainment of Feed the Future (FTF) goal and objectives.

Another US Government-funded project that sought collaboration with ADVANCE II was the Assisting Management in the Poultry and Layer Industries by Feed Improvement and Efficiency Strategies (AMPLIFIES) Project which was funded through USDA. ADVANCE II provided support to AMPLIFIES in selecting FBOs that had received substantial technical assistance and crop production training to also receive post-harvest management training. In addition, they connected smallholders to poultry farmers who needed reliable sources of quality soybean and maize to produce poultry feed. There were other project specific learning and knowledge sharing events such as regional stakeholders' forums, fall armyworm national task force and monitoring and evaluation learning platform moderated by METSS.

Collaboration with other Donor funded project

ADVANCE II collaborated with GIZ Green Innovation Centre (GIC) and the WFP Enhanced Nutrition and Value Chain (ENVAC) to promote structured trade, particularly, the use of weights and measures, quality standards, and contracts in maize markets in the maize belt of the south and northern Ghana.

ADVANCE II partnered with the World Food Program, GIZ Green Innovation Center (GIZ-GIC), United Purpose, German Institute of Metrology and Ghana Standards Authority to organize the "Consultative Workshops for Planning a Food Safety, Quality Control and Standard Weights and Measures Creation Campaign". ADVANCE II also linked outgrower businesses to the World Food

Program (WFP) for them to supply maize through the WFP's Purchase for Progress program. As a result of the efforts, WFP signed contracts with some aggregators to supply maize.

Since 2016, USAID's ADVANCE project partnered with the Soybean Innovation Lab (SIL) of the University of Illinois, Catholic Relief Services (CRS) and the USAID-funded Agriculture Technology Transfer (ATT) project to jointly train local fabricators to manufacture seed threshers.

ADVANCE II in 2017, supported firms and OBs to prepare and submit proposals to the DFID funded West Africa Foods Markets Programme.

Partnership with the private sector

ADVANCE II facilitated cooperation between Sahel Grain an aggregator and Nestle Ghana, producers of Cerelac, to develop its maize supply chain and expand market access for ADVANCE II-supported OBs to the high end food processing market. In the overall effort, ADVANCE II collaborated with Nestlé to build the capacity of farmers and aggregators in northern Ghana through training on agronomic and post-harvest management protocols. Training ensured that producers met Nestlé's standards, including reduced mycotoxin in maize. To foster continued success, ADVANCE II helped suppliers learn how to successfully execute supply contracts with Nestlé.

Some key informants and focus groups referenced collaborations between ADVANCE II and private sector entities as avenues for engaging nucleus farmers in ways that might have been extremely difficult to manage on their own. Other private sector entities included Savannah Seed Marketing, the Ghana Grains Council, Premium Foods, Agricare, Sahel Grains, Agrisol, and some Faith-based organizations such as the Evangelical Presbyterian Development Relief Agency (EPDRA) and the Methodist University for Soybean demonstration.

Partnership with Sinapi Aba was timely because, in addition to the financial services provided by the financial institution (FI), it also had a program at the time to build capacities of smallholder farmers, especially women to develop bankable enterprises in rural areas, where they mostly operated.

The effect of establishing trading relationships between farmers and industrial buyers is certain to continue with or without ADVANCE II. It is in the interest of both parties to maintain the business relationship that provides a guaranteed market for smallholders and guaranteed markets access to quality inputs for industrial buyers.

Besides, the project collaborated with Outgrower businesses to increase smallholder access to inputs and extension services, and to an extent that a few businesses have continued to finance extension services for the smallholder who serves as the supply base for their inputs.

Alliances with GoG institutions in related sectors

ADVANCE II participated in monthly meetings of development partners in agriculture in the region, organized under the auspices of the Regional Coordinating Councils and chaired by Regional Director of MoFA and also attended by representatives of USAID projects. The fact that some of ADVANCE II collaborative efforts were coordinated by the Regional Coordinating Council is adequate evidence that the project sought to engage with local government institutions, leverage relevant resources and responsibly extend its scope.

The project's partnership with GoG through the PFJ is a model example of an alliance that offered win-win outcomes to the two parties and the benefit of actors in the three value chains. The partnership was extended to provide closer and more frequent interactions with District Offices of Agriculture, working with the Agriculture Officers and Extension Agents to deliver training to farmers, the Safe Spray Providers (SSP) and government agents on the importance of quality

standards and management of the fall armyworm. They were reported to have also worked together for the establishment of demonstration farms and the development of agricultural investment profiles for some districts in Northern Ghana. Some key informants and focus groups discussion participants expressed the view that this partnership expanded the geographic coverage of the project within its zone of influence. In addition, ADVANCE II funded the participation of GoG extension agents in pre-season and pre-harvest events to engage them and ensure continuity of their role as facilitators of interventions aimed at agricultural value chain development.

Working with Savanna Agriculture Research Institute (SARI), ADVANCE partnered with the N2 Africa Legume project which worked mainly with soybean farmers to have their seeds inoculated. SARI helped with field days, field demonstrations, and field visits. They also collaborated to promote the use of hand-driven planters and threshers through the project's OB networks. SARI has continued to work through the networks even in the absence of the project. ADVANCE II also collaborated with the Ministry of Food and Agriculture, especially at the district level, to build the capacity of smallholder farmers in adopting good agronomic practices and also support local associations and networks to advocate for a favorable business environment as well as promote environmentally friendly technologies and approaches.

ADVANCE II facilitated the process for OBs purchases of equipment such as shellers from the National Board for Small Scale Industries (NBSSI) and assisted with negotiations. The project also collaborated with the Women and Agriculture Development (WIAD) to share knowledge with women smallholders on the utilization of their produce, soybean in particular, for nutrition enhancement.

Other knowledge sharing and learning events included: a) annual pre-season and pre-harvest fora; b) regional stakeholder fora; c) fall armyworm national task force; and the monitoring and evaluation platform for implementing partners (IPs). ADVANCE II and Agricultural Technology Transfer Project ATTP) established and cohosted annual pre-season event where beneficiaries of both projects engagedwith input suppliers and purchased inputs.

Beside these events, there were one-on-one interaction among staff of USAID IPs to plan and execute assistance to project beneficiaries.

EQ 3.2: Did the beneficiaries of ADVANCE II apply technologies developed and promoted by the Agricultural Technology Transfer Project?

ADVANCE II and the ATT project collaborated in the promotion of seed technology and varieties to an extent that all the local seed varieties accessed by beneficiaries of ADVANCE II were produced and marketed with support of the ATT project. The two IPs together, developed and published manuals/guides on maize, rice and soya production and post–harvest. They also tested and demonstrated the use of soil rippers and no-till planters among Outgrower businesses. In addition, they collaborated with Catholic Relief Services and others to train local fabricators of multi-crop shellers. ADVANCE II's 2019 productivity survey of smallholder farmers showed that all project participants engaged in the maize and soybean production adopted at least one improved technology, including improved seed varieties, cultural and management practices and pest and disease management, that were promoted by the ADVANCE II and ATT collaboration. 74% of smallholder farmers interviewed in the survey indicated that their ability to apply technologies that reduced their postharvest losses was a results of collaborative effort between the ADVANCE II activity and other projects.

EQ 3.3: To what extent did the beneficiaries of the ADVANCE II project have their access to finance through linkages with the Financing Ghanaian Agricultural Project of USAID/Ghana?

Coordination with USAID's Financing Agriculture Project (FinGAP) resulted in the renewal of funding to Ghana Agricultural Insurance Pool (GAIP) for the implementation of programs that sought to increase farmers' access to crop insurance. FINGAP and ADVANCE II assisted GAIP to set up offices in the Northern and Savanah Regions (previously known as the Northern Region), and Upper East and Upper West regions of Ghana, where USAID's ADVANCE activity was being implemented. A US$ 1,000,000 loan was also secured to upgrade a major soybean processing company in 2016 with the support of FinGAP. In another collaboration, FinGAP played a key role in getting INTEGRO Agric Venture Capital Limited to purchase ADB's shares in Agricare and became the majority shareholder and brought some financial relief to the company in 2015. Vester Oil Mills Ltd also reported its ability to secure equity funding via Cynergy Capital as a result of engagements with FinGAP, having been introduced by ADVANCE II.

EQ 3.4: To what extent did collaboration between ADVANCE II and the Agricultural Policy Strategy Project drive efforts at providing enabling environment for competitiveness of the rice, maize and soybean value chains?

ADVANCE II, together with the Financing Ghanaian Agriculture Project (FINGAP), and the Agriculture Technology Transfer Project (ATTP). established working partnerships with the APSP to implement agriculture policy dialogues and pro-business forums in the Northern Region. Furthermore, to promote farming as a business, ADVANCE II coordinated with the USAID Agricultural Policy Support Project (APSP) to build capacities of executives of farmer-based Organizations (FBOs) that had been developed into Farmer-Based Enterprises.

EQ 3.5: What were the links between ADVANCE II project and USAID Resiliency in Northern Ghana project (RING), and could those links contribute to competitiveness of the three target value chains?

The project adopted the concept of VSLA in 2015 to enable the members of the association to finance their farm activities, reduce the risks posed by OBs' sole investments, and allow the OBs to extend financing to more outgrowers involved in the production of Maize, Soybeans and Rice. It has become immensely popular among project participants and increased from 201 VSLAs in 2016 to 1,122 in FY20 with 24,457 members, 69 percent of whom are women.

The project collaborated with RING to share information on VSLAs on a common electronic platform, known as SARVIX. The projectshared best practices on implementation of savings groups' intervention to provide access to smallholder farmers and also shared experiences on soybean production technologies and facilitated linkage of the seed service providers that ADVANCE II supported to the RING project.

The VSLA approach achieved its aim, enabling project participants to develop additional sources of agricultural financing for their production activities, especially for women. Apart from agricultural financing, the availability of funds for women for off-farm business activities and household management expenditures have improved their empowerment and agency. These are reported in two studies commissioned by ADVANCE II,on the impact of VSLA and project activities on women's empowerment.

Question 3 Conclusions

Indeed, smallholders are not expected to be aware of the coordinated effort in planning of intervention. Moreover, because they were usually contacted in groups, they hardly had a one-on-one relationship with the project. Besides, the expansions in the larger processing businesses led to increased input demand and their purchases from smallholder farmers.

Responses from key informants confirmed significant coordination of the ADVANCE II activity with USAID projects, other donor projects, Government of Ghana (GOG) institutions, and some private sector organizations. They further attested to substantial benefits derived from the coordinated efforts by these development partners for the enhancement of the three value chains. However, responses from FGD and the survey show contrary views. The fact that only 3.2% of respondents in the survey reported that they benefitted from any other project on account of ADVANCE II coordination does not negate efforts at coordination with other entities. Indeed, this observation is not contrary to expectation because, smallholders are not privy to the coordinated effort in planning of intervention: and especially because they were usually contacted in groups, they hardly had a one-on-one relationship with the project. Besides, the expansions in the larger processing businesses led to increased input demand and their purchases from smallholder farmers. Based on these observations, it is concluded that coordination with private sector entities, GoG institutions, related projects and organization was adequate to a) improve the enabling environment for private sector investment; b) ensure efficient and effective management of resources, and; c) eliminate duplications of effort while seeking to achieve the goal of competitiveness of maize, soybean and rice value chains in northern Ghana.

Question 3 Recommendations

Owing to the effectiveness of the various coordination platforms established during ADVANCE II, which resulted in efficient management of resources and elimination of duplication of efforts, it is recommended that USAID should ensure that a future project should maintain and sustain coordination between the project and other development projects in addition to the appropriate structures that were put in place e.g., CCC, METSS platform and joint learning programs facilitated by USAID.

Evaluation Question 4: what are the prospects for sustainability of the results produced by the ADVANCE II project?

Question 4 Findings

EQ 4.1: How practical and effective was ADVANCE II strategy for sustaining any gains made towards increasing the competitiveness of maize, rice and soybean value chains?

The OB networks model promoted and relied on the value chain actors' businesses and community motivation and relationships to expand the business which in turn, promoted value chain competitiveness and sustainability (Table A7.2, Annex VII). The business linkages established as part of the model delivered tangible benefits which motivated the participants to sustain those relationships.

EQ 4.2: What is the degree of collaboration between ADVANCE, the Ministry of Agriculture and the Local Authorities to ensure ownership and sustainability of gains from the project?

About 34% of surveyed beneficiary farmers perceived that there wasadequate collaboration with local entities to ensure sustainability of project gains (Table A6.6, Annex VI). In addition to the ADVANCE II sustainability strategy, its extensive work with MoFA and other local government entities led to some capacity building for the entities to enable them to assume the facilitation role the project played. The District Agriculture staff were collaborators in almost all productivity-enhancing activities conducted by ADVANCE, including field demonstrations of promoted technology and post-harvest management training. The idea of bringing of all the key players in the agricultural sector in Ghana to one platform every year to share, network and make business deals during the annual pre-season and pre-harvest events was a key sustainability strategy.

Additionally, linkages have been established among the Value Chain Actors and trading relationships between farmers and industrial buyers have also been established to ensure the sustainability of the value chain activities.

EQ 4.3: To what extent are resources and capacities at individual, organizational or socio-political levels available to ensure the continuation of results?

The project built capacities of local NGOs such as Sung Foundation, RAINS, YARO, Youth Harvest, Save Ghana, ACDEP, CREMA, NORTHCODE, Community Development Alliance and VSLAs to ensure sustainability of interventions and outcomes. Smallholder farmers' perceptions about sustaining changes made through the ADVANCE II activity are presented in Table A6.6 (Annex VI). Eighty-two percent (82%) of the respondents in the survey were optimistic about the sustainability of the positive changes introduced into the value chains of the target crops through the project interventions. This was expected as 91.3% of them expressed willingness to continue applying the technologies and management practices promoted by the project. Views expressed in FGD and by key informant interviews reinforced this assessment. There was a general notion that benefits derived from the project activities could be self-sustaining. In terms of availability and adequacy of resources and capacities at individual, organizational or socio-political levels to ensure the continuation of results achieved, only 38.6% of the sample indicated satisfaction with capacities and resources of collaborating local entities to sustain gains made.

EQ 4.4. What risks and potentials are emerging as a result of ADVANCE II implementation and what measure were taken to mitigate those risks?

The following were identified as opportunities for sustaining the results achieved through ADVANCE II interventions:

1. The OB model supported by viable OB networks had the potential to accelerate agribusiness development in northern Ghana. This was because of viable business linkages and relationships that could be built and maintained through this system.
2. Linked to this Outgrower model was the input credit system that helped in addressing the perennial issues with smallholder finance.
3. MoFA and the District Agriculture Offices were reported to be collaborators in almost all productivity-enhancing activities conducted by ADVANCE including field demonstrations and post-harvest management training. In the past two years, this collaboration extended to include OB networks. Coordination with local institutions offered the opportunity to build capacities within those institutions that would enable them to assume the facilitation role in the absence of the project.
4. Benefits derived from the project activities can be self-sustaining as expressed by a majority of key informants and surveyed farmers.

Some issues that threaten the sustainability of structures and processes created and/or promoted through ADVANCE II, as well as their outcomes are:

1. OB networks were created only in the Northern Regions. Thus, the sustainability benefits from networks are clearly non-existent in the southern maize belt.
2. There was no evidence of a clear maintenance plan for equipment (tractors, shellers, threshers, reapers, dryers, etc.).
3. OB Networks were not adequately resourced by the activity to carry out some of their responsibilities.
4. The promotion of imported hybrid seeds presents unfair competition to nascent local seed producers.

5. Subsidies on agricultural inputs such as fertilizer, in the case of the Planting for Food and Jobs campaign implemented by the GoG, had the tendency to create distortions in the market.

Question 4 Conclusions

The outcomes of the project themselves present adequate incentive for actors of the value chains to willingly make business decisions that ensure their sustainability. Also, the creation of OB networks introduced a sustainability strategy into the project's OB model by shifting the implementation of key activities to the networks. Further, ADVANCE II project's coordination with local entities, (i.e., GoG and the private sector) to deliver most of the intervention built some capacities to ensure that the production and marketing technologies as well as, management practices promoted through the project, and their resultant outcomes can be sustained if the risks listed above are addressed.

Question 4 Recommendations

- It is recommended that a future USAID value chain or market systems project should ensure that capacity building of OB networks would be undertaken to enable them to fully plan and implement activities that will sustain the gains of the ADVANCE II project.

- As a fairly new business association, capacity of OB networks must be assessed regularly to identity operational and functional capacity gaps. Although the functional structure has been established for the networks, they may require skills to mobilize funds to implement activities and retain membership, particularly building strong bonds among members.

- It is also recommended for the leadership of the networks to be adequately resourced in dealing with emerging needs of members as the networks develop and their horizons expand. The networks would need sustained training and capacity building in these areas, and others that may come up as they grow. In this respect, it is recommended that the networks appeal to local institutions, including NBSSI, other development partners, NGOs, government departments, and agencies, to support them.

Evaluation Question 5: what are the lessons learned and best practices, and from which stakeholders or beneficiaries?

Question 5 Findings

EQ 5.1: What lessons were learnt from activity implementation by the various categories of stakeholders/ beneficiaries? (ADVANCE II Partners)

The following are some of the lessons learned through the implementation of the project that are worthy of consideration during the design of the next value chain development project of USAID/Ghana:

1. The Ghanaian private sector realized the agricultural value chain opportunities in the northern sector, now seen as an area for productive investment.
2. Processors/buyers learned to invest in production services for smallholders to ensure that quality inputs (crop) are supplied in return. This was reported to be a major shift in perspective prior to project implementation.
3. Where agricultural financing was limited, and interest rates were too high, well-targeted grants became an important stimulus for agricultural transformation. One example was the matching

grants to OBs for the purchase of farm equipment that enabled them to provide smallholder farmers with the much-needed tractor services for a fee.

4. Private extension services were feasible when the providers of the service were also beneficiaries of the system they managed. The OB Network model is a good example.
5. Successful technology adoption requires stakeholders to approach agriculture as a business, increasing revenues while decreasing expenditures (especially labor costs).
6. The adoption of modern farming methods required several demonstrations than initially anticipated.
7. Collaboration among USAID implementing partners, such as the Collaborative Circle of CoPs (CCC), enhances the overall efficiency and effectiveness of agri-business development across the efforts by donor agencies in the promotion of agricultural transformation in Ghana.
8. The opportunity to carry out income generating activities throughout the year positively benefits women VSLA members' economic security. Providing support to women as they invest VSLA loans in dry season activities would help them generate more income beyond the resources they spend on their families' schooling, health care, and nutrition. This would also impact their productivity during the wet season.
9. Competing donor programs sometimes created duplicative efforts and support to project participants. Implementing partners' non-harmonization of certain programmatic policies; e.g. per diem rates applied to the participation of value chain actors and government partners in various programs' activities, has sometimes dis-incentivized value chain actors to participate in ADVANCE II activities.
10. The outgrower scheme of ADVANCE II is a useful model that enabled smallholder farmers and OBs to increase access to inputs and guarantee markets.
11. The combination of input supplier-sponsored and actor-led demonstration-fields is a workable mechanism for introducing new technologies and practices, leading to high adoption and higher yields.

EQ 5.2: Which practices contributed most to any good results achieved?

Two practices that contributed most most to the good results achieved are presented as follows:

1. Establishment of trusted and strong business relationship between value chain actors through the OB model, The practice resulted in supporting more than 130,000 smallholder farmers and increasing yields by an average of 307 % for maize, 180% for soybean and 247% for rice resulting in additional sales of more than $140 million.

2. The outgrower scheme also made significant contributions and led to increased access to inputs and guarantee markets. The combination of input supplier sponsored, and actor led-demonstration fields have introduced new technologies and practices leading to high adoption and higher yields.

EQ 5.3: Which of the best practices must be scaled up to continue increasing competitiveness of the three target value chains?

The managers of the project and their partners stated that the establishment of trusted and strong business relationships among value chain actors through the OB model has resulted in the reported achievements. Thus, the best practices to be scaled up are:

1. Adopting a private sector-led approach;
2. Building strong mutually beneficial relationships between and among actors of the value chains that were hinged on transparency and trust; and
3. Early planning and implementation of sustainability strategies in which the facilitators of development of the value chains (i.e., OBs) have adequate resources and are willing to invest in the provision of support to the less endowed to grow their businesses.

Scaling-up would not imply doing more of the same, but rather identifying the weaknesses in how they had been implemented and addressing them.

EQ 5.4: What, if any, unintended consequences can be attributed the ADVANCE II Project?

The following outcomes were identified to be unintended but proved to have some positive implications:

1. SARI has continued to promote hand-driven planters and threshers through the OB networks.
2. OB networks are now providing travel allowance to government extension agents to ensure that their smallholders receive adequate extension services.
3. To fill the gaps in accessing finance through formal financial institutions, the project created the village savings and loans associations (VSLAs), which have particularly attracted women into farming and increased their household livelihoods.
4. Many of the youth engaged for the SSF activity have now become farmers too. Thus, the activity has attracted more youth into farming.
5. Much of the data generated by the ADVANCE II project from monitoring the FAW was shared broadly among development partners and is now reliably used by participants in value chains.
6. By trying to fill the gaps of access to finance through formal financial institutions, the project ended up pursuing activities with VSLAs, which has brought a lot of women into farming and increase household livelihood.
7. The introduction of Village Saving and loan Association (VSLA) which aims to increase access to finance by project participants far exceeded initial expectations of helping to increase input purchases. Not only did members access good agronomic training practices through OBs, they also discussed topics related to livelihood, health, nutrition, and education. Women who participated in VSLAs were observed to have saved more, purchased more inputs, had higher yields and incomes and spent more on their children's education and family health than women in the same communities who did not participate. These changes have elevated women's status in the household and the community.
8. Promotion of safe spray providers to support adoption of improved practices has unintentionally brought many youth into farming activities as they were attracted by the possibility of making money.
9. Local maize hybrid seed varieties are now popular because ADVANCE promoted high performing imported maize hybrid seeds and made it affordable under the OB model input credit system
10. However, one outcome that seems problematic was the expectation that farmers who attended farmer field days would be provided some transport allowances. This practice cannot be sustained by OB networks and could threaten the expected sustainability role of the network.

Question 5 Conclusions

Key lessons learned during the implementation of ADVANCE II activities include the following: a) adoption of modern farming methods required several demonstrations; b) VSLAs present usefull alternatives for address smallholder access to credit; c) targeted grant has become important stimulus for agricultural transformation; d) adoption of modern farming methods required several demonstrations; and e) collaboration among development partners yield substantial eeffectiveness and efficiency benefits. In addition, the private sector participants realized that: a) there are business

opportunities in the northern sector; b) investment in smallholders access to productivity enhacement inputs grows the sources of quality inputs for up-stream businesses; and c)private extension service is feasible when the providers are also beneficiaries of the end product.

The best practice worthy of scaling up is adopting private sector-led approach in which strong, mutually beneficial relationships, hinged in transparency are built among and between actors of the value chain.

In addition to the results that had been expected from the implementation of the ADVANCE II activity, some unintended benefits reported in interviews for this evaluation include: a) SARI's continued use of OB network for the delivery of their technologies; b) private sector sponsorship of extension service; c) increased women's participation in the target value chains on account of the VSLA scheme; and d) increased youth involvement in the sector after their engagement in the SSF;

Question 5 Recommendations

- The private sector-led approach to value chain development promoted strong and mutually beneficial relationships, among and between actors of the value chain. It is, therefore, recommended that the OB model, as a strategic approach, should be adopted and scaled in future USAID value chain or market systems projects, to be more resilient.
- The project established sustained agricultural input networks to make inputs accessible to smallholder farmers through community promotions. This was due to collaboration between the project and the input companies, OBs, FBOs, and local input dealers in the communities. This strategy should be sustained and scaled in future projects to ensure improved access to adequate input for smallholder farmers.

- To increase access to finance by women smallholder farmers, in the face of limited opportunities to secure input credit from financial institutions, a future value chain or market systems project should mainstream the VSLA concept. Additionally, future projects should introduce new models to support additional livelihood endeavors by women farmers to increase their productivity and profitability.

ANNEXES

ANNEX I: THE EVALUATION STATEMENT OF WORK

Final Performance Evaluation OF USAID/Ghana's Agricultural Development and Value Chain Enhancement (ADVANCE) II Activity

I. PURPOSE OF THE EVALUATION

The purpose of this final evaluation is to examine the extent to which the overall goal and objectives of the Agricultural Development and Value Chain Enhancement II Activity (ADVANCE II) have been achieved. The evaluation will also assess how the implementation of the project's interventions have contributed towards achieving USAID/Ghana's Country Development Cooperation Strategy (CDCS) 2013-2019 Development Objective (DO) 2: Sustainable and Broadly Shared Economic Growth and associated intermediate result: IR 2.1: Increased competitiveness of major food chains (Ref. FTF IR 1)1, IR2.2: Improved enabling environment for private sector investment (FTF IR 1.3)2, IR2.3: Improved resiliency of vulnerable households and communities and reduction of under-nutrition (FTF IR 2)3. The evaluation will specifically identify project components, which either worked well or not and why. The evaluation will provide USAID, its implementing partners and stakeholders with data on outcomes, best practices and lessons learned to inform current and future value chain programming.

Audience and intended Users

The primary audience of the evaluation report will be the donor, USAID/Ghana Mission, and the implementing partners, ACDI/VOCA and the three members of the consortium (TechnoServe, ACDEP and PAB Consult). The evaluation findings will be used to assess and validate the activity's theory of change and determine how the attainment of the activity's goal and objectives have contributed to increasing the competitiveness of the maize, rice and soya bean value chains in Ghana. USAID/Ghana will use the findings of the evaluation to inform broad strategy during the development of its new Country Development Cooperation Strategy (CDCS). The Economic Growth (EG) Office will use it to inform the development of the Project Appraisal Document (PAD) for its value chain programs under the Global Food Security Strategy (GFSS) programming in Ghana. The implementers of the project will learn about the strengths and weaknesses of the implementation strategy they adopted, as well as the unintended benefits and consequences of the strategy they implemented. The Government of Ghana (GoG) and other key stakeholders will also use the results of the evaluation as a guide to inform decisions about current and future value chain interventions.

The evaluation will assess how the ADVANCE Program's interventions have contributed specifically to the CDCS 2013-2019 DO.2 sub-IR 2.1.1 and sub-IR 2.1.2. 2 The evaluation will investigate the extent to which the ADVANCE Program's activities, outputs and outcomes have contributed to the CDCS 2013-2019 DO. 2 sub-IR 2.2.2 and sub-IR 2.2.3 3 The evaluators are expected to draw linkages between the ADVANCE Program's Outcome IR 1.3 and the CDCS 2013-2019 DO.2 sub-IR 2.3.4.

II. SUMMARY INFORMATION:

Feed the Future's ADVANCE II Activity is a five-year Project implemented by a consortium led by ACDI/VOCA. The project contributes to USAID/Ghana's Country Development Cooperation Strategy (CDCS)4 Development Objective 2 (DO.2): Sustainable and broadly shared economic growth, which contributes directly to the CDCS goal of "Accelerating Ghana's transition towards established middle income status". The project is also linked to CDCS 2013-2019 Intermediate Results - IR2.1: Increased competitiveness of major food chains (FTF IR1), IR2.2: Improved enabling environment for private sector investment (FTF IR 1.3) and IR2.3: Improved resiliency of vulnerable households and communities and reduction of undernutrition (FTF IR 2)5. The ADVANCE II

Activity was designed to improve the competitiveness of maize, rice and soybean value chains in the USAID/Ghana's Feed the Future Zone of Influence (ZOI) in Northern Ghana6. The interventions will directly benefit 127,000 value chain actors, mostly smallholder farmers through increased gross margins and incomes by leveraging new private sector investment. The project will achieve this through a multidimensional strategic framework that strengthens incentives for investment, builds local capacity and broadens capacity, and catalyzes relationships to increase agricultural productivity, expand access to markets and trade and improve the enabling environment. The project will use capacity building activities, dynamic facilitation and cost-sharing grant funds to ensure that private sector actors remain the drivers of change, while Government of Ghana (GOG) and local stakeholders are empowered to lead as facilitators through enhanced capacity building and learning. The ADVANCE II Activity's approach is underpinned by the wealth of knowledge and established relationships developed over a period in northern Ghana implementing the first ADVANCE Activity (2009-2014).

Table A1.1: Project Identification data

Strategy/Project/Activity Name	Agricultural Development and Value Chain Enhancement II (ADVANCE II) Activity
USAID Office	Economic Growth Office
Implementer	ACDI VOCA and three sub awardees-TechnoServe, ACDEP and PAB Consult
Cooperative Agreement/Contract #	AID-641-A-14-00001 Modification No. 02
Total Estimated Ceiling of the Evaluated Project/Activity (TEC)	$ 37,000,000.00
Life of Strategy, Project, or Activity	February 2014 - September 2018; Extended to April 30, 2020
Active Geographic Regions	Northern Region, Savannah Region, North East Region, Upper West Region and Upper East Region
Development Objective(s) (DOs)	DO2: Sustainable and Broadly Shared Economic Growth; IR2.1: Increased competitiveness of major food chains (FTF IR1), IR2.2: Improved enabling environment for private sector investment (FTF IR 1.3) IR2.3: Improved resiliency of vulnerable households and communities and reduction of undernutrition (FTF IR 2)
Required Evaluation	Yes
External or Internal	External

[4] USAID Ghana Country Development Cooperation Strategy (CDCS) Fiscal Year (FY) 2013-2019 https://www.usaid.gov/sites/default/files/documents/1860/CDCS_Ghana_December_2019_1.pdf

[5] See Annex 4: USAID/Ghana CDCS 2013-2019 Development Objective 2 Results Framework

[6] See Annex 5: USAID/Ghana FTF ZOI in Northern Ghana

[7] The project received a cost-extension amounting to $2,556,780, bringing the total estimated cost of the modified project to $39,556,780

III. BACKGROUND:

A Description of the Problem and Context

Ghana is still characterized by rain fed production of crops mainly by smallholders using mostly hand implements with limited access to tractors and production inputs. This results in very low yields and subsequently, incomes. The situation is worsened by inadequate infrastructure, including road networks and storage facilities that further create inefficiencies in the market, and affecting the competitiveness of their products in urban markets. Crop production is done mainly by smallholders with over 90% of farms being less than two hectares and most of the staple crops (including maize and rice) produced are consumed by the households. Food crop farmers are said to be among the poorest in the country8 while Ghana continue to import some of its staple food crops.

USAID has supported Ghana's agricultural development over the years with funding going to US Private Voluntary Organizations (PVOs) and Civil Society Organizations (CSOs) in Ghana to support agricultural productivity, improving the enabling environment for private sector involvement in the agriculture sector and expanding markets for farmers. In February 2014, USAID/Ghana awarded the Agricultural Development and Value Chain Enhancement Activity (ADVANCE II) to ACDI/VOCA and three sub-awardees: Association of Church-Based Development Projects (ACDEP), PAB Consult, and TechnoServe. The ADVANCE II Activity is a five-year Cooperative Agreement (No. Aid-641-A-14-0001). The goal is to increase the competitiveness of the maize, rice and soybean value chains in the USAID/Ghana Feed the Future Phase 1 Zone of Influence (ZOI). In 2018, the ADVANCE II Activity was extended by two years, with the new end date being September 30, 2020.

The ADVANCE II project is a follow-on to the Agricultural Development and Value Chain Enhancement Program (ADVANCE), which was awarded to ACDI/VOCA in July 2009 through the Farmer-to-Farmer Leader with Associates Award under a Cooperative Agreement No. 641-A-00-09-00026-00. The project was implemented by ACDI/VOCA and four partners: two international organizations (Technoserve and Winrock International) and two local organizations (ACDEP and PAB Consult). The first project, ADVANCE 1, contributed to the intermediate results of USAID's FTF Strategic Objective 3: improved nutritional status, especially among women and children; and Strategic Objective 4: inclusive agriculture sector growth. The five-year project (2009-2013) was extended at no cost for eight months from July 14, 2013 to March 13, 2014, allowing the project to work with its beneficiary value chain actors for a full production cycle in the last year of its implementation. The ADVANCE II Activity takes a pro-poor value chain development approach to ensure that impoverished producers obtain a higher share of the final value of their produce through direct value addition. Increased private investment and development and growth of competitive enterprises will provide the poor with productive employment, a market for their products, and a broader range of opportunities to increase and diversify incomes. Ghana's agribusiness environment has improved greatly in recent years, with many private sector individuals and companies interested in agriculture. ADVANCE II activities were built on existing examples of firms wanting to include smallholder farmers in gaining economies of scale in the value chain. In addition, the approach was consistent with the aim of the Ghana Community Investment Plan to bring to scale rice and maize production. Private firms were expected to help provide better inputs and marketing outlets through contractual arrangements with smallholder farmers, many of whom were impoverished farmers.

B. Description of the Intervention to be evaluated and Theory of Change

The ADVANCE II Activity is the main value chain project of USAID/Ghana's Feed the Future (FTF) program. The project adopts a value chain approach where smallholder farmers are linked to markets, finance, inputs, equipment, and information through nucleus (commercial) farmers and traders (aggregators) who have the capacity to invest in these value chains. The nucleus farmers and aggregators who play a pivotal role are referred to as out-grower businesses. The project also builds the capacity of both the commercial and smallholder farmers, and farmer-based organizations, to

increase the scale and efficiency of their farm businesses with improved production and post-harvest handling practices including using improved seed varieties and other inputs, mechanization services, training in good agronomic practices, and facilitating market access. The overarching goal of the ADVANCE II Activity is to increase competitiveness of the maize, rice and soybean value chains in northern Ghana. The goal will be attained through the following intermediate results:

IR1.1 Increased productivity in targeted commodities,

IR1.2: Increased market access and trade, and

IR1.3: Strengthened local capacity.

The above intermediate results will be achieved through the implementation of the key illustrative activities listed below:

I. Intermediate Result 1.1: Increased productivity in targeted commodities

a. Activity 1.1.1: Develop Outgrower Business Management Program

b. Activity 1.1.2: Support NFs and Aggregation to facilitate outgrower credit

c. Activity 1.1.3: Partner with UDS to launch NF Business Intern Program

d. Activity 1.1.4: Facilitate Lead Firm outgrower Scheme

e. Activity 1.1.5: Build capacity of production service providers

f. Activity 1.1.6: Increase access to mobile market information services

g. Activity 1.1.7: Financial literacy for smallholders and FBOs

h. Activity1.1.8: Develop and disseminate GAP and conservation farming protocols

i. Activity 1.1.9: Facilitate commercial partners to implement demonstrations

j. Activity1.1.10: Collaborate with ICT and private sector to expand agricultural programing.

II. Intermediate Result 1.2: Increased Market access and trade

a. Activity 1.2.1: Capacity building of partner financial institutions;

b. Activity 1.2.2: Increased bankability of out grower business

c. Activity 1.2.3: GGC partnership to manage grains warehouse receipting system

d. Activity 1.2.4: Improve investments in and access to PHH equipment and storage facilities

e. Activity 1.2.5: Improve on-farm PHH practices

f. Activity 1.2.6: Strengthen transport sector services

g. Activity 1.2.7: BDS provision to lead firms

h. Activity 1.2.8: Expand market linkages with lead firms and NFs

i. Activity 1.2.9: Launch of Innovation and Investment Incentive (I3) fund

j. Activity 1.2.10: Organize agribusiness Fairs and international investment conferences

k. Activity 1.2.11: Increase smallholder capacity to market collectively

l. Activity 1.2.12: Promote female FBO Leadership.

III. Intermediate Result 1.3: Strengthened local capacity

a. Activity 1.3.1 Conduct a policy advocacy assessment

b. Activity 1.3.2: facilitate advocacy Capacity Building for local institutions including FBOs, associations and other stakeholders

c. Activity 1.3.3: Build capacity in Grass-Roots advocacy

d. Activity 1.3.4: Support GGC national level policy work on grades and standards, weights and measures, non-tariff barriers and cross border trade

e. Activity 1.3.5: Facilitate investment through district and national investment plans f. Activity 1.3.6: Facilitate women's access to investments

g. Activity 1.3.7: Deliver Organizational Capacity Building to build capacity so that local organizations can become eligible for USAID funding

h. Activity 1.3.8: Local capacity building through knowledge management and learning

The project has a focus on gender mainstreaming and provides equitable access to resources and capacity building along target value chains for women. The project also focuses on engaging the youth in agricultural value chains and entrepreneurial activities. Since agriculture affects and is also heavily impacted by environmental and climate change challenges, the project promotes conservation agriculture and climate change techniques to mitigate some of the consequences. Additionally, and in an effort to tackle child labor in agriculture, ADVANCE II Activity undertake sensitization activities and train local resource partners to deal with the menace.

It is important to state that the ADVANCE II Activity received a cost extension to implement a bouquet of activities to make the interventions more sustainable. The evaluation will review the content of the modification extending the life of the project to April 30, 2020, as well as assessing whether the objective of the cost extension has been achieved.

Development Hypothesis/ Theory of Change

ADVANCE II project's theory of change posits that there are three functions of value chain competitiveness, which are: (1) agricultural productivity; (2) market access and trade, and (3) an enabling environment. Three enablers of competitiveness, i.e. (1) clear incentives for investment, (2) strong local capacity and (3) mutually beneficial relationships, catalyze the value chain functions. Underpinning the theory is that private sector actors, including men and women farmers are the drivers of competitiveness, while the GOG and the local stakeholders are facilitators, empowered by the projects investment, capacity building and innovation promotion. The activities within the framework adhere to four main implementation principles and contribute to both the functions and enablers of value chain competitiveness (See Annex 2)

The project's theory of change therefore states that: **IF** the ADVANCE Activity undertakes its activities in:

- **Increasing Productivity in targeted commodities** by:
  - Strengthening systems for service provision and input distribution;
  - Strengthening incentives for smallholder investment in new technology, services and practices; and
  - Increasing adoption of improve productivity-enhancing technologies, services and practices by women and men.
- **Increasing marketing access and trade** by:
  - Increasing availability and use of affordable/sustainable services;
  - Improving capacity of women and men to participate in markets; and
  - Increasing private investment to support value chain development, expanding benefits from market participation for women and men.
- **Strengthening local capacity** by:
  - Strengthening advocacy capacity of Value Chain actors to address enabling environment constraints; and

- Strengthening capacity to implement Value Chain development and become eligible for USAID funding.

THEN it will:

Improve competitiveness of the maize, rice and soybean value chains, which will contribute to achieving the USAID/Ghana's CDCS DO.2: Sustainable and broadly shared economic growth.

The ADVANCE II Activity is working with smallholder farmers and medium, small and micro enterprises (MSMEs) in the USAID/Ghana's FTF Zone of Influence (comprised of the area above latitude eight degrees parallel, i.e nine districts in the former Brong Ahafo Regions and the three Northern Regions Ghana). To increase the productivity of smallholder farmers, the project set up demonstration sites to reinforce farmers' access to quality inputs and business development services, increases the management and technical capacity of the Out-grower Business (OBS)s through various trainings and initiatives that strengthened the OB model. Additionally, to increase market access and trade of targeted commodities, market linkages are developed between OBs and buyers (mainly large aggregators and processors) and trade associations receive support (promotion of structured trade). The project in strengthening capacity for advocacy and activity implementation support various local organizations to engage both government and traditional institutions to address some of the constraints to agricultural development. Medium, small and micro enterprises (MSMEs) are also trained.

During the cost extension of the ADVANCE Activity, the theory of change was modified slightly to engender sustainability of the interventions implemented by the project. The evaluation team will review the modified theory of change and assess whether any changes have occurred as anticipated.

IV. EVALUATION QUESTIONS

The ADVANCE II Project final performance evaluation will be guided by the following evaluation questions:

1. To what extent has the ADVANCE II Activity achieved its intended goal and objectives as stated in the project results framework (see Annex 1)?
2. What is the effect of the ADVANCE II Activity's out-grower business model on the productivity and profitability of the project's beneficiary stallholder farmers and out-grower businesses?
3. How has the ADVANCE II Activity collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?
4. What are the prospects for sustainability of the results produced by the ADVANCE II Activity?
5. What are the lessons learned and best practices; and from which stakeholders or beneficiaries? Which of the best practices are worth scaling up? What, if any, unintended consequences can be attributed to the ADVANCE II Activity? a)

V. EVALUATION DESIGN AND METHODOLOGY

A cross sectional design is proposed for the implementation of the final performance evaluation for the project. This will help the project collect information at a point in time to reflect the study population. In the design, the consultant is expected to adopt suitable systematic data collection techniques to avoid bias of any form and collect adequate and quality data. Consultant should consider the mixed methods, thus, using both the quantitative and qualitative methods of data collection and analysis. The use of a mixed method will enable the production of both unbiased and easily generalizable findings with some statistical rigor, and at the same time producing in-depth live-through experienced of project beneficiaries, which could be used to guide future development interventions. Consultants will be expected to share data collection design and tools with the METSS II Project, the ADVANCE II Activity and USAID/Ghana for review and feedback and/or

discussion, with sufficient time, before they are applied in the field. The Consultants are also expected to ensure that the evaluation method though not limited to, should include the below:

A. Review of existing Documentation: Project documents that should be reviewed may include but not limited to the Project Appraisal Document, the project technical proposal, the baseline report, the annual and quarterly project reports, annual work plans, and any other assessment reports related to the ADVANCE II Activity.

B. Key Informant Interviews: Consultants should interact with key partners and stakeholders of the project in the form of key informant interviews. These key partners and stakeholders include USAID/Ghana implementing partners (Sahel Grains), some governmental institutions (MoFA), some private sector partners and some beneficiaries. The evaluators are also encouraged to interview the staff of the ADVANCE II Project where required

C. Survey of Beneficiaries: Consultants are supposed to consider all who have benefitted from the project. This includes smallholder farmers, the outgrower businesses (Nucleus farmers and aggregators (middlemen)), input dealers, Business Service Operators (BSOs), Financial Institutions, Buyers, Processors, etc., who have benefitted from the project.

D. Personal Observation: The evaluation team is expected to visit selected physical investments supported by the Project and document how they are functioning and benefiting the beneficiary institutions.

VI. DELIVERABLES AND REPORTING REQUIREMENTS

1. **Evaluation Work plan**:

Within two (2) weeks of the award of the contract, the lead evaluator shall complete and present a draft work plan for the evaluation to the Agreement Officer's Representative (AOR) at USAID/Ghana through the Chief of Operations (COO) at METSS II.

The work plan shall be reviewed by USAID, METSS II Project and the Chief of Party (COP) of the ADVANCE II Activity prior approval. The evaluation work plan will comprise of an evaluation design which will include: Detailed evaluation design matrix that links the Evaluation Questions from the SOW to data sources, methods, and the data analysis plan; Draft questionnaires and other data collection instruments; List of potential interviewees and sites to be visited and proposed selection criteria and/or sampling plan (must include sampling methodology and methods, including a justification of sample size and any applicable calculations); and Limitations to the evaluation design.

The evaluation work plan will also include:

1. Draft schedule and logistical arrangements;
2. Members of the evaluation team, delineated by roles and responsibilities;
3. Evaluation milestones;
4. Anticipated schedule of evaluation team data collection efforts;
5. Locations and dates for piloting data collection efforts, if applicable;
6. Proposed evaluation methodology including selection criteria for comparison groups, if applicable.

The data analysis plan should clearly describe the evaluation team's approach for analyzing quantitative and qualitative data (as applicable), including proposed sample sizes, specific data analysis tools, and any software proposed to be used, with an explanation of how/why these selections will be useful in answering the evaluation questions for this task. Gender, geographic, and role (beneficiary, implementer, government official, NGO, etc.) disaggregation must be included in the data analysis where applicable. The consultant must receive approval of work plan before beginning field work.

2. In-briefing:

Within two (2) working days of arrival in Accra (i.e. if the evaluators are not based in Ghana), the evaluation team will meet with the ADVANCE II Activity staff, METSS II Activity and Economic Growth Office for introductions and to discuss the team's understanding of the assignment, initial assumptions, evaluation questions, methodology, and work plan, and/or to adjust the SOW, if necessary.

3. Mid-term Briefing and Interim Meetings

The evaluation team is expected to hold a mid-term briefing with ADVANCE II Activity staff, METSS II Project and/or Economic Growth Office on the status of the evaluation, including potential challenges and emerging opportunities. The evaluation team will also provide the METSS II Project Chief of Operation with periodic briefings and feedback on the team's findings, as agreed upon during the in-briefing. If desired or necessary, weekly briefings by phone can be arranged.

4. **Final Exit Briefing**:

The evaluation team is expected to hold a final exit briefing to discuss the status of data collection and preliminary findings. This presentation will be scheduled as agreed upon during the in-briefing. The evaluation team is expected to hold a presentation either in person, or by virtual means to discuss the summary of findings and conclusions with ADVANCE II Activity staff, METSS II Project and/or Economic Growth Office. The evaluation team will consider comments and make necessary revisions.

5. Draft Evaluation Report:

The draft evaluation report should be consistent with the guidance provided in Section IX, Final Report Format sub-section. The report will address each of the questions identified in Section IV of the SOW and any other issues, the team considers to have a bearing on the objectives of the evaluation. Any such issues can be included in the report only after consultation with METSS II Project. The submission date for the draft evaluation report will be determined in the evaluation work plan. Once the initial draft evaluation report is submitted, ADVANCE II Activity staff, METSS II Project and USAID/Ghana will have ten (10) working days in which to review and comment on the initial draft, and submit the consolidated comments to the evaluation team. The evaluation team will then submit a revised final draft report within five (5) working days, and again the ADVANCE II Activity staff, METSS II Project office and USAID/Ghana will review and send comments on this final draft report within ten (10) working days of its submission.

6 Final Evaluation Report

The evaluation team will be asked to take no more than three (3) business days to respond and/or incorporate the final comments from contributors (USAID/Ghana, METSS II Project and/or ADVANCE II Activity Staff).

VII. EVALUATION TEAM COMPOSITION

The evaluation team will consist of a team leader and two other experts. A representative from the USAID/Ghana Mission and METSS II Project may be delegated to work full-time with the evaluation team or to participate in selected evaluation activities.

Senior Technical Consultant (Team leader):

1. The consultant must be someone with extensive experience as team leader of midterm and final performance evaluations of USAID funded project. Knowledge and application of the concept of "participatory" assessment processes that elicit high level monitoring and evaluation results is an advantage.

2. Specialist should have a postgraduate degree in Agricultural Science, or an applicable social science field. S/he should have at least 10 years' senior level experience working in the agricultural sector in a developing country.

3. S/he should have extensive experience in project management, value chain enhancing programs, conducting both qualitative and quantitative evaluations/ assessments and strong familiarity with the crop sub-sector in Africa, particularly Ghana. Excellent oral and written skills are required.

4. The Team Leader should also have experience in leading evaluation teams and preparing high quality documents. The Team Leader will take specific responsibility for assessing and analyzing the project's progress towards achieving its targets, factors for such performance, benefits/impact of the strategies, and compare with other possible options. S/he will also suggest ways of improving the present performance, if any.

5. S/he will provide leadership for the team, finalize the evaluation design, coordinate activities, arrange periodic meetings, consolidate individual input from team members, and coordinate the process of assembling the final findings and recommendations into a high quality document. S/he will write the final report. S/he will also lead the preparation and presentation of the key evaluation findings and recommendations to the USAID/Ghana team and other major partners.

6. Experience with data collection procedures, evaluations, and analysis of data using statistical analysis tools.

7. This person should also have good interpersonal and diplomatic skills and demonstrated expertise in gender in order to ensure that the USAID/FtF protocols for considering gender in an assessment as are met.

Senior Agricultural Value Chain Specialist: Specialist should have a post graduate degree in Agricultural Science, Agribusiness, Agricultural Economics or an applicable social science field and have firsthand familiarity with issues facing the agriculture value chain. S/he should have at least 10 years' senior level experience working in Agriculture or Agribusiness sector in Ghana. This individual will ensure that the most important technical capacity issues and institutional issues that were targeted by the project are measured appropriately in the interviews and that the recommendations and "lessons learned" are realistic.

Other Team Member Qualifications and Experience: A proven record of leadership in research, sound technical knowledge and relevant experience in agricultural sector, social sciences or related relevant fields, program design and implementation, analysis and report writing;

1. Experience in research and evaluation and all other relevant issues;

2. Good in writing evaluation reports

3. A proven team player experience; and

4. Excellent spoken and written skills in English.

The work plan must provide information about evaluation team members, including their curricula vitae, and explain how they meet the requirements in the evaluation SOW. Submissions of writing samples or links to past evaluation reports and related deliverables composed by proposed team members are highly desirable. All team members must provide to USAID/Ghana a signed statement attesting to a lack of conflict of interest or describing an existing conflict of interest relative to the project or activity being evaluated (i.e., a conflict of interest form).

VIII. EVALUATION SCHEDULE

A. Period of Performance

Work is to be carried out over a period of approximately 12 weeks, beginning on or about February 14, 2020 with field work and draft report completed April 30, 2020 and final report and close out concluding May 25, 2020 The below evaluation schedule is illustrative and will be updated in collaboration with USAID prior to finalization of the work plan.

Table A1.2: Performance Evaluation Schedule:

Timing (Anticipated submission date)	Anticipated Duration (Days)	Proposed Activities
February 21, 2020		Evaluation contract awarded to Consultants
March 3, 2020	10	C onsultants prepare and submit a detailed evaluation work plan to METSS II Project
March 5, 2020		USAID, METSS II and ADVANCE II Activity review evaluation work plan and submit feedback to evaluation team
March 9, 2020	1	Evaluation team (Consultants) conducts in-brief with METSS II, USAID and ADVANCE II Activity on evaluation work plan
March 11, 2020	2	Evaluation team integrates comments into work plan and submits final document to METSS II Project
March 14, 2020	3	Evaluation team completes pre-testing of evaluation instruments/tools
March 20, 2020	5	Evaluation team trains evaluation/survey enumerators
April 10, 2020	15	Collect data from evaluation respondents in the project target areas
April 17, 2020	6	Data Analysis
April 30, 2020	6	Write draft report and submit preliminary findings
May 7, 2020		USAID, METSS II and ADVANCE II Activity review evaluation draft report and submit feedback to Assessment team
May 15, 2020	3	Evaluation team incorporates comments and prepare final evaluation report
May 25, 2020 3		Evaluation team Leader submits formatted Final Evaluation Report

Table A1.3: Project Implementation Responsibilities of Member Institutions of the ADVANCE II Consortium

Partner	Responsibilities
ACDI/VOCA	• Managed overall project • Facilitated strengthened service provision to male and female farmers by Outgrower businesses, lead firms, transport providers, warehouses, etc. • Facilitated access to financial services • Ensured integration of gender into program areas • Strengthened the warehouse receipts systems • Built capacity of local partners in USAID financial and contractual regulations • Ensured effective grant management
TechnoServe	• Led market facilitation activities with lead firms and potential export markets • Identified policy constraints impacting target value chains, conducts policy analysis and strengthens local advocacy capacity, coordinating with the Policy Support Project • Identified and facilitates smallholder access to new end market opportunities • Assists lead firms in adapting supply chain systems to engage smallholders
ACDEP	• Built capacity of FBOs, delivering Sell More for More training, numeracy training, and FBO financial and management capacity building • Built capacity of NFs, delivering the new curriculum of NF training and the Outgrower Business Management program • Managed the Bolgatanga office starting in year 3.
PAB Consult	• Built agronomic capacity, delivering training to lead farmers and farmers on GAP, including conservation agriculture, soil fertility management, post-harvest management.

Table A1.4: Distribution of Districts and Respondents

Region	Number of Districts	Number of Sample Districts	Number of respondents
Upper East	14	7	140
Upper West	12	7	140
Northern	17	8	160
North East	2	2	40
Savanna	4	3	60
Bono	6	3	60
Bono East	11	5	100
Ahafo	2	1	20
Ashanti	5	3	60
Eastern	1	1	20
Total		40	800

ANNEX II: ANALYTICAL METHODS USED IN THE EVALUATION

A. THE EVALUATION DESIGN MATRIX

Evaluation Questions	Data Needed	Sources of Data	Data Collection Method	Data Analysis Method	Handling Potential Limitations
1. To what extent has the ADVANCE II Project achieved its intended goal and objectives as stated in the project results framework	Data required are primarily those recorded for performance indicators used in measuring attainment of expected results. These results include the goals, objectives and intermediate results specified in the projects results framework, making note of the targets and the levels achieved. There will be complemented with beneficiaries' perception about achievement of goals and objectives.	Performance management system including stored data, quarterly and annual reports. Data reported to USAID and Beneficiary stakeholders,	Desk review of scheduled progress reports and complemented with a survey that seeks beneficiaries' perception about meeting intended objectives. Perceptions will be obtained using a set of likert-scaled questioning. The team will also use semi-structured interviews with: a) key informants; and b) focus groups to obtain perceptions of stakeholders of the extent to which project results are meeting intended results. Consideration will be given to disaggregation of data by gender.	Data analysis on project achievements will be predominantly descriptive, even in the case where data is quantified. Some descriptive statistical indices will be obtained to support qualitative discussions. Some trend analysis of data over the period since project inception will be made, comparing targets and actual results obtained from desk reviews. Quantitative analysis to include cross-tabulation of responses over the gender variable. Data obtained from beneficiaries on their perception about achievement of project objectives will be analyzed using mostly descriptive methods. ET will triangulate data from all sources.	No potential limitation is expected

Evaluation Questions	Data Needed	Sources of Data	Data Collection Method	Data Analysis Method	Handling Potential Limitations
2. What is the effect of the ADVANCE II project's out-grower business model on the productivity and profitability of the project's beneficiary stallholder farmers and out-grower businesses?	Data on inputs and outputs of beneficiary farmers and out-growers in their respective production activities.	Beneficiary farmers and out-growers along the downstream maize, rice and soybean value chains	Elicit production data in a survey of sampled farmers and out-growers. Data collection instrument will cater for disaggregation of outcomes by gender and consideration for the youth.	Estimation of agreed productivity and profitability indices for sampled farmers and out-grower, using STATA. Estimation of averages for a cross section of beneficiaries. Quantitative analysis to include cross-tabulation of responses over the gender and youth variables.	The major concern is the availability of reliable farm records to enable the estimation of required profitability and productivity indices. In the absence of prerecorded farmers' data, questionnaire will be designed to obtain data in manageable unit for which memory lapses might not a significant issue.
3. How has the ADVANCE II project collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?	Evidence of coordination with other relevant entities that have similar objectives of competitiveness of maize, rice and soybean value chains. Satisfaction of the various entities with the levels of collaboration and their perceptions about its contributions to the intended objective.	Relevant USAID funded project, those of other donor funded programs, GOG funded project and private sector entities operatign within the zone of interest of the ADVANCE II project seeking competitiveness of the three value chains.	Review work plans to identify possible planned coordination with other USAID-funded projects, projects funded by other donor programs or private sector entities. Interviews with key informants of identified entities to ascertain the structures and processes in place that engender collaboration. As Review of progress reports for any reference to collaboration with other entities with an aim of achieving competitiveness in the three value chains. Field observation of any evidence to confirm reported collaboration.	Qualitative analysis of responses regarding coordination with others. The implications of the observation will be discussed	Availability of potential key informants can be problematic especially when there is the need to complete the assignment within a limited timeframe. Timely arrangements for meetings with key informants of identified entities will be pursued to ensure their availability for scheduled interviews, and for timely completion of the evaluation.

Evaluation Questions	Data Needed	Sources of Data	Data Collection Method	Data Analysis Method	Handling Potential Limitations
4. What are the prospects for sustainability of the results produced by the ADVANCE II Project?	Information on internal and external structures and processes for ensuring sustainability, including; a) exit strategies (internal); b) evidence of institutional arrangements of stakeholder entities that ensure commitment to continuity such as budgets and staffing (external); and c) evidence of incentives that motivate workers of stakeholders entities and project beneficiaries to continue with their roles and responsibilities when the current contract ends.	All stakeholders, including GoG Institutions and the project beneficiaries.	Semi-structured interviews with key informants of institutions and focus group discussions will seek information on levels of institutional arrangement that demonstrate commitment to carry-on after the contract. These will include discussions of processes and structures that provide the environment for sustaining gains made through the projects. Verify data through field observation of any evidence to confirm reported issues in support of sustainability.	Use descriptive processes to draw conclusions about the capacity of collaborating local institutions and beneficiaries to deliver and sustain or improve the project results. Make a determination on whether the project had adequate exit strategy for ensuring sustainability of project results based in evidence obtained.	Availability of physical evidence that corroborate any intentions for sustaining the results after the project is important but often limited. To address this potential limitation, the evaluators will identify a proxy for which data will help in drawing conclusions. Key informants and participants of focus groups are likely to draw attention to local scenarios as evidence.

Evaluation Questions	Data Needed	Sources of Data	Data Collection Method	Data Analysis Method	Handling Potential Limitations
5a. What are the lessons learned and best practices; and from which stakeholders or beneficiaries? Which of the best practices are worth scaling up?	Information on implementation lessons learned by ACDI VOCA and its partner organizations (both negative and positive). Information on the relevance of project activities and methods of delivering the interventions Information on activities that worked well and those that did not work so well. Sociocultural practices that had not been anticipated but observed to had worked in favour of or against achievement of intended results. Actions for internalizing lessons learnt and scaling up best practice	ACDI VOCA and Partner organizations. Beneficiary farmers and out-growers.	Interviews with key informants within ACDI VOCA, its partner organization. Discussions with focus groups of farmers and out-growers of the maize, rice and soybean value chains. In the survey, using close-ended questions, obtain data of the application of methodologies, and how they affect outcomes Inclusion of a couple of open-ended questions in the survey of farmers and out-growers.	Use of qualitative methods, mostly descriptive to triangulate data obtained from all sources. Analyze relationships between activities implemented and the outcomes for each respondent. Quantitative analysis of data from survey will include cross-tabulation of responses over the gender and youth variables.	Questions to elicit data for responding to this evaluation question will be open-ended. Even though this type of question can delay the process of data entry and analysis, it provides the best option for obtaining data on phenomena that cannot be predetermined.

Evaluation Questions	Data Needed	Sources of Data	Data Collection Method	Data Analysis Method	Handling Potential Limitations
5b. What, if any, unintended consequences can be attributed to the ADVANCE II activity?	Positive and negative externalities	All stakeholder entities	Through semi-structured interviews with: a) Project staff, b) key informants of collaborating organizations; and c) focus groups of beneficiaries farmer and out-growers information will be obtained on unintended outcomes (positive and negative) that can be linked to the project interventions. Mostly, Open-ended questions will be used to elicit information for answering this question because the possibilities are wide, and they cannot be predetermined for coding in the questionnaire.	Qualitative analysis of responses regarding externalities. The implications of any unintended outcomes will be discussed. Should any negative externalities be found, recommendations will be made for addressing those externalities. Triangulation of responses from various data collection techniques will be used in drawing conclusions. Quantitative analysis of data from survey will include cross-tabulation of responses over the gender and youth variables.	Even though close-ended questions tend to facilitate easy analysis of data, the evaluation will use direct and open-ended questions. Open-ended questions place no limits on answer options and are more likely to provide opportunities for respondents to identify unintended outcomes. In addition, evidence of such externalities will be sought.

B. Estimating the Gross Margin

Gross Margin per hectare is estimated as raio of the difference between the total value of production (i.e. Gross Revenue (GR)) and the variable cost of production to the total units of production. The period of reference for this study was the 2019 major season. Algebraically, Gross Margin is expressed as:

GM per ha = [(TP x VS/QS) - IC] / UP (1)

Where:

i. Total Production by direct beneficiaries during reporting period (TP)
ii. Total Value of Sales (USD) by direct beneficiaries during reporting period (VS)
iii. Total Quantity (volume) of Sales by direct beneficiaries during reporting period (QS)
iv. Total Recurrent Cash Input Costs (USD) of direct beneficiaries during reporting period (IC)
v. Total Units of Production: Hectares planted for direct beneficiaries during the production period (UP)

For smallholder farmers, (TP x VS/QS) is the value of the harvested produce: i.e. the gross revenue (GR). Recurrent Cost (IC)[2] for smallholder farmers included expenditures on seeds, hired labor, fertilizers, agrochemicals, and tractor or draught animal services. Cost and returns were estimated on a per hectare basis. Mathematically, the recurrent cost of farmer *i* is given as:

$$IC_i = Seed\ cos\ t_i + Agro\ cos\ t_i + Hlab\ cos\ t_i + Fert\ cos\ t_i + Cap\ cos\ t_i \quad (2)$$

Where $Seedcost_i$ denotes the cost of seeds, $Agro\ cos\ t_i$ denotes the cost of agrochemicals, $Hlabcos\ t_i$ denotes the cost of hired labor, $Fert\ cos\ t_i$denotes the cost of fertilizer, and $Cap\ cos\ t_i$ denotes the cost of tractor and draught services procured.

For nucleus farmers/out-grower businesses, GR was estimated as the value of the harvested produce received from farmers working under the out-grower business. The recurrent cost (IC)[3] in this case included expenditures on land preparation for smallholder farmers, seeds supplied to smallholder farmers, hired labor, fertilizer supplied to smallholder farmers, agrochemicals supplied to smallholder farmers, tractor or draught animal services for smallholder farmers, transportation cost (including fuel), cost of training for smallholder farmers and administrative cost. Mathematically, the variable cost of nucleus farmer *i* is given as:

$$VC_i = Land\ cos\ t_i + Seed\ cos\ t_i + Hlab\ cos\ t_i + Chem\ cos\ t_i + Train\ cos\ t_i + Transport\ cos\ t_i + Admn\ cos\ t_i \quad (3)$$

Where *Landcost*$_i$ denotes expenditure on land preparation for smallholder farmers, *Seed cost*$_i$ denotes the cost of seeds supplied to smallholder farmers, *Hlab cost*$_i$ denotes the cost of labor, *Chem cost*$_i$ denotes the cost of fertilizer and pesticides supplied to farmers, *Train cost*$_i$ denotes the cost of training for smallholder farmers, *Transport cost*$_i$ denotes transportation cost (including fuel), *Admin cost*$_i$ denotes Administrative cost.

[2] Recurrent cost does not include the implicit cost of activities and inputs used in the 2019 major season

[3] Recurrent cost does not include the implicit cost of activities and inputs used in the 2019 major season

C. Investigating factors affecting farm profitability among smallholder farmers

The profit function relates maximized profit to the prices of product(s) and input(s). The function was used to determine the influence of the production cost on the profit from the farming enterprises. Following Taphee *et al.* (2015) the generalized profit function is given as:

$$\pi = P_y f(X_1 X_2 \ldots . X_m, Z_1 Z_2 \ldots . Z_n) - \sum P_i X_1 \quad (4)$$

Where P_y is the price of output and P_i is the price per unit of the i^{th} variable input.

According to Taphee *et al.* (2015), the specified profit function is given as:

$$\pi_i = P_y Y_i - (P_1 X_1 + P_2 X_2 + P_3 X_3 + P_4 X_4) \quad (5)$$

Where, for farmer *i*: π_i denotes Profit, $P_y Y_i$ denotes value of produce (i.e., output), $P_1 X_1$ denotes Cost of Labour, $P_2 X_2$ denotes Cost of Pesticides, $P_3 X_3$ denotes Cost of fertilizer and $P_4 X_4$ denotes Capital/Equipment Cost.

The augmented Cobb-Douglas production function was used to determine the factors affecting smallholder farm profitability. Ordinary Least Square (with robust standard errors) was run to ensure that efficient and unbiased estimates were produced. The empirical model is specified as:

$$Ln\pi_i = \beta_0 + \beta_1 Gen_i + \beta_2 LnAge_i + \beta_3 Mar_i + \beta_4 Edu_i + \beta_5 LnExp_i + \beta_6 Occu_i + \beta_7 LnYield_i + \beta_8 LnSeed_i + \beta_9 LnFert_i + \beta_{10} LnPest_i + \beta_{11} LnLab_i + B_{12} LnCacost_i + u_i \quad (6)$$

Where for smallholder farmer I, π denotes farm profitability, Gen_i denotes gender, Age_i denotes the age, Mar_i denotes Marital status, Edu_i denotes educational level, Exp_i denotes the number of years of farming, $Occu_i$ denotes the main occupation, $Yield_i$ denotes quantity harvested per hectare, $Pest_i$ enotes the cost of pesticide, $Fert_i$ denotes the cost of fertilizer, Lab_i denotes labor cost, $Cacost_i$ denotes capital cost and u_i denotes the error term.

Socio-economic factors	Label	Direction
Gen	1= Male 0= Female	+/-
LnAge	Years	-
Mar	1= Married 0= Otherwise	+
Edu	0= Not completed basic education or no education 1= Completed basic education 2= Higher than basic education	+
LnExp	Years	+
Occu	1= Farming 0= Otherwise	+
LnYield	Kg/ha	+
Input Variables		
LnFert	USD/ha	-
LnPest	USD/ha	-
LnLab	USD/ha	-
LnCacost	USD/ha	-

ANNEX III: COPIES OF DATA COLLECTION TOOLS

A3.1: Checklist of Questions for Key informants' Interviews

Respondents Name **Sex** **Organization** **Phone number** **Interview Date**

Evaluation Questions	Key Informants' Question	Summary of Key Informants' Response
1. **To what extent has the ADVANCE II Activity achieved its intended goal and objectives as stated in the project results framework?**	1.1. Has the project produced the desired results (outputs and outcomes), and/or met each of its three Intermediate Results and project goal of "Increased competitiveness of the maize, rice and soybean value chains in Ghana"?	
	1.2. Which of the project activities are the most and least effective at increasing the competitiveness of the focus value chains?m	
	1.3. What challenges and opportunities have been identified in the course of project implementation that could have influenced achievement of outcomes and IRs reported?	
	1.4. What processes did ADVANCE use to deliver its intervention? Were the processes helpful in meeting your expectations and on time? Did it result in any additional cost to you?	
	1.5. What sustainable environmental and water management practice were introduced?	
	1.6. Did men, women and the youth benefited from the project implementation equally in terms of a) support received; and b) profitability?	
	1.7. Roughly what proportion of beneficiary farmers adopted sustainable practices	

	1.8. What mechanism, under the out-grower business model, did the project implement to increase the participation of the private sector in the promoted value chains?	
2. **What is the effect of the ADVANCE II Activity's out-grower business model on the productivity and profitability of the project's beneficiary stallholder farmers and out-grower businesses?**	2.1. What is the level of productivity, profitability and incomes of beneficiary smallholder farmer? (ADVANCE II Partners)	
	2.2. What is the level of profitability of the nucleus farmers and aggregators? (ADVANCE II Partners)	
	2.3. What factors drive the productivity and profitability of smallholder farmers and nucleus farmers? (ADVANCE II Partners)	
	2.4. Were productivity and profitability of women and youth beneficiary farmer different from their men counterparts? (ADVANCE II Partners)	
3. **How has the ADVANCE II Activity collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value**	3.1. Was there adequate knowledge sharing structures and processes to foster learning from other USAID projects to enhance activity implementation and increase competitiveness of the three target value chains?	
	3.2. Did the beneficiaries of ADVANCE II apply technologies developed and promoted by the Agricultural Technology Transfer Project?	
	3.3. To what extent did the beneficiaries of the ADVANCE II project have their access to finance through linkages with the Financing Ghanaian Agricultural Project of USAID/Ghana?	
	3.4. To what extent did collaboration between ADVANCE II and the Agricultural Policy Strategy Project drive efforts at providing enabling environment for competitiveness of the rice, maize and soybean value chains?	

chains in Ghana?	3.5. What were the links between ADVANCE II Activity and USAID Resiliency in Northern Ghana project, and could those links contribute to competitiveness of the three target value chains?	
	3.6. To what extent has ADVANCE II Activity collaborated with other donor programs and private sector firms to achieve the overall USAID/Ghana's Development Objective of fostering broad-based, sustained, and inclusive economic growth in Ghana?	
4. **What are the prospects for sustainability of the results produced by the ADVANCE II Activity?**	4.1. How practical and effective was ADVANCE II strategy for sustaining any gains made towards increasing the competitiveness of maize, rice and soybean value chains?	
	4.2. What is the degree of collaboration between ADVANCE, the Ministry of Agriculture and the Local Authorities to ensure ownership and sustainability of gains from the project?	
	4.3. To what extent are resources and capacities at individual, organizational or sociopolitical levels available to ensure the continuation of results?	
	4.4. What risks and potentials are emerging as a result of ADVANCE II implementation and what measure were taken to mitigate those risks?	
5. **What are the lessons learned and best practices, and from which stakeholders or beneficiaries?**	5.1. What lessons were learnt from activity implementation by the various categories of stakeholders/ beneficiaries? (ADVANCE II Partners)	
	5.2. Which two practices, in your opinion contributed most to the good results achieved?	
	5.3. Which of the best practices must be scaled up to continue increasing competitiveness of the three target value chains?	
	5.4. What, if any, unintended consequences can be attributed to the ADVANCE II Activity?	
6 Recommendation	What recommendation will you make for consideration in designing a future value chain development project?	

A3.2: Checklist of Questions for Focus Group Discussions

District Name:			Interview Date:
Participants' Data			
SN	**Name**	**Sex**	**Organization**
1			
2			
3			
4			
5			
6			
7			

Evaluation Questions	Focus Group Question	Summary of Focus Group Response
1. **To what extent has the ADVANCE II Activity achieved its intended goal and objectives as stated in the project results framework?**	1.1. Has the project produced the desired results (outputs and outcomes), and/or met each of its three Intermediate Results and project goal of "Increased competitiveness of the maize, rice and soybean value chains in Ghana"?	
	1.2. Which of the project activities are the most and least effective at increasing the competitiveness of the focus value chains?	
	1.3. What challenges and opportunities have been identified in the course of project implementation that could have influenced achievement of outcomes and IRs reported?	
	1.4. Have the results of the women and youth from the project implementation been different from their men counterparts?	
	1.5. What sustainable environmental and water management practices were introduced?	
2. **How has the ADVANCE II Activity collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value**	2.1. Did the beneficiaries of ADVANCE II apply technologies developed and promoted by the Agricultural Technology Transfer Project?	
	2.2. To what extent did the beneficiaries of the ADVANCE II Activity have their access to finance through linkages with the Financing Ghanaian Agricultural Project of USAID/Ghana?	
	2.3. To what extent did collaboration between ADVANCE II and the Agricultural Policy Strategy Project drive efforts at providing enabling an environment for competitiveness of the rice, maize and soybean value chains?	

Evaluation Questions	Focus Group Question	Summary of Focus Group Response
chains in Ghana?	2.4. What were the links between ADVANCE II Activity and USAID Resiliency in Northern Ghana project, and could those links contribute to competitiveness of the three target value chains?	
3. What are the prospects for sustainability of the results produced by the ADVANCE II Activity?	3.1. What is the degree of collaboration between ADVANCE, the Ministry of Agriculture and the Local Authorities to ensure ownership and sustainability of gains from the project?	
	3.2. To what extent are resources and capacities at individual, organizational or sociopolitical levels available to ensure the continuation of results?	
	3.3. What risks and potentials are emerging as a result of ADVANCE II implementation and what measure were taken to mitigate those risks?	
4. What are the lessons learned and best practices, and from which stakeholders or beneficiaries?	4.1. Which two practices, in your opinion contributed most to the any good results achieved?	
	4.2. Which of the best practices must be scaled up to continue increasing competitiveness of the three target value chains?	
	4.3. What, if any, unintended consequences can be attributed the ADVANCE II Activity?	
5 Recommendation	What recommendation will you made for consideration in designing a future value chain development project?	

A3.3: Structured Survey Instrument

ADVANCE II ACTIVITY FINAL EVALUATION QUESTIONNAIRE

BY

INSTITUTE OF STATISTICAL, SOCIAL & ECONOMIC RESEARCH

(ISSER)

UNIVERSITY OF GHANA

MAY 2020

CONTENTS

ADVANCE II ACTIVITY EVALUATION QUESTIONNAIRE

This survey is toward the evaluation of the ADVANCE II Activity which seeks to examine the extent to which the project's goal and objectives have been achieved. Further, the survey seeks to collect data to assess how the ADVANCE II project interventions have contributed specifically towards achieving USAID/Ghana's Country Development Cooperation Strategy (CDCS) 2013-2019. The CDCS's Development objective is to attain Sustainable and Broadly Shared Economic Growth and its associated intermediate results, namely, increased competitiveness of major food chains; improved enabling environment for private sector investment; and improved resiliency of vulnerable households and communities and reduction of undernutrition.

We assure you of strict confidentiality. Your responses will be kept confidential and will be analyzed jointly with the other respondents.

Consent (Y/N)	
Date of interview	
Starting time of interview	
Ending time of interview	
Enumerator	
Supervisor	
Region	
District	
Location	
Village	
EA Code	
GPS Coordinates	

SECTION A: DEMOGRAPHIC INFORMATION OF BENEFICIARIES

	1. Name (Start with household head)	2. What is the sex of [NAME]? 1=male 2=female	3. Relationship to current head See code below	4. What is [NAME] 's relationship to the selected FBO member?	5. Age of this person	6. Marital Status See codes below	7. highest level of education completed? see codes below	8. Is [NAME] currently attending school? *1 = Yes⇒9* *2= No⇒*10	9. Why is [NAME] not in school?	10. Can [NAME] read? 1=Yes 2=No	11. Can [NAME] write? 1=Yes 2=No	12. What is the MAIN occupation of [NAME]?
1												
2												
3												
4												
5												
6												

Relation to head	1= head; 2= spouse; 3= own child; 4= step child; 5= parent; 6= brother /sister; 7= nephew /niece; 8= son/daughter-in-law; 9= grandchild; 10=other relative; 11=non-relative; 12=brother /sister-in-law; 13=parent-in-law; 14=Worker; 15=Adopted child; 16=Grand parent
Marital Status	1 = single; 2 = monogamous married; 3 = polygamous married; 4 = divorced; 5 = widowed; 6 = separated; 7=Cohabitation
Education levels	00=None; 01=Pre-school; 11=P1; 12=P2; 13=P3; 14=P4; 15=P5; 16=P6; 17=JSS1/JHS1; 18=JSS2/JHS2; 19=JSS3/JHS3; 20=M1; 21=M2; 22=M3; 23=M4; 24=SSS1/SHS1; 25=SSS2/SHS2; 26=SSS3/SHS3; 27=Tertiary; 28=Other (specify)
Reason for absence from school	0=Too young; 1=Cannot afford expenses; 2=Working; 4=Pregnancy; 5=Sickness/disability; 6=Refused to continue; 7=Completed schooling; 8=Too old to be in school; 9=Other (specify)___
Occupation	1= Salary earner (e.g., teacher, policeman, etc.); 2= Casual wage earner; 3= Farm labourer; 4=Transportation business; 5= Bicycle repair/mechanics; 6= Brewing business; 7= Brick making; 8=Butcher; 9=Carpentry; 10=Charcoal burning; 11=Clothes business (trading); 12=Construction; 13=General-kiosk owner; 14=Miller; 15=Trading farm produce; 16=Trading food items; 17=Trading livestock; 18=Trading firewood/timber; 19=Trading non-food goods; 20=Farming; 21=Tailor; 22=Schooling; 24=Food vendors; 23=Other (specify)

SECTION B: BUSINESS BACKGROUND

1. Form of Organization 1= formal 2=informal	2. Site location 1 = industrial 2 =commercial 3 =market stall 4 =informal 5=enterprise cluster 6=other (specify)	3. When was this business started? [year]	4. How was it started? 1 =Founded 2=Inherited 3 =Bought 4 =Other	5. Type of Ownership 1=Family 2=Private local 3=Private foreign 4=Joint local/foreign 5=Other	6. Legal status 1=Sole proprietorship 2=Partnership 3=Limited liability 4=Subsidiary 5=Other	7. Are these premises 1=Owned 2=Leased/Rented 3=Temporary occupation 4=Free occupation 5=Other (specify)?		9.If Yes		
							8. Are you a beneficiary of ADVANCE II business support 1=Yes⇒9 2=No⇒10	9a. Which year did you get your first support from	9b. Which type of support?	9c. In what form was the support received under 9a. 1=Training/Capacity building 2=Finance 3= Mentorship 4=Other (specify)?

SECTION C: COMPETITIVENESS AND COST EFFECTIVENESS

1. Has the support received from the ADVANCE II project helped you to achieve your desired goals (output and outcomes)? *1=Yes* *2=No*	2. If yes, which of the following did the project help you achieve? *1=increased productivity* *2=increased market access and trade* *3=strengthened local capacity*	3. Do you think the project's method of delivery was sound? *1=Yes* *2=No*	4. If answered `No' to 3, in what way could it have been made better? 1=Lengthy application process 2=Timeliness of Disbursement 3=Increased quantum of support 4=Other specify	5. Did the project's method of delivery contribute to timely and cost-effective access to its benefits? *1=Yes* *2=No*	6. Which of the project's activities in your view, was the most effective at enhancing your competitiveness in the major food value chain? [list of project activities]	7. Which of the project's activities do you perceive was least effective at enhancing the competitiveness in the major food value chain? [list of project activities]	8. Did the project provide other opportunities besides those intended? *1=Yes (specify)* *2=No*	9. Did the project present any challenges in the course of its implementation? *1=Yes (specify)* *2=No*	10. Have women benefited from the project implementation? 1=Significantly 2=Moderately 3=Very Little 4=Not at all	11. Will you say that the youth in this community have benefited from the implementation of this project? 1=Significantly 2=Moderately 3=Very Little 4=Not at all	12. Do you perceive this project to have increased the adoption of productivity-enhancing technologies, services and practices among women beneficiaries? *1=Yes* *2=No*	13. Do you perceive this project to have increased the adoption of productivity-enhancing technologies, services and practices among the youth? *1=Yes* *2=No*

SECTION D: PRODUCTIVITY AND PROFITABILITY

D(i): Effect of ADVANCE II Project Model

1. Has the ADVANCE II project out-grower business model affected the way your business operates (business model)? 1=Significantly 2=Moderately 3=Very Little 4=Not at all	2. Which of the following did the project's out grower business model affect positively? 1=Profitability 2=Productivity 3=Incomes of beneficiary small holder farmers	3. What are the top three factors that affect your productivity? [list of factors]	4. What are the top three factors that affect your profitability? [list of factors]	5. How do you perceive your market relationship with out-grower businesses? *1=Cordial* *2=Less cordial* *3=other; specify___*	6. Do you have the ability to independently determine the price of your produce? *1=Yes* *2=No*	7. Did you receive any assistance from private sector actor(s) toward enhancing the marketability of your produce? *1=Yes* *2=No*	8. If yes, what assistance did you receive? *1=Crop marketing;* *2=Post-harvest handling & storage;* *3= Quality Enhancement…..* *4=Other (Specify)*	9. Which private sector actor provided this assistance? [list of PS actors]

D(ii) Land Expenditure

Reference – 2019 farming season.						
1. Plot ID	2. Plot Name *(Let the respondent, give each Plot a name)*	3. What is your estimate of the plot size?		4. How did you obtain this Plot?	5. What is the tenure status of this Plot?	6. If purchased or rented, what is the average amount you pay annually for this plot?
		Area	**Unit**			
Land holding	1=Purchased, 2= Received as gift or inheritance, 3= Rented-in for fixed payments, 4=Sharecropped-in, 5=Borrowed-in, 6= Other (specify)					
Land tenure	1= Owned and titled; 2= Owned but not titled (e.g., settlement schemes, surveyed Plots); 3= Leasehold; 4= Government land/forest/ road reserves; 5= Rented-in; 6=Borrowed-in (no cost); 7=Just walked in; 8=Sharecropped-in; 9=Other (specify)					

D(iii): Labour Expenditure

		Reference – 2019 farming season.						
PLOT ID	ACTIVITY ID	1. Did household members or others apart from hired laborers work on [PLOT] during [ACTIVITY] in the 2019 farming season? *1=Yes* *2=No ⇒4*	2. How many days were household members engaged in [ACTIVITY] on [PLOT] in the 2019 farming season?			3. How much would it have cost you to hire labour for the [ACTIVITY] that household labour or others apart from hired laborers did on [PLOT]? [**If in kind give money value of item**]	4. Did you hire labour to work on [PLOT] during [ACTIVITY] in the 2019 farming season? *1=Yes* *2=No ⇒D(iv)*	5. How much did you spend on hired labour for ACTIVITY] on [PLOT] in the 2019 farming season? [**If in kind give money value of item**]
			Person-days					
			Male	Female	Child			
Activity Code		1=Clearing; 2=Ploughing; 3=Planting; 4=Chemical Application; 5=Weeding; 6=Harvesting						

D(iv): Seed Expenditure

		Reference – 2019 farming season.						
PLOT ID	CROP *1=Maize* *2=Rice* *3=Soybean*	1. How did you obtain the [CROP] seeds planted on [PLOT] in the 2019 farming season?		2. How many UNITS of seeds did you use on [PLOT] in the 2019 farming season?		3. Did you purchase the seeds you used in the 2019 farming season? *1=Yes* *2=No ⇒5*	4. If seeds were purchased, how much did you pay for the seeds on [PLOT] in the 2019 farming season?	5. If no seeds were purchased, what is the value of the seeds you used on [PLOT] in the 2019 farming season?
		[code below]	*Specify, if other*	*Quantity*	*Unit*			
Seed access codes		1=Own harvest; 2= Agro-input dealer; 3=Purchased from market; 4=Exchanged Private aggregator; 5=Farmer organization (cooperative); 6=Ministry of Agriculture; 7=Organization that comes to your community; 8=Gift; 9=Other (specify)						
Unit codes		1=Kg; 2=Sachets; 3=Bowls; 4=American Tin; 5=Maxi Bag; 6=Mini Bag; 7=Other (Specify)						

D(v): Fertilizer and Pesticide Expenditure

1. Did you apply any chemicals such as fertilizer, weedicide or pesticide to any of your plots in the 2019 farming season?	*1= Yes* *2= No ⇒D(vi)*

Complete one line for each type of chemical used: [reference – 2019 farming season]

	2. What type of chemical did you use in the 2019 farming season?		3. What is the brand name of the main chemical in the 2019 farming season? See codes. If OTHER, please specify	4. When did you apply this chemical during the 2019 farming season?	5. How did you obtain the chemical in the 2019 farming season?		6. If obtained from an organization, which organization did you obtain your chemicals from?	7. If some or all of the chemical was purchased: What quantity did you purchase for the 2019 farming season?		8. If some or all of the chemical was purchased: What was the total amount paid for this quantity?	9. If some or all of the chemical was purchased: How did you pay for this chemical?	
Chemical Number	*See codes below*	*(If OTHER, please specify.)*	*PROMPT: Do they have the bag, so that we can check?* *ENTER DK (-999) IF THE RESPONDENT DOES NOT KNOW THE BRAND*	*Month* *(Enter code)*	*See codes below. Select all which apply. DO NOT READ THE LIST.*	*(If OTHER, please specify.)*	*See codes below. Select all which apply.*	*Quantity*	*USE CODES:* *1. Big bag (50kg)* *2. Small bag (15kg)* *3. liter* *4. grams* *5. Bowl*	*Enter the price paid by the respondent.* *(LCU)*	*See codes below. Select all which apply. DO NOT READ THE LIST.*	*(If OTHER, please specify.)*
1												
2												
3												

Chemical codes	1=Fertilizer; 2=Herbicide/Weedicide; 3=Fungicide; 4=Insecticide
Organization codes	1=Government; 2=MasaraN'Arziki; 3=ADVANCE; 4=Savannah farmers and marketing company; 5=Other (specify)
Chemical source codes	1=Agro-input dealer; 2=Purchased from market; 3=Exchanged; 4=Borrowed (loan); 5=Gift; 6=Organization came to community; 7=Private aggregators; 8=Other (specify)
Brand codes	1=Fertilizer: NPK (15-15-15); 2=Fertilizer: ammonium sulhate (SA); 3=Fertilizer 23-10-5 (Actyva); 4=Other compound fertilizer; 6=Urea; 7=Commercial organic fertilizer, including Fertisoil, Cocopeat; 8=TSP: Triple supper phosphate; 9=Sulfan; 10=Delsate; 11=Zumer; 12=Gramozone/Stompo; 13=Yara Winner; 14=Yaralegume; 15=Powder/Condemn; 16=Glyphosate/Roundup; 17=Sarosate; 18=Atrazine; 19=Cereseomp; 20=Terbulor; 21=Karate; 22=Glyphagon; 23=2-4,D; 24=Arrow; 25=Other (specify)

D(vi) Capital/Equipment Expenditure and Other Direct Costs

PLOT ID	ACTIVITY ID	1. Did you use tractor for [ACTIVITY] on [PLOT] during the 2019 cropping season? 1=Yes⇒2 2=No⇒*5*	2. Do you own the tractor used for [ACTIVITY] on [PLOT]? 1=Yes⇒*4* 2=No⇒*3*	3. If you DO NOT own the tractor, how much did you spend on tractor services for [ACTIVITY] on [PLOT]? [If in kind give money value of item]	4. If you OWN the tractor, how much would it have cost you to hire labour for the [ACTIVITY] that the tractor did on [PLOT]?	5. Did you use draught animal for [ACTIVITY] on [PLOT] during the 2019 season? 1=Yes⇒*6* 2=No⇒*9*	6. Do you own the draught animal used for [ACTIVITY] on [PLOT]? 1=Yes⇒*7* 2=No⇒*8*	7. If you OWN the draught animal, how much would it have cost you to hire labour for the [ACTIVITY] that the animal did on [PLOT]?	8. If you DO NOT own the animal, how much did you spend on draught animal services for [ACTIVITY] on [PLOT]? [If in kind give money value of item]	9. Did you incur any other direct cost in production within the 2019 farming season? *1=Yes* *2=No⇒D(vii)*	10. Specify the activity/activities for which you incurred this cost.	11. How much did you spend on the activity you have stated?
Activity code		1=Clearing; 2=Ploughing; 3=Planting; 4=Chemical Application; 5=Weeding; 6=Harvesting										

D(vii) Revenue from Crop Sales

1. Crop	2. Quantity sold in the 2019 farming season	3. Sales unit [2019 farming season] (use unit codes)	4. Price per unit or total value of sale in 2019 farming season		5. How did sales in 2019 *(i.e. 4b)* compare with 2018 sales? *1=increase⇒6* *2=decrease⇒7* *3=none⇒8*	6. If increase, by how much?	7. If decrease, by how much?	8. Top 3 buyers of crop		
			4a. Price per unit (LCU)	*4b. Value of sales (LCU)*				8(i)	8(ii)	8(iii)
Maize										
Rice										
Soybean										
Sale units	1=Bowls; 2=Calabash; 3=American Tin; 4=kilogram; 5=Mini Bag; 6=Maxi Bag; 7=tonne; 8=Other (Specify)									
Buyers	1=Consumer within community; 2=Consumers elsewhere; 3=Market traders; 4=Private aggregator; 5=Cooperative/FBO; 6=Out-grower; 7=Pre harvest contractors; 8=Sale trade organizations; 9=Other (specify)									

SECTION E: UNINTENDED CONSEQUENCES

1. Have you experienced any unintended consequences from your participation in the ADVANCE II project? *1=Yes* *2=No⇒F*	2. If yes, please state some of these unintended consequences.	3. Will you attribute these unintended consequences to the ADVANCE II project? *1=Yes* *2=No*	4. Did these unintended consequences affect your productivity and/or profitability? *1=Yes* *2=No*	5. If yes, how did this unintended consequence affect your productivity and/or profitability? *Please specify*	6. How significant were the effects of these unintended consequences on your business? *1=Very significant* *2=Significant* *3=Moderate* *4=Little*	7. How did you deal with the unintended consequences of the project? *Please specify*

SECTION F: COLLABORATION WITH RELEVANT USAID PROJECTS, OTHER DONOR PROJECTS OR PRIVATE SECTOR

1. Aside the ADVANCE II Activity, did you benefit from any other relevant project? *1=Yes* *2=No*	2. If yes, what project did you benefit from? *1=USAID Project* *2=Other donor program (specify)* *3= Private sector project (specify)* *[Select all that apply]*	3. Was this other project introduced to you by the ADVANCE II Project team? *1=Yes* *2=No*	4. Which of the following value chains did you receive the support? *1=Maize Only* *2=Rice Only* *3=Soybeans Only* *4=Maize & Rice* *5=Maize Soybeans* *6=Rice Soybeans* *7=Maize, Rice and Soybeans* *8=Any of the food products*	5. Did this other project increase your ability to compete in your product's value chain? *1=Yes* *2=No*	6. To what extent did the other support (F2) affect your competitiveness in your business line of products *1=Very Significant* *2=Significant* *3=Moderate* *4=Little*	7. What other benefits did you receive from this other relevant project? *Please specify*	8. Did this other project provide activities that focused on women beneficiaries? *1=Yes* *2=No*	9. Did this other project provide activities that focused on younger beneficiaries? *1=Yes* *2=No*

SECTION G: PROJECT SUSTAINABILITY

1. Has the ADVANCE II Activity been beneficial to you? *1= Yes* *2= No⇒* ***3***	2. If yes, to what extent do you perceive these benefits you received to last after the project ends? *1= less than one season* *2=about 1 to 5 seasons* *3=about 6 to 10 seasons* *4=more than 10 seasons*	3. Do you think the project is likely to continue after the end of US Government Support? *1= Yes* *2= No*	4. Do you perceive the project encountered some challenges during its implementation? 1= Yes 2= No⇒*6*	5. If yes, please state some of the challenges you perceived	6. Will stakeholders like yourself continue to show interest after the current project expires? *1= Yes* *2= No*	7. Are you likely to continue with best practices you learned from this project? *1= Yes* *2= No*	8. What practices would you suggest should be scaled up? *[list practices]*	9. What lessons have you drawn from participating in this project?

END

ANNEX IV LIST OF INFORMATION SOURCES

Table A4.1: List of Key Informants

Organization Name	Number of Key Informants
1. **United States Agency for International Development (USAID) (AOR)**	1
2. **Other USAID Implementing Partners**	3
3. **ACDI/VOCA (STAFF)**	4
4. **TechnoServe**	1
5. **PAB CONSULT**	1
6. **ACDEP**	1
7. **GOG (MOFA, METRO/MUNICIPAL/DISTRICT ASSEMBLY)**	2
8. **SAHEL Grain**	1
9. **Savana Agricultural Research Institute of CSIR**	1
10. **University of Development Studies**	1
11. **RMG Ghana Limited**	1
12. **Vester Oil Ltd**	1
13. **MTN Ghana**	1
14. **Agricare**	1
15. **Opportunity International**	1
16. **Sinappi Aba Savings and Loans Ltd**	1
17. **Other Private Sector Institutions**	2

ANNEX V DISCLOSURE OF CONFLICT OF INTEREST

USAID FROM THE AMERICAN PEOPLE

METSS Monitoring, Evaluation and Technical Support Services

Evaluation Conflict of Interest Form

Name: Adeline Ofori-Bah Position: Consultant Institution/Firm: ISSER

1. I am an employee of USAID or another U.S. Government agency. Yes: ____ No: ✓

2. I have a compensated or uncompensated relationship, executive position, or a significant financial interest in:

_____ A) A business which markets, produces, or has in pre-market testing a product or service that USAID would either evaluate or further develop

_____ B) A business that does business with USAID and/or the entity being evaluated and in which I am in a position to influence that relationship

_____ C) A sponsor of a project with which I am involved as COR/AOR, Office Director, or technical office staff overseeing project implementation

✓ D) None of the above

(If you checked a, b, or c, describe):

3. Are there any other matters bearing on conflict of interest or commitment that you wish to disclose to USAID that would compromise objectivity in this evaluation?

Name/Position: Adeline Ofori-Bah, PhD Team Lead

Signature: [signature] Date: 07/05/2020

Name of Supervisor/Team Lead: _____

Signature: [signature] Date: 07/05/2020

USAID
FROM THE AMERICAN PEOPLE

METSS
Monitoring, Evaluation and Technical Support Services

Evaluation Conflict of Interest Form

Name: PETER QUARTEY Position: DIRECTOR Institution/Firm: INSTITUTE OF STATISTICAL SOCIAL & ECONOMIC RESEARCH

1. I am an employee of USAID or another U.S. Government agency. Yes: ____ No: X

2. I have a compensated or uncompensated relationship, executive position, or a significant financial interest in:

_____ A) A business which markets, produces, or has in pre-market testing a product or service that USAID would either evaluate or further develop

_____ B) A business that does business with USAID and/or the entity being evaluated and in which I am in a position to influence that relationship

_____ C) A sponsor of a project with which I am involved as COR/AOR, Office Director, or technical office staff overseeing project implementation

_____ D) None of the above

(If you checked a, b, or c, describe):

3. Are there any other matters bearing on conflict of interest or commitment that you wish to disclose to USAID that would compromise objectivity in this evaluation? NONE

Name/Position: PROF. PETER QUARTEY, DIRECTOR, ISSER

Signature: _____ Date: 6/5/2020

Name of Supervisor/~~Team leader~~ Peter Quartey

Signature: _____ Date: 6/5/2020

USAID
FROM THE AMERICAN PEOPLE

METSS
Monitoring, Evaluation and Technical Support Services

Evaluation Conflict of Interest Form

Name: John Nene-Osom Azu Position: Consultant Institution/Firm: _____

1. I am an employee of USAID or another U.S. Government agency. Yes: _____ No: X

2. I have a compensated or uncompensated relationship, executive position, or a significant financial interest in:

_____ A) A business which markets, produces, or has in pre-market testing a product or service that USAID would either evaluate or further develop

_____ B) A business that does business with USAID and/or the entity being evaluated and in which I am in a position to influence that relationship

_____ C) A sponsor of a project with which I am involved as COR/AOR, Office Director, or technical office staff overseeing project implementation

X D) None of the above

(If you checked a, b, or c, describe):

3. Are there any other matters bearing on conflict of interest or commitment that you wish to disclose to USAID that would compromise objectivity in this evaluation?

No

Name/Position: John Nene-Osom Azu/Consultant

Signature: johnnoazu Date: May, 07, 2020

Name of Supervisor/Team Lead: Dr. Peter Quarles

Signature: _____ Date: 07/05/2020

USAID
FROM THE AMERICAN PEOPLE

METSS
Monitoring, Evaluation and Technical Support Services

Evaluation Conflict of Interest Form

Name: Ralph Nii Armah Armah Position: Research Fellow Institution/Firm: Institute for Statistical, Social and Economic Research (ISSER)

1. I am an employee of USAID or another U.S. Government agency. Yes: _____ No: X

2. I have a compensated or uncompensated relationship, executive position, or a significant financial interest in:

_____ A) A business which markets, produces, or has in pre-market testing a product or service that USAID would either evaluate or further develop

_____ B) A business that does business with USAID and/or the entity being evaluated and in which I am in a position to influence that relationship

_____ C) A sponsor of a project with which I am involved as COR/AOR, Office Director, or technical office staff overseeing project implementation

X D) None of the above

(If you checked a, b, or c, describe):

3. Are there any other matters bearing on conflict of interest or commitment that you wish to disclose to USAID that would compromise objectivity in this evaluation?

No

Name/Position: Ralph Nii Armah Armah | Research Fellow

Signature: RalphArmah Date: May 5, 2020

Name of Supervisor/Team Lead: Prof. Peter Quartey

Signature: Date: 05/05/2020

ANNEX VI RESULTS OF RELATED ESTIMATIONS

Table A6.1: Estimated Average Beneficiary Farmers' Yield and Gross Margins per Hectare

	Maize		Rice		Soyabean	
Value of Quantity Harvested per hectare (US$/Ha)		829.2		643.2		422.1
Income from sales per hectare (US$/Ha)		561.1		384.8		317.2
Less Variable Cost						
Average cost of seed per hectare (US$/Ha)		6.2		12.0		8.5
Average cost of chemicals per hectare (US$/Ha)		90.3		88.3		46.8
Average expenditure of fertilizer per hectare (US$/Ha)	53.9		38.6		12.8	
Average expenditure of Herbicide/Weedicide per hectare (US$/Ha)	18.1		22.8		13.9	
Average expenditure of Fungicide per hectare (US$/Ha)	9.6		13.3		5.1	
Average expenditure of Insecticide per hectare (US$/Ha)	8.6		13.6		15.1	
Average cost of labour per hectare (US$/Ha)		82.8		103.9		55.5
Average labour cost per hectare on Clearing (US$/Ha)	16.0		13.0		3.7	
Average labour cost per hectare on Ploughing (US$/Ha)	12.1		11.5		8.3	
Average labour cost per hectare on Planting (US$/Ha)	14.9		22.9		14.2	
Average labour cost per hectare on Chemical Application (US$/Ha)	8.7		5.4		0.7	
Average labour cost per hectare on Weeding (US$/Ha)	15.3		19.2		16.9	
Average labour cost per hectare on Harvesting (US$/Ha)	15.8		31.9		11.7	
Capital/Equipment per hectare (US$/Ha)		31.2		29.8		23.1
Average cost of tractor services per hectare (US$/Ha)	30.0		27.5		21.8	
Average cost of animal draught services per hectare (US$/Ha)	1.2		2.2		1.3	
Average Total Variable cost (US$/Ha)		210.4		234.1		133.9
Gross Margin1 (US$/Ha)		618.8		409.2		288.2
Gross Margin2 (US$/Ha)		350.6		150.8		183.4
Benefit-Cost Ratio		3.9		2.7		3.2
Benefit-Cost Ratio		2.7		1.6		2.4

Table A6.2: Estimated Average Beneficiary Farmers' Yield and Gross Margins per Hectare by Crop and Gender

	Maize		Rice		Soyabean	
Item	Male	Female	Male	Female	Male	Female
Value of Quantity Harvested per hectare (US$/Ha)	966.1	550.7	758.8	513.8	400.2	451.2
Income per hectare (US$/Ha)	602.4	476.9	433.8	330.0	314.6	320.9
Less Variable Cost						
Average cost of seed per hectare	6.9	4.6	11.8	12.3	7.4	10.1
Average cost of chemicals per hectare (US$/Ha)	88.8	91.7	94.9	81.9	40.1	49.9
Average expenditure of fertilizer per hectare (US$/Ha)	53.5	54.7	42.6	34.2	8.1	19.0
Average expenditure of Herbicide/Weedicide per hectare (US$/Ha)	16.7	21.2	26.2	18.7	13.9	13.9
Average expenditure of Fungicide per hectare (US$/Ha)	11.2	4.5	14.3	12.4	5.1	0.0
Average expenditure of Insecticide per hectare (US$/Ha)	7.6	11.3	11.9	16.5	13.1	17.0
Average cost of labour per hectare (US$/Ha)	81.7	85.2	112.5	94.3	48.4	64.9
Average labour cost per hectare on Clearing (US$/Ha)	16.2	15.4	14.4	11.4	0.8	7.5
Average labour cost per hectare on Ploughing (US$/Ha)	10.0	16.3	13.9	8.9	9.4	6.8
Average labour cost per hectare on Planting (US$/Ha)	14.9	14.9	28.0	17.2	15.9	12.0
Average labour cost per hectare on Chemical Application (US$/Ha)	9.3	7.4	4.2	6.7	0.3	1.2
Average labour cost per hectare on Weeding (US$/Ha)	15.5	14.9	19.3	19.1	13.0	22.0
Average labour cost per hectare on Harvesting (US$/Ha)	15.7	16.1	32.7	31.0	9.0	15.3
Capital/Equipment per hectare	28.4	36.8	33.0	26.1	22.2	24.3
Average cost of tractor services per hectare (US$/Ha)	27.1	36.0	33.0	21.4	19.9	24.3
Average cost of animal draught services per hectare (US$/Ha)	1.4	0.8	0.0	4.7	2.3	0.0
Average Total Variable cost (US$/Ha)	205.9	218.3	252.3	214.6	118.1	149.2
Gross Margin (US$/Ha)	760.2	332.4	506.6	299.2	282.1	301.9
Gross Margin (US$/Ha)	396.5	258.6	181.5	115.4	196.5	171.7
Benefit Cost Ratio	4.7	2.5	3.0	2.4	3.4	3.0
Benefit Cost Ratio	2.9	2.2	1.7	1.5	2.7	2.2

Table A6.3: Average Annual Profitability of Nucleus farmers in the 2019 major farming season

Items	Amount
Income from produce received (US$)	18217.1
Income (US$)	3850.672
Total Income (US$)	**22067.78**
Expenditure on land preparation for smallholder farmers (US$)	1323
Expenditure on labour (US$)	481.7414
Expenditure on seeds for smallholder farmers (US$)	1144.483
Expenditure on chemicals for smallholder farmers (US$)	776.931
Expenditure on training smallholder farmers (US$)	394.3103
Expenditure on transportation (including fuel) (US$)	862.3966
Expenditure on other Administrative cost (US$)	604.3621
Variable cost (US$)	**5587.207**
Gross Margin (US$)	**16480.57**

Table A6.4: Average Yield and Gross Margin per Hectare of Beneficiary Smallholder and Nucleus Farmers

Efficiency index	Crop	Baseline (2013)	Male	Female	P-value	Overall				% Change from Baseline	Nucleus farmers
						Mean	Std. Dev.	95% Confidence Interval			
Yield (MT/Ha)	Maize	1.38	2.20	1.70	0.0008	2.00	1.40	1.90	2.10	44.9	
	Rice	0.90	2.90	2.20	0.0347	2.60	1.70	2.30	2.90	188.9	
	Soybean	0.90	1.30	1.50	0.4576	1.40	1.00	1.10	1.70	55.6	
Gross Margin (USD/Ha)	Maize	278.00	760.20	332.40	0.2188	618.80	3578.69	378.90	1001.56	122.6	16,480 (per enterprise)
	Rice	255.00	506.60	299.20	0.8207	409.20	396.17	248.14	475.72	60.5	
	Soybean	289.00	282.10	301.90	0.1011	288.20	667.55	397.64	654.76	-0.2	

Source: Baseline information from project documents and other computation from survey data.

Notes: Sample size for Maize, soybean, and rice are 510, 106, and 49 respectively.

Table A6.5: Factors Influencing Smallholder Profitability

Variables	Maize	Rice	Soybean
Gender of Farmer	-0.272	-0.228	0.444
	(0.218)	(0.390)	(0.435)
Log of Farmer's Age	0.935***	0.760	1.313
	(0.346)	(0.772)	(0.825)
Marital Status	-0.0838	-0.728	-0.453
	(0.344)	(0.455)	(0.423)
Level of education completed			
1. Completed basic education	0.442**	-0.377	0.163
	(0.207)	(0.552)	(0.369)
2. Higher than basic education	0.487*	0.0195	-0.861
	(0.290)	(0.628)	(0.805)
Log of Farming Experience	0.372**	-0.158	0.338
	(0.147)	(0.296)	(0.391)
Main Occupation	0.0881	0.0583	-0.537
	(0.252)	(0.674)	(0.684)
Log of Yield	1.199***	2.078***	2.062***
	(0.128)	(0.249)	(0.290)
Log of Seed cost per hectare	-0.0110	-0.00939	-0.0353
	(0.0478)	(0.0860)	(0.0561)
Log of Fertilizer cost per hectare	-0.000896***	-0.00161***	-0.00123
	(0.000255)	(0.000608)	(0.00133)
Log of Pesticide cost per hectare	0.00217***	-0.00279*	0.000301
	(0.000557)	(0.00145)	(0.00209)
Log of Labour cost per hectare	-0.0951**	0.0414	0.0459
	(0.0379)	(0.0840)	(0.103)
ln_capital_cost	-0.158***	-0.127	-0.0382
	(0.0397)	(0.0943)	(0.0650)
Constant	-8.949***	-12.10***	-14.41***
	(1.448)	(2.583)	(3.421)
Observations	510	106	49
R-squared	0.358	0.471	0.700

Note: Robust Standard errors in parenthesis. ***p<0.01, **p<0.05, *<0.1. The profitability measure is computed from an estimation of gross margin (value of harvest less variable cost) on a US$ per hectare basis. A regression including various categories of farmers' level education completed (i.e. None; completed Primary; completed JSS/JHS/Middle School; completed SSS/SHS/O'Level/A'level; and completed Tertiary education) yielded similar results in significance, direction, and magnitude of the coefficients.

Source: Survey Data (2019).

Interpretation of the six statistically significant variables in the Maize regression model

The age of a farmer was found to be positive and statistically significant at a one percent significance level. The results revealed that a one percent increase in the age of a farmer will increase farm profitability by about 0.9 %, all things being equal. It could be inferred that as farmers grow older, they gain more experience, hence improving their capacity to cope with the challenges of the business activities. Educational level completed was also positive and statistically significant. Maize

who have completed basic education had their profitability level increased by about 0.4% compared to their counterparts who had no education (statistically significant at a 5% significance level). Maize farmers whose educational level is higher than basic education had their profitability level increased by about 0.5% compared to their counterparts with no education.

The yield was positive and significant at a one percent significance level. The results showed that a one percent increase in maize yield increases farm profitability by about 1.2 %, all things being equal. It could be inferred that the practices and technologies introduced to the farmers resulted in a higher yield, there thereby increasing the profitability level of the maize farmers. Cost of fertilizer also had a negative and statistically significant at a 1 % significance level. The results showed that a one % increase in the cost of fertilizer will reduce farm profitability by about 0.001 %, all things being equal. The higher cost of fertilizer increases the cost of production hence reducing the profitability level of the maize farmers.

The cost of labor was also found to be negative and statistically significant at a one percent significance level. The results show that a one percent increase in the cost of labor will reduce farm profitability by about 0.1 %, all things being equal. The higher cost of labor will result in an increased cost of production thereby reducing the profitability level of the maize farmers.

The cost of tractor and draught services also had a negative relationship with farm profitability (statistically significant at a one percent significance level). The results further showed that a one percent increase in the cost of tractor and draught services will reduce the profitability level of maize farmers by about 0.2 %, all things being equal. The higher cost of tractor and draught service will result in the increased cost of production thereby reducing the profitability level of the maize farmers.

Interpretation of the three statistically significant variables in the Rice regression model

In the Rice model, we find that yield, fertilizer cost, and pesticide cost were statistically significant. The coefficient of all the variables included in the model had their expected *a priori* signs except farming experience and main occupation.

The yield was found to be positive and statistically significant at a one percent significance level. The results show that an increase in rice yield by one % will increase profitability by about 2.1 %, all things being equal.

The cost of fertilizer was found to be negative and statistically significant at a 1% significance level. This further showed that a 1 % increase in the cost of fertilizer will reduce the profitability level of rice farmers by about 0.002 %.

Pesticide cost was found to be negative and statistically significant at a 10%significance level. The results further showed that a 1 % increase in the cost of pesticide will reduce the profitability level of rice farmers by about 0.002 %.

Interpretation of the three statistically significant variables in the Soybean regression model

The yield was found to be statistically significant (1% significance level) in the Soybean model. The coefficient of all the variables included in the model had their expected *a priori* signs except marital status, education (higher than basic education) and main occupation. Yield was found to be positive and statistically significant at a 1 % significance level. The results show that an increase in rice yield by one percent will increase profitability by about 2.1% all things being equal.

Table A6.6: Smallholder Farmers' Perception about Sustainability of Gains Made through the ADVANCE II Project

Indicator	Maize	Rice	Soybean	Overall
% of farmers who think the gains from the project is likely to continue after the end of US Government Support	74.2	82.1	89.8	82.0
% of farmers who think the project encountered some challenges during its implementation	20.5	20.8	26.5	21.0
% of farmers who have shown a willingness to continue with the technologies and management practices promoted	87.3	90.6	95.9	91.3
% of farmers who think there was an adequate collaboration with local entities to ensure that support for marketing continues	33.7	33.0	42.9	34.3
% of farmers who think collaborating local entities have adequate capacity and resources to sustain gains made	37.8	38.7	46.9	38.6
N	510	106	49	665

Table A6.7: Smallholder Farmers' perceived effect of the ADVANCE II Project Model on their business

Indicator	Maize	Rice	Soyabean	Overall
% of smallholder farmers who think the Outgrower business model has affected their business model				
Significantly	38.6	34.9	42.9	38.3
Moderately	25.6	31.1	22.4	26.3
Very Little	10.8	18.9	18.4	12.6
Not at all	25.0	15.1	16.3	22.8
% of smallholder farmers who think the Outgrower business model has affected them positively through				
Profits/Gross Margins	46.4	50.0	38.8	46.4
Yields	70.7	83.0	81.6	73.4
Incomes	27.2	36.8	34.7	29.3
Other	21.5	11.3	12.2	19.2
% of smallhoder farmers who perceive their market relationship with out-grower businesses as				
Cordial	56.9	66.0	69.4	59.3
Less cordial	30.5	30.2	24.5	30.0
Other specify	12.5	3.8	6.1	10.7
% of smallholder farmers who have the ability to independently determine the minimum price of their produce	18.0	19.8	22.4	18.6
N	510	106	49	665

Table A6.8: Achievements of the ADVANCE II Activity

CODE	Intermediate Outcome	Immediate Outcome	Performance Indicator	Disaggregation	Baseline (FY2014)	Data for Life of Project		
						TARGET	ACTUALS	% Deviation
OP1	Increased competitiveness of agricultural value chains in Ghana		Number of direct project beneficiaries	*Total*	37,022	127,000	131,493	**4**
				Male	15,230	67,000	68,142	**2**
				Female	21,792	60,000	63,351	**6**
OC1	Increased productivity of targeted commodities		Gross margins per hectare for selected crops US Dollar under marketing arrangements fostered by the activity (USD/ha)	*Maize, Average*	$258.485	$835	$767.15	**-9**
				Maize, Male	$227.21	$900	$829.98	**-8**
				Maize, Female	$289.76	$880	$704.32	**-20.**
				Rice, Average	$254.69	814	$894.5	**9.9**
				Rice, Male	$259.4	$867	$752	**-13.4**
				Rice, Female	$249.98	$760	$1,038	**36.6**
				Soybean, Average	$264.44	$700	$531.39	**-24**
				Soybean, Male	$316.02	$800	$514.78	**-36**
				Soybean, Female	$212.86	$600	$548	**-9**
OC2		Increased adoption of improving productivity-enhancing technologies, services and practices by women and men	Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance	Total		101,700	93,784	**-7.8**
				Male		*55,935*	47,520	**-15**
				Female		*45,765*	46,264	**1**
OC3		Strengthened incentives for smallholder investment in new	Number of hectares under improved technologies or management practices as a result of USG assistance			312,200	303,881.64	**-3**

CODE	Intermediate Outcome	Immediate Outcome	Performance Indicator	Disaggregation	Baseline (FY2014)	Data for Life of Project		
						TARGET	ACTUALS	% Deviation
OC4		technology, services and practices	Number of private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) that applied new technologies or management practices as a result of USG assistance			800	852	**6.5**
OP2		Strengthened systems for service provision and input distribution;	Number of private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG assistance			1100	1,228	**11.6**
OP3			Number of individuals who have received USG supported short-term agricultural sector productivity or food security trainings	***Total***	9,052	120,000	124,572	**3.8**
				Male		*63,600*	63,344	**0**
				Female		*56,400*	61,228	**9**
OC5	Increased Market Access and Trade		Value of incremental sales (collected at farm-level) attributed to FTF implementation	***Total***		$67,880,000	$146,969,630.61	**117**
				Maize		$53,840,000	$141,213,670.17	**162**
				Rice		$9,730,000	$741,874.98	**-92**
				Soy		$4,310,000	$5014085.45	**16**
OP4		Increased availability and use of affordable/sustainable services	Value of agricultural and rural loans		$553,232	$4,500,000	$3,902,979	**-13.3**

CODE	Intermediate Outcome	Immediate Outcome	Performance Indicator	Disaggregation	Baseline (FY2014)	Data for Life of Project		
						TARGET	ACTUALS	% Deviation
OP5		Improved capacity of women and men to participate in markets	Value of new private sector investment in the agricultural sector or value chain (US$)		$210,216	$4,000,000	$3,731,280	**-6.6**
OP6		Increased private investment to support value chain development, expanding benefits from market participation for women and men	Number of value chain actors accessing finance			300	588	**96.0**
OC6			Number of firms (excluding farms) or Civil Society Organizations (CSOs) engaged in agricultural and food security-related manufacturing and services now operating more profitably (at or above cost) because of USG assistance			225	379	**68.0**
OC7	Strengthened Local Capacity for Advocacy and Activity Implementation		Number of organizations/ enterprises identified as high potential for future awards			8	13	**62.5**
OP7		Strengthened advocacy capacity of Value Chain actors to address enabling environment constraints	Number of organizations/ enterprises receiving capacity building support against key milestones			50	46	**-8**
OP8		Strengthened capacity to implement Value Chain development and become eligible for USAID funding	Number of awards made directly to local organizations by USAID			5	5	**0.0**

Source: ADVANCE II 2019 Report

ANNEX VII SUMMARY OF KEY INFORMANT INTERVIEWS

Table A7.1: Summary of USAID's KII Response

Evaluation Questions	Key Informants' Question	Summary of USAID's Response
1. To what extent has the ADVANCE II Project achieved its intended goal and objectives as stated in the project results framework?	1.1. To what has the FTF ADVANCE project contributed to objectives 1 and 2 and overall goal of FTF Results Framework To what extent has the implementation of the project's interventions contributed towards achieving USAID/Ghana's Country Development Cooperation Strategy (CDCS) 2013-2019 Development Objective (DO) 2: Sustainable and Broadly Shared Economic Growth and associated intermediate result: IR 2.1: Increased competitiveness of major food chains (Ref. FTF IR 1) , IR2.2: Improved enabling environment for private sector investment (FTF IR 1.3) , IR2.3: Improved resiliency of vulnerable households and communities and reduction of under-nutrition (FTF IR 2) .	The goal of ADVANCE II program is the transformation of Northern Ghana's agricultural sector, by increasing the competitiveness of maize, rice, and soybean and to move smallholder farmers away from subsistence and toward greater commercialization. The project's approach is to increase productivity, promote private enterprise development and investment, and ensure that benefits are realized by women and vulnerable groups. The Advance project is the main contributor to the FTF results overachieving most of the set targets
	1.2. Given your knowledge of other initiatives in the maize, rice and soybean value chains, what would you say is the added value of the ADVANCE project?	The added value to this project is the model which horizontally and vertically integrates The project developed and implemented a simplified value chain approach, in which smallholder farmers are linked to various services, including, markets, finance, inputs, equipment, and information that are provided through larger commercial farmers and traders who have the capacity and incentive to invest in smallholder production. The linkages created build the capacity of smallholder farmers to increase the efficiency of their farm businesses with improved production and post-harvest handling practices. The added value of the ADVANCE II is its unique outgrower business model that horizontally and vertically integrates the various participants and services in the maize, rice and soybean value chains and supports emerging commercial agriculture and smallholders simultaneously.
	1.3. Did the project tackle the main challenges facing the value chains and Ghana's agricultural sector?	The main challenges facing the value chains and Ghana's agricultural sector that were identified in the ADVANCE II baseline survey and which the project sought to tackle included the following: • Poor access to extension services and training • Limited access agro-inputs supply

Evaluation Questions	Key Informants' Question	Summary of USAID's Response
		• Poor access to finance • Poor access to markets • Negative impact of climate change. The project addressed and piloted tested various tools and interventions to mitigate these constraints in the agricultural sector in Ghana. The project addressed the gaps and barriers along the value chain to ensure income growth for all value chain actors. Project interventions include technology and business trainings, mentorship programs, demonstrations of good agricultural practices, especially relating to climate-smart techniques, and Net-working initiatives. harnessing the power of information and communications Technology (ICT) through the use of tablets, portable projectors, speakers, and memory cards pre-loaded with training videos, provision of matching grant for purchasing equipment Many have had good results and it will be great to see them scaled-up Through the Outgrower Business Model, the ADVANCE II project supported and built the capacity of outgrower businesses, mainly commercial farmers and aggregators and linked them to input suppliers, extension agents, financial institutions, and formal economic markets of large buyers and processors. These outgrower businesses, have established their own zonal and regional networks since 2018, have been supporting smallholder farmers by providing them with training, access to markets, and inputs and farming services on credit to overcome the constraints that they face in their farming operations..
2. How has the ADVANCE II project collaborated with other relevant USAID projects	2.1. How has the ADVANCE II project collaborated with other relevant USAID projects, GOG agencies and/ or other donor programs, and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?	The project being first in the FtF portfolio, Led the coordination of all FtF projects through the CCC and also linkages with Government. They helped to establish a northern sector working group to coordinate DP activities and collaborate to provide interventions. The activity introduce the opportunities in the north to the Private sector through he establishment of Pre-season and Pre-harvest event and joint demo farms to showcase innovations and new protocols

Evaluation Questions	Key Informants' Question	Summary of USAID's Response
and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?	2.2. What is the degree of collaboration between ADVANCE, the Ministry of Agriculture and the Local Authorities to ensure ownership and sustainability of gains from the project?	The project has been implemented in partnership with MOFA and its departments, regional and district staff. The models and tools have been done in partnership with GOG. It is hoped that they will replicate and scale these successes. The FAW taskforce is still in use so hopefully other networks established will continue to operate. Local NGO and partners that worked with the project continue to provide services to beneficiaries as these are new business opportunities
	2.3. What would you say are the most lasting change or changes that have happened to as a result of the ADVANCE project?	The Private sector has realized the opportunities in the northern sector and processors have learned to invest in production services to ensure quality supplies. The north is now seen as open and accessible and a source of investment and linkages. This is a major shift in perspective from before this project.
3. What are the lessons learned and best practices, and from which stakeholders or beneficiaries?	3.1. What other impacts or side effects (positive or negative) did ADVANCE have on the wider community?	Please refer to assessments Outgrower Business Networks The OB Model stimulated stronger business relationships between OBs and several value chain actors, positively impacting their agribusiness enterprises. Outgrower schemes also led to an increase in profit levels, the quality of commodities sourced from OBs, the assurance of a consistent supply of commodities from OBs, and increased knowledge of good agronomic practices and business management. The outgrower scheme has enabled smallholder farmers and OBs to increase access to inputs and guarantee markets. The combination of input supplier-sponsored, and actor-led demonstration fields have introduced new technologies and practices, leading to high adoption and higher yields. The creation of OB networks has allowed sustainability of the project's OB model by shifting implementation of key activities to the networks. Village Savings and Loans Associations Impact on Women's Empowerment VSLAs have far exceeded initial expectations that they would help increase input purchases. Women participating in VSLAs saved more, purchased more inputs, had higher yields and incomes, spent more on their children's education and family health, and were more likely to invest in alternative business activities than women in the same communities who did not participate. These changes have elevated women's status in the household and the community. In many cases, the increased

Evaluation Questions	Key Informants' Question	Summary of USAID's Response
		contribution of female VSLA members to the welfare of the household and community resulted in greater agency for those women. Provide Support for Wet and Dry Season Livelihoods The opportunity to carry out income generating activities throughout the year positively benefits women VSLA members' economic security. Providing support to women as they invest VSLA loans in dry season activities would help them generate more income beyond the resources they spend on their families' schooling, health care, and nutrition. This would also impact their productivity during the wet season. • Consider support to both on- and off-farm livelihoods since income from both is invested back into the farm and improves agricultural production. • Carry out market assessments in different zones to determine which on- and off-farm livelihoods demonstrate the best potential, as well as what type of support women entrepreneurs would require (e.g., technical assistance, market linkages, access to resources, etc.). • Recognize that older and younger women have different needs, interests, and capacities. Carry out separate market assessments for the two age groups to lead to more targeted interventions. • Explore opportunities to link women to public and private sector stakeholders that provide relevant support in identifying dry season income generating activities. • Provide women with training and tools to help them make informed decisions on where and how to invest their resources throughout the year. For example, young women who live close to a market may find that they are getting most of their income from aggregation and should channel their resources towards that rather than production. These trainings and tools should be designed around appropriate literacy and numeracy levels for both older and younger women. Input Dealer Businesses Expansion The project established sustained agricultural input networks to make inputs accessible to smallholder farmers through community promotions, OBs, FBOs, VSLAs, and open market access. This was due to collaboration between the project and the input companies on input promotions and appointing and supporting VAAs.

Evaluation Questions	Key Informants' Question	Summary of USAID's Response
		A 2019 study on input access expansion[4] clearly demonstrated that smallholder farmers' use and application of inputs according to good agronomic practices increases as the distance between the point of sale and the farmer is reduced. This is why the project promoted the expansion of VAAs who are located in communities. Most farmers now choose to purchase inputs from their VAAs. The results of project efforts to move input delivery closer to the farmer increased smallholder use of certified seeds and fertilizers by 50 percent. This contributed significantly to an increase in yields per hectare by 148 percent and of gross margins by 146 percent. Impact of FAW Pest Management One measure of a resilient market system is its ability to anticipate, withstand, and respond to shocks. Qualitative data suggest the project's collaboration with MOFA to support VAAs and SSPs in communities accelerated the delivery of messaging on how to manage FAW. VAAs in project-supported communities were able to supply appropriate pesticides to surrounding farmers more quickly than in communities without a VAA. OBs, who generally have more regular contact with MOFA agents, serve as a bridge between public initiatives to combat the pest and smallholders. Finally, SMS messages about how to respond to FAW infestations served to reduce the virtual space between information sources and smallholders, which was also effective in accelerating farmers' abilities to respond to the FAW crisis.

[4] ADVANCE II Input Dealer Sustainability Study, 2019

Table A7.2: Summary of ADVANCE II Staff's KII Response

Evaluation Questions	Key Informants' Question	Summary of Key Informants' Response
1. To what extent has the ADVANCE II Project achieved its intended goal and objectives as stated in the project results framework?	1.1. Has the project produced the desired results (outputs and outcomes), and/or met each of its three Intermediate Results and project goal of "Increased competitiveness of the maize, rice and soybean value chains in Ghana"?	Yes, to a very large extent. **131,493 s**mallholder farmers producing maize, soybean and rice consistently increased their yields for maize by 307 percent (from 1.38MT/Ha in 2013 to 5.62MT/Ha in 2019), soybean by 180 percent (from 0.9MT/Ha in 2013 to 2.49MT/ha in 2019 production seasons) and rice by 247% from 0.9MT/Ha in 2013 to 3.44MT/Ha in 2017. Rice was discontinued in 2017. Smallholder farmers increased access to markets and made additional sales of over $140M within the period. The project set up zonal OB networks with strengthened capacity for advocacy and activity implementation. The project strengthened the capacity of OBs, FBOs, local NGOs, Women leaders, VSLAs implement and successfully achieve project set goals and engage with key stakeholders such as MoFA, GCX, processors, buyers and traditional authorities to improve access to resources and influence decisions at the local level.
	1.2. Which of the project activities are the most and least effective at increasing the competitiveness of the focus value chains?	***Most Effective 1.***: Linking outgrower businesses to produce buyers who can sponsor outgrower schemes with inputs on credit and receive payback in kind (produce). ***Most Effective 2***: Making multiple channels available for access to agricultural inputs and services, including input promotion fairs for VSLAs, OB tractor services and inputs, buyer outgrower scheme, Safe Spray Services, input dealer expansion scheme. These multiple avenues ensured that both males and females obtained enhanced access to inputs and applied. ***Most Effective 3.*** Providing and training on use of improved technologies and business practices. **Least Effective 1:** Aspects of conservation agriculture such as hand dug planted basins, agro forestry and cover cropping for soil moisture conservation did not produce expected results. Although an effective technology, the economic viability is in doubt (high labor demand) and requires continuous use of land (to avoid high annual labor input) which is uncommon in Ghana. **Least Effective 2:** Access to loans from formal financial institutions(FIs) has been a great challenge because of high interest rates and stringent conditions.

		The project introduced the VSLA concept to provide a more competitive access to loans and investments.
	1.3. What challenges and opportunities have been identified in the course of project implementation that could have influenced achievement of outcomes and IRs reported?	Opportunities: 1. OB model: Business relationships developed through the model increased business transactions, expands business growth, strengthened VC actors' capacity to enhance competitiveness of the markets. 2. Buyer-sponsored outgrower schemes leading to increased investment by key buyers. 3. OB network set up for sustainability of the OB model 4. VSLAs supporting access to input and adoption of improved technologies and practices. 5. Willingness of key VC actors to work with women and youth have proven to increase inclusiveness in the market system and access to resources and services. Challenges: 1. Cedi/Dollar exchange rate variability affected GM reporting. The cedi depreciated by 104% from 2.66/$ in 2013 to 5.431/$ in 2019 production season. 2. Access to loans from formal FIs has been a great challenge because of high interest rates and stringent conditions.
	1.4. Have the results of the women and youth from the project implementation been different from their men counterparts?	Both female and male smallholder farmers increased their yields significantly since baseline. Average yields for female soybean smallholders have been at par with their male counterparts. However, female maize smallholder farmers obtained marginally lower yields. Both men and women had similar results in participation in input and output markets. However, women had higher percentage increase in adoption of technologies and management practices.
	1.5. What sustainable environmental and water management practice were introduced?	The project promoted soil and water conservation practices, including mulching with grass and crop residue, use of soil rippers, use of planted basins, cover cropping and agro-forestry, and drought resistant/tolerant varieties. The project promoted responsible use and disposal of agro chemicals

		The project conducted annual anti-bushfire campaign to reduce the effect of bushfire on soil degradation.
	1.6. Roughly what proportion of beneficiary farmers adopted sustainable practices	All project beneficiaries applied one or more improved technology(ies) and management practices that the project promoted. The technologies and practices include crop genetics, soil related technologies, pest management, cultural practices, climate mitigation and ICT.
2. What is the effect of the ADVANCE II project's out-grower business model on the productivity and profitability of the project's beneficiary stallholder farmers and out-grower businesses?	2.1. What is the level of productivity, profitability and incomes of beneficiary smallholder farmer? (ADVANCE II Partners)	Annual project surveys show that average smallholder gross margins per hectare of maize increased from US$278 in 2013 to US$781 in 2018, while gross margins per hectare of soybean increased from US$289 in 2013 to US$535 in 2018. Rice average GM increased by 255% from $255 in 2013 to $906 in 2017. During the same period, smallholder farmers obtained yield productivity increases of 307 percent (from 1.38MT/Ha in 2013 to 5.62MT/Ha in 2019), and 180 percent (from 0.9MT/Ha in 2013 to 2.49MT/ha in 2019 production seasons) for maize and soybean, respectively. Rice yields increased by 247% from 0.9MT/Ha in 2013 to 3.44MT/Ha in 2017.
	2.2. What is the level of profitability of the nucleus farmers and aggregators? (ADVANCE II Partners)	Generally, OBs are profitable, with good operating profit margins commensurate with the scale of business activity. Each business unit operated by OBs (i.e., output marketing of maize, rice, and soybeans, tractor service provision, input retailing, refinanced input, and shelling/threshing services) are also profitable. Based on a survey conducted by the project in 2019, the average operating gross margin per OB are as follows: output marketing (18 percent), tractor services (19.8 percent), input retailing (0.6 percent), and shelling/threshing services (33 percent).
	2.3 What factors drive the productivity and profitability of smallholder farmers and nucleus farmers? (ADVANCE II Partners)	1. Market linkage and access by smallholder farmers. With the exception of the year 2020, markets have been fairly stable and good for farmers. Even under stagnant prices, purchases were high 2. Access to quality inputs under credit schemes. 3. Adoption of good agronomic practices, improved technologies and business management practices.
	2.4. Were productivity and profitability of women and youth beneficiary farmer different from their men counterparts? (ADVANCE II Partners)	Both female and male smallholder farmers increased their yields significantly since baseline. Average yields for female soybean smallholders have been at par with their male counterparts. However, female maize smallholder farmers obtained marginally lower yields.

3. How has the ADVANCE II project collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?	3.1. Was there adequate knowledge sharing structures and processes to foster learning from other USAID projects to enhance activity implementation and increase competitiveness of the three target value chains?	Formal collaboration structures and processes were present, adequate and used. USAID hosted implementing partners meetings periodically. In 2014 COPs formed 'Collaborative Circle of COPs' (CCC) where the COPs and DCOPs meet monthly to discuss issues of mutual interest as a means of efficiently and effectively managing resources, reducing any chance of duplicating efforts, and reaching FTF program goals. Knowledge sharing mostly occurred at monthly meetings organized under the auspices of the Regional Coordinating Councils and chaired by Regional Director of MOFA and attended by representatives of USAID projects. There were other project specific learning and knowledge sharing events such as regional stakeholders' forums, fall armyworm national task force and monitoring and evaluation learning platform moderated by METSS Pre-season and pre harvest meeting organized annually. However more learning and knowledge sharing occurred informally. Project staff met and shared knowledge with staff of other USAID projects.
	3.2. Did the beneficiaries of ADVANCE II apply technologies developed and promoted by the Agricultural Technology Transfer Project?	The two projects collaborated to test and demonstrate farm mechanization equipment (soil rippers and no-till planters) to outgrower businesses. Outgrower businesses bought rippers thereafter. ADVANCE II collaborated with ATT, Catholic Relief Services and others to train local fabricators of multi-crop shellers, which are still purchased by ADVANCE beneficiaries. There was strong collaboration on seed technology and varieties. All the local seed varieties accessed by ADVANCE beneficiaries were produced and marketed with the support of ATT project. The two projects also jointly developed and published manuals/guides on maize, rice and soya production and post – harvest. ADVANCE and ATT cohosted annual pre-season event where beneficiaries of both projects engaged with input suppliers and purchased inputs.
	3.3. To what extent did the beneficiaries of the ADVANCE II project have their access to finance through linkages with the Financing Ghanaian Agricultural Project of USAID/Ghana?	In 2016, in collaboration with USAID's Financing Agriculture Project (FinGAP), ADVANCE renewed funding to GAIP to implement programs to increase farmers' access to crop insurance to reduce the impact of drought.

		One million dollars of the loans facilitated in 2016 was done in collaboration with the USAID-funded Financing Ghanaian Agriculture Project (FinGAP) for upgrading of a major soybean processing company.
	3.4. To what extent did collaboration between ADVANCE II and the Agricultural Policy Strategy Project drive efforts at providing enabling environment for competitiveness of the rice, maize and soybean value chains?	ADVANCE and APSP collaborated on capacity building of executives of farmer-based Organizations (FBOs) that were developed into Farmer-based Enterprises (FBEs). This activity supported the drive to promote farming as a business.
	3.5. What were the links between ADVANCE II project and USAID Resiliency in Northern Ghana project, and could those links contribute to competitiveness of the three target value chains?	The project collaborated with RING to share information on VSLAs on aa common electronic platform, known as SARVIX. This enhanced women empowerment and access to resources and avoided duplication of efforts and waste of resources.
		We collaborated with other donors including DFID, GIZ, WFP.
4. What are the prospects for sustainability of the results produced by the ADVANCE II Project?	4.1 How practical and effective was ADVANCE II strategy for sustaining any gains made towards increasing the competitiveness of maize, rice and soybean value chains?	ADVANCE II OB model promotes and relies on the value chain actors' business and community relationships and motivation to gain profits and expand business which promote value chain competitiveness and sustainability. The business linkages deliver tangible benefits which motivate them to sustain those relationships. ADVANCE II created the OB networks to foster collective action, strengthen capacity, develop business opportunities and undertake advocacy interventions.
	4.2. What is the degree of collaboration between ADVANCE, the Ministry of Agriculture and the Local Authorities to ensure ownership and sustainability of gains from the project?	MoFA was a collaborator in almost all productivity enhancing activities conducted by ADVANCE including field demonstrations and post-harvest training, FAW, nutrition. In the past two years this collaboration has extended to include OB networks. With the local authorities ADVANCE collaborated on anti-bush campaign, establishment of fire volunteers, protection of forest reserve areas, and access to fertile land for women.

	4.3. To what extent are resources and capacities at individual, organizational or sociopolitical levels available to ensure the continuation of results?	ADVANCE II OB model promotes and relies on the value chain actors' business and community relationships and motivation to gain profits and expand business which promote sustainability. The business linkages deliver tangible benefits which motivate them to sustain those relationships. ADVANCE II created the OB networks to foster collective action, strengthen capacity, develop business opportunities and undertake advocacy interventions in order to ensure continuation of project results. The project has also built capacities of local NGOs such as Sung Foundation, RAINS, YARO, Youth Harvest, Save Ghana, ACDEP, CREMA, NORTHCODE, Community Development Alliance and VSLAs to ensure continuation of interventions and results.
	4.4. What risks and potentials are emerging as a result of ADVANCE II implementation and what measure were taken to mitigate those risks?	Potential 1. The OB model supported by viable OB networks have the potential to accelerate agribusiness development in northern Ghana. This is because of viable business linkages and relationships that can be built and maintained through this system. Potential 2. The input credit system (outgrower schemes) including mechanization Risk 1: Project's promotion of input subsidy could prevent long term business planning and investment and create dependency.⇒ Project built VC actors capacity to develop strategic and business plans which addressed investment and resource gaps and also strengthened business relationships and linkages between value chain actors and buyers, FIs and key stakeholders to identify potential investments. Risk 2. By promoting specific hybrid seeds that are imported such as Pioneer and Pannar to increase yield and productivity, the project has created a possible dependency on global market. ⇒ Project will promote high performing local hybrid seeds in collaboration with NASTAG. Risk 3. Project's linkage to financial institutions and loans could have increased risk of loan default because of high interest rates. ⇒ Project built capacity of VC actors in repaying and promoted alternate sources of cheaper credit such as VSLAs. Risk 3. Promotion of safe spray providers has created a gender discrimination because project (USAID) does not encourage women to become sprayers. ⇒ Project explained the health risks for women.

5. What are the lessons learned and best practices, and from which stakeholders or beneficiaries?	5.1. What lessons were learnt from activity implementation by the various categories of stakeholders/ beneficiaries? (ADVANCE II Partners)	1. Outgrower businesses (OBs) have developed stronger business relationships with several value chain actors, positively impacting their agribusiness enterprises. 2. Outgrower schemes also led to an increase in profit levels, the quality of commodities sourced from OBs, the assurance of a consistent supply of commodities from OBs, and increased knowledge of good agronomic practices and business management. 3. Village savings and loans associations and other women empowerment efforts of the project (VSLAs) significantly improved smallholder farmers' investments and application of improved technologies leading to improved living conditions, especially for women VSLA participants, in child education, health and nutrition, and investment in alternative livelihoods ventures, increased women's resilience and decision making in rural households among others. 4. The project's efforts to empower women through leadership training and to improve their access to land for farming resulted in increased agricultural productivity in maize and soybean value chains by women, increased women's resilience in rural households and access to finance through participation in VSLAs, increased decision-making ability of women at the household level, increased adoption of agricultural technology by women, and increased female leadership 6. The innovation and investment catalyst fund, a grant program in which businesses and individuals accessed equipment such as tractors, planters, shellers, and rotavators, resulted in project participants making additional investments of GHS 1,969,685 ($437,708). 7. The creation of OB networks has allowed sustainability of the project OB model by shifting implementation of key activities to the networks .
	5.2. Which two practices, in your opinion contributed most to any good results achieved?	3. Establishment of trusted and strong business relationship between VC actors through the OB model has resulted in support more than 130,000 smallholder farmers and increasing yields by average of 307 % for maize, 180% for soybean and 247% for rice resulting in additional sales of more than $140 million. 2. The outgrower scheme has allowed to increase access to inputs and guarantee markets. The combination of input supplier sponsored, and actor led-demonstration fields have introduced new technologies and practices leading to high adoption and higher yields.

	5.3. Which of the best practices must be scaled up to continue increasing competitiveness of the three target value chains?	1. Expansion of buyer sponsored outgrower schemes 2. Strengthening business capacity of OB network to sustain the OB model, engage in collective activities, advocacy and members' activities.
	5.4. What, if any, unintended consequences can be attributed the ADVANCE II Project?	By trying to fill the gaps of access to finance through formal financial institutions, the project ended up pursuing activities with VSLAs, which has brought a lot of women into farming and increase household livelihood. Promotion of safe spray providers to support adoption of improved practices has unintentionally brought many youth into farming activities as they were attracted by the possibility of making money. Local maize hybrid seed varieties are now popular because ADVANCE promoted high performing imported maize hybrid seeds and made it affordable under the OB model input credit system.

Table A7.3: Consolidated Responses from USAID International Partners

	1.1 Given your knowledge of other initiatives in the maize, rice and soybean value chains, what would you say is the added value of the ADVANCE project?	• ADVANCE II provided a more comprehensive and complete approach to agricultural value chain development and enhancement through their Outgrower Business Model for value chain development. • A more comprehensive private sector approach to agricultural transformation. Example: Partnered private sector firms to invest in outgrower schemes; e.g., Agricare, Agrisolve, RMG and OBs • A model for inclusive (women, youth and smallholder farmers) agricultural transformation Example: Mainstreamed women and youth participation and access to production resources and markets; Scaled VSLAs and promoted access to input and adoption of improved tech. by introducing Safe Spray Providers(SSPs) that provide services to smallholder farmers who are mostly women	The market linkages created among smallholder maize, rice and farmers and downstream aggregators and buyers of maize, rice and soybean. ADVANCE developed a sustainable way of establishing the linkages through its Outgrower Business model that brought smallholder farmer closer to the downstream market – aggregators and small and medium scale enterprises and a few large-scale processors.	How the ADVANCE project seized the opportunity to leverage the skills, knowledge and resources of CABI in 1) the areas of the then emerging onslaught of the fall army worm problem which was devastating maize and rice farms in the country and 2) the capacity building and training in pest and disease diagnosis and management, of extension officers who were working with ADVANCE so that these officers would qualify as "plant doctors" who would better serve the farmers in their areas of influence. ADVANCE did not have to fund the training, but leveraged its wide presence in the major maize, rice and soybean production areas by linking the extension officers in its area of influence with the network of "plant doctors" organized and trained by CABI.	<u>Trade and Marketing</u> Major commodity buyers who hitherto preferred to import maize especially did establish that it was possible to develop supply chains with nucleus and smallholder farmers to produce good quality maize Farmers had access to new markets and buyers (especially the industrial processors) Farmers learnt the importance of produce good quality grain to meet buyer specifications <u>Policy and advocacy</u> MMDAs improved marketplace infrastructure Strengthened advocacy capacity of Farmer based organizations and trade associations	• The ADVANCE project worked extensively to support actors to supply products to formal buying institutions. This was limited to few aggregators prior to the project.	No enough information Actually we didn't have so much engagement with ADVANCE. An idea came up for NGGP to expand the CSO platform in agriculture to include private sector actors. So we engaged ADVANCE to roll the OBs onto the platform. • SEND GHANA-Northern Ghana Governance Project	• With soybeans, the ADAVCE II project contributed to expansion of production through the out-grower module or approach adopted; several small agribusinesses in Northern have replicated that module to continue to support smallholder farmers.	• Compared to other initiatives, the ADVANCE 2 Value Chain Approach was more comprehensive and the impact would be more sustainable.

		• A model for PPP in agricultural development in the country. Example: Partnership with MoFA in accessing planting for food and job(PFJ) resources			<u>Environment</u> Increased use by farmers of PPE Safer pesticide use by farmers No farmer re-using their empty containers for water/food storage Women and children discouraged from pesticide application Farmers linked to professional Spray Service Providers				
	1.2 Did the project tackle the main challenges facing the value chains and Ghana's agric sector?	YES in terms of the challenges of AVC. It also tackled most of the challenges of the agricultural sector as some of the challenges of the agricultural sector are beyond the project.	Things they did very well which are critical bottlenecks facing ag and the crop value chains • Linkages to the market through the Pre-harvest events. That was a flagship project of ADVANCE that brought together all stakeholders in the crop value chains to buy, sell, negotiate and display their wares. • Linkages to the mark the market • Linkages to agro inputs and mechanization services for	There were two areas relevant to CABI's work: the fall army worm invasion and it's spread to all the maize and rice production areas posed great danger to the livelihood of farmers as the pest continued to devastate farms throughout the maize and rice growing areas. ADVANCE II spearheaded the effort to get the pest under control through engagement with various institutions, including the Ministry of Food and Agriculture, to develop and implement a strategy for controlling the	Yes partly especially supply and market linkages	Some of the challenges were tackled especially on the side of contractual arrangements with institutions but the challenges with productivity and post-harvest losses still persist.	No enough information	The approach to address access to markets which is crucial in the ag sector in Ghana but understandably that still remains especially for the ADVANCE target crops; soybeans, rice and maize in that order	The project tackled agricultural productivity, market access and trade, and enabling environment. These were major challenges in the agric sector

			smallholder farmer • Some level of technology transfer through the establishment of demonstration farms. Training on GAPS	pest. The second area was associated with the effective provision of extension services to smallholder farmers, especially in the area of pests and diseases management. The ADVANCE II project collaborated with CABI to build the capacity of a network of extension service personnel to diagnose pests and disease for them to assist farmers in major districts where the ADVANCE II project was being implemented.					
	1.3 How would you rate the project in improving competiveness of maze, rice and soybean value chains and promoting access to markets and trade and building local capacity for implementation?	80%. Rice industry had challenges. Local capacity had some adoption challenges	From A to D I will say: • Linkages to Markets: B+ through pre-harvest events. All the value chain participants endeavor to attend • Linkages among value chain participants and value chain support-institutions through pre-harvest events: A These are competitiveness components which ADVANCE was promoting and implementing.	Cannot speak to that	Very Good	There has been significant success in some of the interventions (promoting access to markets and trade, enhancing local capacity) Others as indicated above still lacking	No enough information	• On the scale of 1-10; I will rate ADVANCE efforts towards improving competitiveness and access to markets for rice, maize and soybeans as 4. On improving local capacity for implementation, I will rate ADVANCE 7 on the scale of 1 to 10.	I would rate the project as excellent in achieving its stated objectives especially in building local capacity for implementation

			Linkage of farmers to supply of various equipment, for increasing the efficiency and productivity of the maize, rice and soybean farmers being assisted by the project. Rice mills to meet quality specs. Not so strong since the farmer needed other inputs for upgrading agro-inputs, service providers, markets and others were brought together annually They did very well in achieving success in improving the factors that increased competitiveness through the pre-harvest platform						
	2.1 How has the ADVANCE II project collaborated with other relevant USAID projects, GOG agencies and/ or other donor programs, and the private sector to increase the	• The project collaborated very effectively with government, private sector and other projects. • Private sector approach already required that the project works with private sector as direct or indirect	ADVANCE collaborated with USAID FINGAP to enhance activities of the Ghana Agricultural Insurance Pool (GAIP) in supporting farmers to assess agricultural	The Fall Armyworm (FAW), or *Spodoptera frugiperda*, was first identified in West Africa in January 2016. From mid-2016, the FAW infested several maize and rice farms in Ghana and negatively impacted agricultural production in all the	USAID APSP: Train farmer-based organizations to understand national agricultural policies e.g. especially FASDEP USAID FINGAP: Mobilizing finance from	The project collaborated with other USAID projects such as ATT to organized Pre-season and Pre harvest events in northern Ghana. These annual events have become	• No enough information	• To me, that is the key success story of the ADVANCE project. Excellent collaboration with USAID IPs especially ATT, RING and FinGAP. ADVANCE had great successes engaging private sector – out-	The partners including Technoserve, ACDEP and PAB a Management Steering Committee. They had scheduled meetings for briefing by the COP to review progress. Partners

	competitiveness of the maize, rice and soybean value chains in Ghana?	beneficiaries or partners • Collaborated with government in the area of policy (e.g. seed) and technical delivery (training o farmers and SSPs, training of government agents in and joint action on FAW; demo farms, • Linked with the outputs of other projects working in the VCs (e.g. AGRA, FINGAP, ATT, Policy Project	insurance. FINGAP and ADVANCE assisted GAIP to set up offices in the Northern, Upper East and Upper west regions of Ghana, at a time when GAIP did not have offices in any of these three regions where a lot of the smallholder farmers in the USAID's priority areas where USAID's ADVANCE project was being implemented. This collaboration enhanced the activities of GAIP as they got a lot of new clients buying crop insurance in the three regions. • FINGAP and other USAID projects leaders, including those of ADVANCE II established the Collaborative Circle of Chiefs of Party (CCC) which met regularly to discuss and take decisions of the best ways for	production areas. USAID's ADVANCE project collaborated successfully with the Ministry of Food and Agriculture (MoFA), Food and Agriculture Organization (FAO), Centre for Agriculture and Bioscience International (CABI), Farm Radio International (FRI) and other stakeholders through the established National Fall Armyworm Taskforce. Through this collaboration, the project adopted a mitigation plan to the FAW which included: 1) Collaboration with FAW national taskforce, 3) Education and awareness creation through field training, use of radio, posters, and call centers, 4) Field observations and pesticide observation plots' set up, 5) Field monitoring using pheromone traps (a type of insect trap that uses a secreted or excreted chemical factor that triggers a social response in members of the same species) and standard field tracking and 6) Pest management using safe spray	impact investors for large enterprises Ghana Standards Authority: Development and dissemination of maize, rice and soybean standards to value chain actors Environmental Protection Agency: Safe disposal of used agrochemical containers MMDAs: Development of agricultural investment profiles for some districts in Northern Ghana; Environmental issues USAID ATT: Collaborated to organize annual Pre-season and Pre-harvest events • MOFA: Provided inputs into the development of the Planting for Foods and Jobs (PFJ) programme	the biggest events for agricultural value chain actors and support institutions, in northern Ghana. • Other collaborations included setting up of joint demonstration plots, supporting grantees of other projects but avoiding double dipping.		grower businesses and input service providers, processors and buyers. The Pre-Harvest and Pre-Season events that got transitioned to private sector and GOG is an excellent story of ADVANCE. That is an example of development intervention that never ends…..	also participated in annual implementation plans. •

			them to complement each other's work in the regions. For instance, some of the members of the group were the Agricultural Technology Transfer (ATT) Project that was engaged in technology transfer, the Agricultural Policy Support Project (APSP) that was involved in agricultural policy development and advocacy, ADVANCE that was engaged in the maize, rice and soybean value chain development and the Financing Ghana's Agriculture Project (FINGAP) that was engaged in promoting financial deals for small, medium and large scale agri-business clients in the agricultural sector. Discussion and action items were focused on how to work together to complement	service providers (SSSPs) and low toxicity pesticide which are pesticide evaluation report and safer use action plan (PERSUAP) compliance. The collaboration was a good investment because it came at a time when the government effort, at the early stages, was not too coherent and MoFA did not have the resources to monitor the evolution of the pest. The extension workers were brought in to learn about control of the fall army worm and enabled them to do their work better. It was through the collaboration that ADANCE gained access to the CABI's national network of "plant doctors" in the fall army worm fight. Also, CABI engaged in the training of ADVANCE's area-of-operation extension officers in basic pest control principles to be able to diagnose pests and diseases of crops and were also provided with training manuals and materials. These extension officers were engaged in training					

			and add value to each project's activities. To this end, there were sub-committees formed and operated under the CCC such as the implementing partners' grants leadership and which met under the umbrella CCC to coordinate the issues related to the grants management. There were also sub-committees on finance and another one on project administration which met under the umbrella of the CCC to deliberate on common issues and strategies to make them work more effectively and efficiently since they were all funded by the same donor, USAID.	ADVANCE'S aggregators, who in turn were involved in training their outgrowers in the control of all pests and diseases affecting the major crops being grown by smallholder farmers.					
	2.2 As a partner, what was your role in the ADVANCE project?	• ACDEP was part of the technical team with other partners (PAB Consult) for the agronomic improvement, business development, Farmer Organizations' Capacity building,	• FINGAP was a facilitator of financing of agri-businesses for them to benefit from the upstream value chain actors who were producers	CABI collaborated with ADVANCE in the design and implementation of the Fall Army Worm (FAW) control strategies and activities to stem the tide of the sudden	• Trade and marketing (market access for farmers, building supply chains of buyers, building capacity of trade associations,	• Collaboration to organize joint activities such as?. Since 2016, USAID's ADVANCE project has partnered with the Soybean	• As a partner, the Northern Ghana Governance Project engaged ADVANCE to explore	• USAID RING project collaborated with ADVANCE and shared best practices on implementation of savings groups' intervention to	PAB was in charge of recruiting the Agricultural Production Officers (APOs). The APOs were experienced agronomist or agricultural

		VSLAs, Gender and Environment activities • ACDEP, being a team member of implementing partners of ADVANCE II, was engaged in implementation reviews, planning and financial and narrative reporting.	of products needed for processing by these agri-businesses. For example, FINGAP assisted Agricare, a producer of animal feed which was at the verge of collapsing, to access funds which enabled the company to revive and expand its operations. The revival and expansion of their operations provided the opportunity for USAID's ADVANCE II to link upstream maize and soybean producers to supply their produce to Agricare for their animal feed production operations. FINGAP also facilitated financing for Vester Oil Mills Ltd to expand its downstream operations including further value addition in producing refined vegetable oil. This meant that	FAW invasion which was devastating the maize and rice crops, which were two of the three core value chain crops of the ADVANCE II project, on one hand, and the training of a network of extension officers in pests and diseases diagnostics to become part of the network of "plant doctors" working with smallholder farmers at the grassroots level.	access to finance) • Policy and advocacy (building advocacy of farmer based organizations and trade associations to undertake community/regional level advocacy, collaborating with USAID APSP project on national level advocacy issues) • Capacity building of farmer based organizations to function as "cooperatives" • Environmental Specialist • Geographic Information Systems (GIS) Specialist	Innovation Lab (SIL) of the University of Illinois, Catholic Relief Service (CRS) and the USAID funded Agriculture Technology Transfer (ATT) project to jointly train local fabricators to manufacture threshers.	the possibility of adding the ADVANCE OBs to the NR CSOs in Agriculture platform. Subsequently ADVANCE provided the list of its OBs in NGGP project districts who were brought on to the CSOs in agriculture sector as Private Sector Actors. Hence the platform was expanded to ensure collective voice to influence policy in the agriculture sector.	provide access to stallholder farmers • ADVANCE project also shared experiences on soybean production technologies and facilitated linkage of the seed service providers ADVANCE supported to the RING project.	economist. Such APOs became PAB staff under PAB management. The APOs executed the field activities of ADVANCE 2 under the supervision of Senior ADVANCE Technical Staff •

			Vester got the capacity to buy more soybeans from ADVANCE-assisted farmers. The improved business and demand capacity led to an expansion of the soybean market for the smallholder farmers involved in the Outgrower Business Model scheme. So it was a win-win situation for both the processor and producers.						
	3.1 What would you say are the most lasting change or changes that have happened as a result of the ADVANCE project?	Increased profitability of the maize, rice and soybean value chains, and increased incomes to all the actors through adopting the best practices – as well as technical, management processes and investments. The established structure of the Outgrower Business (OB) networks to ensure continuous business engagement and advocacy by all participants in the maize, rice and soybean value chains Increased adoption of productivity improvement technologies and practices.	The Pre-Harvest Platform that was established by ADVANCE II to bring all participants and support institutions in the crop value chains together every year to reconnect, plan, buy and sell products. Enhancement of the Nucleus/outgrower scheme through the Outgrower Business Model (OBM) that created linkages among producers, buyers, suppliers and various value	The collaboration started late in the project and so it was difficult to assess its impacts, but in an evaluation of the impact of the FAW on productivity of maize and rice, we observed that it was quite successful. Refer to the FAW study by Proven Ag Solutions. Impact of FAW Pest Management One measure of a resilient market system is its ability to anticipate, withstand, and respond to shocks. Qualitative data suggest the project's collaboration with MOFA to support	Establishment of trading relationships between farmers and industrial buyers Proved the business case that buyers and farmers could enter into mutually beneficial outgrower contracts Famers appreciate the need to produce to the quality standards of the buyer Formation of community-based fertilizer anti-	The strengthening of Outgrower Businesses (OBs) and creation of OB Network (nascent though). What the network is, its function and its importance in sustaining the work of USAID's ADVANCE II project. Grant support to private sector actors to acquire needed equipment and which improved productivity and competitiveness of the maize, rice		The bringing of all the key players in the ag sector in Ghana to one platform every year to share, network and make business deals – the pre-season and pre-harvest events.	Linkages have been established among the Value Chain Actors Participant farmers can measure their farm sizes Farmers can use gross margin to access their profits Farmers know the importance of business plans Improved agronomic practices adopted - Improved seeds, line planning, planting distance, recommended input levels etc. Institutional strengthening – PAB field officers acquired considerable

		A strengthened input (seed, agro-chemicals, Spraying Service Providers) and output supply (farmers, aggregators, off-takers) chains Strengthened agricultural service industry (mechanization, spraying service providers, private agricultural advisory service) Network of SSPs for capacity building, business and advocacy and linked to PPRSD Established inclusive agricultural transformation model (women, youth and SHs). This has ensured that nearly 50% of SHFs that received assistance from the project were women The Pre-season and Pre-harvest agri-business events, sponsored by ADVANCE II, that was opened to and which brought all participants in the maize, rice and soybean value chains have now been taken over by the private sector Current limitations to expansion of the outcomes of the project are: limited access to and high cost of investment credit and the capacity of the	chain support institutions The pre-season event led by ATT (access to agro-inputs and funds for farming operation) and ADVANCE was leading the pre-harvest which is an assembly of all VC participants	VAAs and SSPs in communities accelerated the delivery of messaging on how to manage FAW. VAAs in project-supported communities were able to supply appropriate pesticides to surrounding farmers more quickly than in communities without a VAA. OBs, who generally have more regular contact with MOFA agents, serve as a bridge between public initiatives to combat the pest and smallholders. Finally, SMS messages about how to respond to FAW infestations served to reduce the virtual space between information sources and smallholders, which was also effective in accelerating farmers' abilities to respond to the FAW crisis.	smuggling task forces Moagduri Wuntamluri Kouwamsaasi (Mamprugu Moagduri District), Builsa Yenning (Builsa South District), Chakali Sumaalu (Wa East District) and Kunlog (Sawla/Tuna/Kalba District) CREMAs passed CREMA bye laws. Improved market facilities are still in use MMDAs appreciate the need to engage with traders in fee fixing	and soybean value chains. Facilitating structured markets for aggregators			experience. PAB become USAID Project Compliant i.e. PAB standards were raised to conform to USAID Project Regulations.

		Savannah Agricultural Research Institute (SARI) to produce sufficient breeder and foundation seed for seed growers to satisfy the demand for improved seed by farmers.							
	4.1 What lessons were learnt from activity implementation by your institution	• Private sector led inclusive value chain development is a key requirement for sustainable agricultural transformation. • Successful crop value chain enhancement requires the design and implementation of comprehensive and inclusive interventions targeting all actors and service providers/support institutions in the value chain. • In the Ghanaian context, where agricultural financing is limited and interest rates too high, grants are an important stimulus for agricultural transformation • Private extension services (OB agents provide advisory services and training to outgrowers • Potential, limitations and challenges of FO model for VC development	• Financing businesses is not all that people need but they also needed raw material for processing and which ADVANCE facilitated for the business (Agricare and Vester Oil Mills Ltd., examples above). • Collaboration among USAID implementing partners, such as what was achieved through the CCC, enhances the overall efficiency and effectiveness of agri-business development across the efforts by donor agencies in enhancement of agricultural transformation in Ghana.	The lateness of the collaboration affected the early expected contribution to the control of pests and diseases • If it had happened earlier in the project, one would has seen a greater impact as a result of the efforts of the people trained by CABI	• See attached	• Flexibility on the part of donors for implementers to review targets, approaches and interventions based on field realities ensures that project activities are in tandem with local needs resulted in meeting the felt needs of the crop value chain participants. • Strengthening partnerships among key stakeholders and capacity building in critical areas are pre-requisites for sustaining the momentum gained by the project. • Deepening initiative on a sector ensure maximum impact. The challenge of spreading effort	• Leveraging on other projects provides an effective way for integration. For instance, instead of looking out for PSAs to bring on board the CSO platform, we just engaged ADVANCE who already have PSAs as their OBs.	•	• The lessons learnt include personnel management and the USAID project accounting systems

						thinly in order to meeting all project targets mostly affects quality of output and impact. • Successful technology adoption requires stakeholders to approach agriculture as a business, increasing revenues while decreasing expenditures (especially labor costs). It also requires capital – debt lending that can be serviced within the margins realized by increasing in yields and gross revenues on returns of investment in the new technology.			
4.2 What other impacts or side effects (positive or negative) did ADVANCE have on the wider community?	• Wider adoption of best agronomic practices by Smallholder Farmers (SHFs) • Important role of women in agriculture and the need to target and empower them • The importance of farming as a business enterprise and not	• Food security and enhanced livelihoods as a result of improvement in the efficiency of the crop value chains which led to higher productivity, access to markets in increased	They generated a lot of data from the monitoring of the FAW by ADVANCE and the plant doctors. These data were broadly shared and became part of the pool of data and information available use by participants in the crop value chains.	• See attached	- Developing sustainable businesses. • Sometimes efforts are thinly spread and this dilutes impacts. It is sometimes difficult to feel impacts after end of projects		• The out-grower module introduced by ADVANCE expanded widely in the Northern Ghana which enable several farmers reached with farm business services.	• To the extent that ADVANCE 2 adopted the value chain approach and adopted the improved technologies, the wider community reaped a sustainable increase in productivity and

		"tractorization" i.e. not only providing tractor services • A importance of a win-win relationship between Out-growers businesses and SHFs • The need for Out-growers Businesses and Input dealers to provide comprehensive services to farmers • Use of VSLA's as a business investment fund mobilization to support business growth	incomes of the smallholder farmers who form the majority of the wider communities in which they live.	• The extent to which the farmers benefited is dependent on what the trained folks were able provide to those in need of the information		as many activities just scratch surfaces.			enhanced the relationship among the value chain actors.

Table A7.4: Consolidated Responses from Private Sector I

	What was your expectations in terms of results from participation in the ADVANCE II project?		Expecting linkages for financial assistance, markets and input dealers, as well as Capacity building					Capacity building for business management and financial assistance.
	Were your expectations met?		To some extent		Costing of providing financial assistance to smallholders tend to be high. But support through farmer groups was more encouraging.		Yes, very satisfied since working as a network empowered them to negotiate better prices.	To a large extent. Did not benefit from the grant facility but now has direct links to farmer groups and, thus, can buy in larger quantities from the communities (increased efficiency – sourcing and transport)
	3.2. Did the Project result in increasing competitiveness of the maize, rice and soybean value chains in Ghana?	To the extent that some quality feed inputs (maize and soybean) could be sourced locally to reduce cost of production, there was some progress towards competiveness. Maize constitute 60% of livestock feed	To a large extent but there is room for improvement.		Was only there to provide funding support to farmers especially smallholders but interaction with farmers showed that their output increased 10-20 %. Improved living conditions but no evidence of growth in savings. Unfortunately some farmers did not make enough income to enable them to save. Always falling on to credit each farming season.	Farmers' capacities were built to increased productivity, Evidence of increased sales and increased demand for credit to expand trade by outgrowers. Unfortunately the evidence at the bank did not show increases in value of savings. Increased incomes were channels into improving household living standards e.g., better education for children and housing. Thus dependence on credit has become the norm. Farmers have attested to	Affirmative.	Quality of soybean still not as good as the imported bean. Witnessed increased volumes and values of trade. Need for improvement in the quality though.

						increased ability to educate their children		
	3.3. Which of the project activities are the most and least effective at increasing the competitiveness of the focus value chains?	They were complementary so cannot single out any.	All were very useful, difficult to say which was most beneficial. We needed all the support ADVANCE II provided	Momo for savings and transactions. MTN bulk payment access platform enhanced trade among actors of the value chain.	The concept of mandatory savings by members of farmer groups ensured that some had adequate cash to inputs for the next farming season. Groups also provided guarantees for loans to members.	Capacity building for farmers to operate farming activities as businesses ensured increased production and was the foundation for accessing other interventions for marketing and a other upstream activities.	Least effective: • Spraying gang for army fall-worm. Few sprayers and couldn't meet demand. Most Effective: • Working in groups empowered for better negotiations in transaction and for mobilizing resources. VSLA – weekly group contribution provided a pool of funds that was used for purchasing input during the next farming season.	Linkages created between farmers and processors/aggregators
	3.4. What challenges and opportunities have been identified in the course of project implementation that could have affect achievement of outcomes and IRs reported?	Introduction of farmers to insurance scheme offered a positive opportunity for farmers. However, some farmers complained of a lack of transparency. Some farmers who had participated in the scheme did not benefit from the scheme as expected, at the time they made claims following disaster from army	Could not blame the project but access to finance was always a problem for some farmers.	Group platform vulnerable to new entrants who are not familiar with the rules that governed the Bulk payment access platform. Members' disclosure of password placed others at	Had expected ADVANCE assistance for monitoring farmers' activities to ensure repayments of credit extended to them buy it didn't happen. Operational cost (mostly travel related) for supporting smallholders in the north was relatively high and therefore, served as a disincentive. Sometimes had to assist farmer to	Relatively interest rates deter businesses from taking up loans without some cushioning support.	Opportunity: Matching Grant for the purchase of equipment offered opportunity for nucleus farmers to expand production and trade while improving smallholder's access to the equipment. Challenges: Some group members did not get feedback on their grant applications. Not knowing the reason for their failure to secure the grant did	

		fall-worms. The links with transporters need to be revisited. Africare bears all the cost of transport. Thus proximity and farm size was an important criteria for selection of outgrowers from whom maize and soybean was obtained. Long distances tend to be costly and problematic. Farmers do not always follow the production protocols, leading to lower yields and default in meeting contracts. Farmers limited orientation to businesslike operations often lead to defaulting on contracts. When the market price exceed the contract price, farmers divert their output for sale on the open market. Delays in the supply of farmers' inputs to OBs have adverse implication for farm productivity.		risk of being defrauded.	market their produce in order to ensure repayments of funding facility extended to them. This was an added responsibility that came with additional cost.		not help in making any corrections to ensure future success in securing a grant.	

	3.5. What processes did ADVANCE use to deliver its intervention? Were the processes helpful in meeting your expectations and on time? Did it result in any additional cost to you?	Benefited from training at no cost. Facilitating links between farmers/aggregators and processors, assisting in the negotiations and preparation of contracts. Linkages for marketing output (livestock feed). These interventions were very helpful. There was also pool insurance take in the name of Agricare and managed by ADVANCE but that was not satisfactorily managed.	Training and introduction to farmer groups and input dealers.	Facilitated links between MTN and farmers		Sinappa Aba partnered ADVANCE II to build capacity of smallholders for increased productivity.	Facilitation of linkages among value chain actor promotes a win-win situation for all. Small holders had better access to inputs, better knowledge about improved production, harvesting and storage practices and ready market for their produce, while input dealers had direct access to the users (in groups) for bulk purchases, and aggregators had direct access to farmers with quality produce.	
	3.6. How successful was ADVANCE II in promoting sustainable farming practices?		To a reasonable extent. But there were some recalcitrant farmers who did not hid to the advice given, for various reasons, including inability to afford complementary inputs.				Not all the farmers were able to meet the requirements of sustainable production practices. Tended to have implication of increased cost.	Significant awareness was created by the project but partially practiced.
	3.7. Did men, women and the youth benefited from the project implementation equally in terms of a) support received; and b) profitability?	Only 5% of the aggregators Agricare worked with were women		More men used the facility but women participants received equal attention	38% of beneficiaries of the loan facility were women, (men, 62%). Women tend to be more risk-averse and had better repayment rate		Traditionally, men dominated maize and rice production which had better returns per land size. Thus more men benefited from the project than the women. But the project encouraged women groups to	Trading is still dominated by men who negotiate on behalf of their women.

							produce maize in particular, providing them support that empowered them to effectively integrate into the value chain. Women tend to be more productive mostly because they managed smaller plots.	
	3.8. What factors drive the productivity and profitability of smallholder farmers and nucleus farmers? (ADVANCE II Partners)					Training in GAP and postharvest management. The knowledge of ready market is also a motivating factor	Ready market leading to reduction in postharvest losses.	
	3.9. How does the smallholder farmers perceive the market relationship with the outgrower businesses) and their ability to independently determine prices of their produce?		OBs are gaining the trust of smallholders but smallholder must work on gaining the trust of OBs.				Transparent transactions, and sometimes assisted by group leaders.	Satisfied with direct sales to processor and not through aggregators
	3.10. What mechanism, under the out-grower business model, did the project implement to increase the participation of the private sector in the promoted value chains?			Facilitation of linkages		Facilitation of linkages among all actors of the target value chains		Linkages among actors of the value chain.

	4.1. Was there adequate knowledge sharing structures and processes to foster learning from other USAID projects to enhance activity implementation and increase competitiveness of the three target value chains?					Some knowledge sharing through interactions at the pre-season events	Collaboration with GIZ Green Innovation, ATTP Methodist University for Soybean demos.	Through the AMPLIFIES project soybean farmer received training and assistance for improved postharvest management, and linkage to poultry farmers
	2.2. Did the beneficiaries of ADVANCE II apply technologies developed and promoted by the Agricultural Technology Transfer Project?		ATTP provided TA for the application conservation agriculture, use of reapers and breakers.					
	2.3. To what extent did the beneficiaries of the ADVANCE II project have their access to finance through linkages with the Financing Ghanaian Agricultural Project of USAID/Ghana?	FinGAP played a key role in getting INTEGRO Agric Venture Capital Limited to purchase ADB's shares and became the majority shares. This brought in some financial relief in 2015.	Network Linked to FinGAP. Obtained matching grant for some nucleus farmers		Demand exceeded supply because of the cost of doing business with smallholders.		FINGAP – Sinappi Aba link	Interaction with FINGAP led to accessing equity funding via Cynergy Capital.
	2.4. To what extent did collaboration between ADVANCE II and the Agricultural Policy Strategy Project drive efforts at providing enabling environment for competitiveness of the rice, maize and soybean value chains?							

	2.5 What were the links between ADVANCE II project and USAID Resiliency in Northern Ghana project, and could those links contribute to competitiveness of the three target value chains?						None	
	2.6. To what extent has ADVANCE II project collaborated with other donor programs and private sector firms to achieve the overall USAID/Ghana's Development Objective of fostering broad-based, sustained, and inclusive economic growth in Ghana?							
	2.7. What other impacts or side effects (positive or negative) did ADVANCE have on private sector partners and the wider community?							
	3.1. How practical and effective was ADVANCE II strategy for sustaining any gains made towards increasing the competitiveness of maize, rice and soybean value chains?	Creation of OB networks is a laudable strategy for sustaining gains made from implementation of ADVANCE II.	The OB networks were to take-over the capacity building role of ADVANCE II and ensure that gains were sustained. It was a good intention but OB networks were not adequately resourced to cover such cost associated with travels to		Creation of OB Networks was a good strategy for sustainability. But OB Networks were mostly in the Northern Regions, thus, farmers in the southern maize belt did not receive similar support which present a		The knowledge acquired will always be used.	The relationships the project facilitated is likely to continue for a long time and sustain gains to beneficiary farmers.

			smallholder communities. Thus assistance to farmers may not be timely.		threat to sustaining gains made through the project interventions.			
	5.2. What is the degree of collaboration between ADVANCE, the Ministry of Agriculture and the Local Authorities to ensure ownership and sustainability of gains from the project?	Funded the participation of GoG extension agents in pre-season events in an effort to engender continuity of their role as facilitators of ag. Value chain development.	Links to NBSSI facilitated the process and negotiations for for equipment such as shellers and tricycles.				Limited involvement of the GoG institutions	
	5.3. To what extent are resources and capacities at individual, organizational or sociopolitical levels available to ensure the continuation of results?					In so far as farmers continue to approach the financial institution for loans, it can be said that the gains will be sustained. Besides the FI has a programmed to support women farmers in particular. Nucleus farmers who received matching grant for equipment will continue to provide ploughing services to smallholder, especially as their capacities have been built to manage	In spite of the benefits derived from the formation of the OB networks, they are not adequately resourced to meet the travel cost involved in providing training and TA to smallholders in their communities. This has some adverse implications for sustainability.	

						their businesses better.		
	5.4. What risks and potentials are emerging as a result of ADVANCE II implementation and what measures were taken to mitigate any risks?						Interventions through some actors of the value chain were not clearly defined. Sometime there were disparities between information provided by ADVANCE II staff and the of the OB businesses, e.g., Agricare, regarding informing on ag. Insurance.	
	4.1. What lessons were learnt from activity implementation by the various categories of stakeholders/ beneficiaries? (ADVANCE II Partners)							Farmers are not using tapolins as taught through the project.
	4.2. Which two practices, in your opinion contributed most to the any good results achieved?	Linkages to input sources and market for output. Capacity building was good but that for the adoption of a business approach need to be intensified. (Changing the mindset of farmers remains a challenge)						Facilitation of linkages

	4.3. Which of the best practices must be scaled up to continue increasing the competitiveness of the three target value chains?		They were all good and complementary.					
	4.4. What, if any, unintended consequences can be attributed to the ADVANCE II Project?			Farmers access to souvenirs from MTN inspired some farmers to use the money transfer facility				Processors direct access to smallholder and not through aggregators. Links to poultry farmers in Dorma have led to opening an outlet on the District.
			• Investment in warehouses for networks • With high interest rates, some revolving funds will be helpful. • Increased access to small farm implements that are affordable to smallholders could help reduce the drudgery associated with increased farm sizes. Farm sizes are too small to eliminate poverty even when productive capacity is enhanced. With small sizes farmed, revenues are not enough to sustain households and have excess savings to		• ADVANCE should consider some risk-sharing arrangement to ensure that funding institutions do not incur the total cost of non-repayments. • Introduction of a revolving fund. • Need to extend support to farmers in the south.		• Involve local GoG institutions for expanded coverage and sustainability. • Increased coverage for a grant to include small shellers. • Consistency of information on interventions. • Facilitate a process for ensuring the financial sustainability of Networks.	

			purchase inputs for the next season without credit.					

Table A7.5: Consolidated Responses from Private Sector II

Evaluation Questions	Key Informants' Question	Summary of Key Informants' Response	
		Sahel Grains	RMG
1. To what extent has the ADVANCE II Project achieved its intended goal and objectives as stated in the project results framework?	1.1. Given your knowledge of other initiatives in the maize, rice and soybean value chains, what would you say is the added value of the ADVANCE project?	▪ Maize, specifically ▪ We worked with them during ADVANCE I in the Techiman area and in ADVANCE II they focused on SADA Zone ▪ Sahel Grains had a different engagement activity with USAID but collaborated also with ADVANCE II ▪ ADVANCE II introduced the nucleus farmers model; which is essential but not exhaustive ▪ Aggregation work is cumbersome. ADAVANCE helped to connect OBs to aggregators (traders etc)	▪ Yes; the project demonstrated the use of improved seeds - There was increased adoption of improved seeds - warehouse support etc.
	1.2. Did the project tackle the main challenges facing the value chains and Ghana's agric sector?		▪ Yes; the project tackled productivity issues, timely access to inputs for enhanced production
	1.3. What was the project's main method of delivery? How has it contributed to the desired results and at what cost were they achieved?	▪ ADVANCE connected Sahel Grains to OBs and facilitated our dealings with them	▪ Input support and demonstration to out-grower businesses

	1.4. How would you rate the project in improving the competitiveness of the maize, rice, and soybean value chains and promoting access to markets and trade and building local capacity for implementation?	▪ ADVANCE was more important to me than MOFA ▪ The project helped to connect beneficiaries to input dealers and enhanced market access ▪ Advance II was able to confront Fall Armyworm better than MOFA	▪ 65-70%. The project had its challenges - Too much cost on administrative and other operations on the ground - Could have reached 3 to 4 times more farmers - More demonstrations would have aided the adoption - Compared to others, ADVANCE did better
2. How has the ADVANCE II project collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?	2.1. How has the ADVANCE II project collaborated with other relevant USAID projects, GOG agencies and/ or other donor programs, and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?	▪ Specifically, to fall worms- ADVANCE was everywhere. ▪ Sahel Grains' strong relationship with OB/nucleus farmers was enhanced ▪ Focus on future investments: -OB's provide an important mediation between investors and smallholder farmers	▪ Yes, ADVANCE provided finance for Ghana Grains Council (GGC), Agricare, Premium Foods, Agrisol ▪ These were sub-contracted
	2.2. As a partner, what was your role in the ADVANCE project?	▪ Sahel Grains supplied scales, tractors, etc. to OBs	▪ The input supply and demonstrating the use of the inputs for improved adoption. ▪ RMG reached more farmers through this partnership
	2.3. How did your company/firm participate in the outgrower business model?		

	2.4. Will you recommend the OB model to other ag- projects? (explain) Yes=1 No=2	▪ Yes. I'll recommend the model. But applicability to other crops would have to be very much thought through ▪ The farming systems are fragmented and therefore one cannot go outside the OB model. ▪ It is fine with maize but its applicability to other crops has to be studied carefully.	▪ Yes. I will recommend the OB model with an improvement. ▪ Finance inputs and demonstration for OBs ▪ Margins are limited even when partners put in more in terms of research and development (R&D) ▪ Demonstration for farmers to accept is a high cost
	2.5. As a partner beneficiary, what support have you received from the ADVANCE project?	▪ ADVANCE did introductory work to connect Sahel Grain to Nestle (to supply grain to produce Cerelac) ▪ Sahel grain is now exporting to Europe with the introduction of Advance II	▪ Indirectly, we reached more farmers at a lower cost than we would have under our normal operations
	2.6. Was the support you received properly delivered effectively to your satisfaction? Yes/No Please give reasons for your response	▪ Yes. ADVANCE helped	▪
	2.7. Have there been any challenges working with ACDIVOCA and any of its partners on ADVANCE? Yes/No If so, what, and how did they impact how you benefitted from ADVANCE? What was done to address those challenges?	The cash cycle was too long and affecting production	▪ No contract was signed. ▪ The bureaucracy and time lag with proposal approval. We had no problems though ▪ We were not going to wait for them before we do our business ▪ A certain direction to satisfy their financiers
	2.8. Do you think there are any lessons to be learned from this project about successful partnership work? Yes/No What might these be?	▪ Could have done better with improving the economic independence of OBs; should have tractors etc. ▪ The cash cycle too long so returns	▪ I still have my reservations about how NGO's work. It is never enough the way they approach development. ▪ The aim is to improve the value chain, but it is a full protocol at a time

		are small. ▪ ADVANCE should have built the capacity of OBs to bargain for input, finds, and negotiate produce. Empowered to make economic decisions. ▪ Use 20% of funds to support private sector operators within the value chain	▪ Hybrid seed with wrong fertilizer hampers yield. Same with wrong mechanization (wrong preparation of land can affect about 50% of productivity) ▪ It is incomplete to have half measure ▪ Administration: the focus is too skewed toward reporting than toward impact ▪ ADVANCE demonstrated the technology and is much ahead of others
3. What are the prospects for sustainability of the results produced by the ADVANCE II Project?	3.1. What would you say are the most lasting change or changes that have happened as a result of the ADVANCE project?	▪ ADVANCE's work will be unsustainable without the private sector involvement ▪ Take 10% - 20% of such funds for the private sector involvement. Fixed amount award ▪ ADVANCE will not be around for long ▪ "the prime objective for effective Aid is to eliminate Aid dependency".	▪ There is no policy of sustainability generally/nationally. ▪ The one-year gap between projects (ADVANCE I & II) is problematic ▪ Need for improved/hybrid seed is sustainable enough ▪ but this should be linked to the whole protocol ▪ we need to make new technology available to our farmers ▪ e.g. most farmers don't practice preventive agriculture
	3.2. What significant change has ADVANCE made to your institution?	▪ We (e.g. Sahel Grain, Agricare etc.) are giving life to ADVANCE's efforts ▪ If nucleus farmers and the private sector is absent, the efforts of ADVANCE would fall through the cracks; without them, nothing works	▪ I have difficulty with this. We do our R&D. ▪ Yes, some level of new insight but not too much. The impact was with getting access to more farmers ▪ We were mainly in Tamale; ADVANCE did more demonstrations in Tumu (Upper West Region) so this helped
	3.3. Do you think any of the project's activities will be carried on by partners/beneficiaries after the funding comes to an end?	Sahel grain is stepping in to ensure sustainability. However, farmers capacity to be independent ie apply for loans, source	▪ I am committed to continue, but I don't know about others. ▪ Everybody says farmers are poor, but these poor farmers are not

		inputs etc has not been adequately built and therefore the need to further support.	real farmers. The government says they provide subsidies on fertilizer for poor farmers, but the subsidized fertilizer doesn't get to the "poor farmers"
	3.4. Are there any elements of the project that could potentially be scaled up? How? To what level? Can you foresee any challenges?	The production capacity of nuclear farmers has been low and this has to be scaled up from the current 1000 metric tons per farmer	▪ Scaling up. Show farmers they cannot adopt halfway. This is not enough. Adopt full package. Demonstration is key to this. ▪ Farmers should adopt appropriate level of the blend that favours particular soils, varieties, etc. ▪ Do we have to go full-scale land development or minimum tillage? These are important considerations to make. ▪ Do we have the right mechanization? ▪ Adopt a full technology package. The yield gap in Ghana is 40-50% for the same crops compared to farmers in East Africa ▪ Challenges: ▪ Plant breeding is limited ▪ Varieties are released but usually for academic promotion ▪ Limited research: due to lack of funding for research ▪ We signed a contract with CRIG but there's a serious limitation: government has fixed the price of basic inputs (e.g. fertilizer) so commercialization is difficult

	3.5. Looking at the whole project or the part you participated in, what could have been done in a better way, and how? What would you recommend to mitigate them in the future?	▪ The project should have considered about 100 to 200 OBs ▪ Put them on a graduation scale and make room for others	
4. **What are the lessons learned and best practices, and from which stakeholders or beneficiaries?**	4.1. What lessons were learned from activity implementation by your institution?		
	4.2. To what extent did the ADVANCE project promote conservation agriculture and climate change techniques to mitigate some of the consequences.	▪ ADVANCE advocated climate-smart activities ▪ Ripping (touching only the part of the soil in which you sow the seed ▪ Adopting quality seed was also promoted	▪ Not to a large extent. You cannot separate two technologies. ▪ There is still burning of farms by beneficiaries; there's a big gap
	4.3. Did the project target women and youth in service provision to meet the needs of the youth and female members? If so, why and how? If not, why not?	▪ Mostly men due to the tough terrain ▪ Mostly, women OBs have women farmers, but they have limited land tenure arrangement ▪ You need different projects to address the gender challenge ▪ it will take about 5 to 10 years to tackle cultural/traditional issues ▪ best way to handle this is to promote girl child education	▪ Most soybean farmers in Northern Ghana are women ▪ Most OB owners have many wives who work on the farms ▪ One women's group in Gushie (Yendi road) participated ▪ Overall, about 10-15% of women and 60% of youth participated

	4.4. Have there been any unexpected or unintended outcomes for your firm as a result of this project? Yes/No Can you give any examples?	▪ Fast adoption of good agricultural practices.
		▪ Promotion of conservation or climate change-related activities
		▪ ADVANCE advocated climate-smart activities
		  ▪ Ripping (touching only the part of the soil in which you sow the seed
		  ▪ The adoption of this is slow
		  ▪ The popularity of plowing has diminished.
		▪ ADVANCE promoted the use of good seed
		  ▪ Adoption of good/new seeds is very high
		  Pioneer seeds = GHS 300/acre with twice yield difference
		  ▪ 1 metric ton is GHS 800 to GHS 1000 per acre
			▪ We need to pay for transportation of farmers to attend field days
			▪ Wrong information from other partners (e.g. MoFA extension agents)
			▪ Many cycles of demonstration before adoption occurs

	4.5. What other impacts or side effects (positive or negative) did ADVANCE have on the wider community?	None that I know of	▪ Positive Impact:
			  ▪ Technology adoption for productivity improvements
			  ▪ Timeliness of technology adoption
			▪ Negative impact:
			  ▪ Farmers' wrong perception about business; they think the business belongs to the support providers
			▪ The impact on the ground is more important than the reports to be sent to the funders of the project

Table A7.6: Consolidated Responses from Government of Ghana (GoG) Agencies

Evaluation Questions	Key Informants' Question	Summary of Key Informants' Response	
		Savannah Agric. Research Inst. (SARI)	**University of Development Studies (UDS)**
1. To what extent has the ADVANCE II Project achieved its intended goal and objectives as stated in the project results framework?	1.1. Given your knowledge of other initiatives in the maize, rice and soybean value chains, what would you say is the added value of the ADVANCE project?	▪ ADVANCE partnered the N2 Africa Legume project (at SARI) and worked mainly with soybean farmers. Specifically, in the area of inoculation of seed given to farmers (who, until the project, were not inoculating their soybean seeds). ▪ SARI helped with field days, field demonstrations, and field visits ▪ ADVANCE introduced the farmers to Yara Legume fertilizer as well	▪ ADVANCE enhanced value chain linkages with various actors. The project connected out-grower businesses to input suppliers
	1.2. Did the project tackle the main challenges facing the value chains and Ghana's agric sector?	▪ Yes, in terms of yields. Inoculated fields had better yield compared to non-inoculated fields. Between 15-25% increase in yield can be realized	▪ ADVANCE facilitated training of farmers, access to grants/loans and equipment for farmers
	1.3. How would you rate the project in improving competiveness of maize, rice and soybean value chains and promoting access to markets and trade and building local capacity for implementation?	▪ About 80%, in terms of local capacity. We trained soybean farmers ▪ 100%, in terms of extension and dissemination of technology ▪ I overheard someone saying the project linked farmers to markets	▪ The project has been quite beneficial to the farmers. I would not be able to rate it as I wasn't directly involved with its implementation

Evaluation Questions	Key Informants' Question	Summary of Key Informants' Response	
		Savannah Agric. Research Inst. (SARI)	**University of Development Studies (UDS)**

2. How has the ADVANCE II project collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?	2.1. How has the ADVANCE II project collaborated with other relevant USAID projects, GOG agencies and/ or other donor programs, and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana?	▪ Collaborated with MOFA, Savannah Seed Marketing Company, FBOs (Presby Agricultural Training Station; Evangelical Presby Development Relief Agency (EPDRA))
		▪ ADVANCE held field demonstrations and conducted soil tests to allow farmers know what nutrients are lacking.
		  ▪ Farmers prior to this did not conduct soil tests
		  ▪ Farmers were able to offset their cost of production and had some surplus
		  ▪ Provided knowledge on which input to apply and that increased yield which offset the cost of production
			▪ UDS had a good partnership with ADVANCE. Our students learned a lot from their attachments with beneficiary farmers
			▪

3. What are the prospects for sustainability of the results produced by the ADVANCE II Project?	3.1. What would you say are the most lasting change or changes that have happened to the agric sector as a result of the ADVANCE project?	▪ Inoculation of legumes (soybean) ▪ Access to improved seeds from SARI, N2-Africa Project ▪ However, fertilizer use (especially, Yara Legume) hasn't been sustainable. For example, the 50kg is selling for GHS 160 and government is not subsidizing	▪ Organization of field days ▪ ADVANCE helped with farm size measurement and GPS mapping of fields ▪ OBs will continue to benefit from linkages with input dealers and produce aggregators (traders) ▪ I'm unaware of arrangements made to address maintenance of equipment (tractors, shellers, tricycles, threshers, reapers, and dryers); reapers are not so much in use now

Evaluation Questions	Key Informants' Question	Summary of Key Informants' Response	
		Savannah Agric. Research Inst. (SARI)	**University of Development Studies (UDS)**
4. What are the lessons learned and best practices, and from which stakeholders or beneficiaries?	4.1. What lessons were learnt from activity implementation by your institution?	▪ ADVANCE had connections – they promoted hand-driven planters and threshers. SARI considered/adopted this innovation	▪ ADVANCE has been beneficial to the farmers. Every element of the project should be scaled up. ▪ We would recommend that ADVANCE adds some amount of student training to the model
	4.2. What other impacts or side effects (positive or negative) did ADVANCE have on the wider community?	▪ Positive effects: ▪ Enhanced/improved livelihood ▪ Enhanced technology adoption ▪ Soybean processing (value addition to soybean). Women in Ag. Dev't (WIAD) helped women to produce soya-koko, soya-koose, soya-banku, soya-khebab, soya-milk etc. ▪ Negative effects: ▪ Some NGOs offer material compensation to farmers. This makes is difficult for other research project without such offers to be fully accepted	▪ Positive effects: ▪ Entrepreneurship summit ▪ Some students got national service positions with ADVANCE ▪ Pre-harvest event evaluation ▪ The village savings and loan associations (VSLA) was very beneficial ▪ Negative effects: ▪ The timing of interventions was problematic; e.g. equipment arrived late ▪ Threats of boycotts by some beneficiaries ▪ Cumbersome administrative process; major delays in repayment of service providers

ANNEX VIII FOCUS GROUP DISCUSSIONS SUMMARY

Table A8.1: Beneficiary Regions and Districts

Region	District	Male	Female	Total	Date for FGD
Upper East	Bulsa	7	2	9	16/7/2020
	Bolga Municipal	5	2	7	14/7/2020
Upper West	Sissala East	9	0	9	17/7/2020
	Jirapa	6	1	7	13/7/2020
Northern	Gusheigu	7	0	7	15/7/2020
	Nanumber North	6	1	7	16/7/2020
	Yendi Municipal	6	1	7	13/7/2020
North East	East Mamprusi	7	0	7	14/7/2020
Savanah	Bole	6	1	7	15/7/2020
Bono	Wenchi Municipal (ADVANCE)	-	-	-	-
Bono East	Atebubu Amantin Municipal	11	0	11	15/7/2020
Ahafo	Tano South	6	1	7	15/7/2020
Ashanti	Ejura Sekyeredumasi (ADVANCE)	6	1	7	14/7/2020
Eastern	Kwahu Afram Plains (ADVANCE)	7	0	7	21/7/2020
Total		**89**	**10**	**99**	

Key Findings

The main findings from data generated by the focus group discussions are summarized below. The discussions brought out valuable information in terms of outputs, outcomes, impact and emerging challenges of the project.

Extent to which ADVANCE II Project achieved its intended goal and objectives as stated in the project results framework

Generally, on the achievement of the intended goals and objectives, almost all the participants responded in the affirmative citing support in terms of resources and capacity building as areas which helped in terms of improving the quality and quantity and also placed them on a pedestal to compete favorably in the market. There was however a few instances where participants expressed some doubts about the achievement of the intended goals and objectives with statements like "*It partially produced the desired results".* Those with this view substantiated it with the fact that some of them did not get the needed financial support to be able to compete favorably especially with regards to maize and rice. It is important to note that this particular feedback was gotten from only Bole and Yendi.

The effect of the ADVANCE II project's out-grower business model on the productivity and profitability of the project's beneficiary smallholder farmers and out-grower businesses

The effect of the ADVANCE II project's out-grower business model in the view of a number of the participants was that a good number of smallholder farmers have been transitioned into commercial farmers because of the cascading support received from the nucleus farmers supported by ADANCE project in most of the districts. Average smallholder farmers under each nucleus farmer were said to be about two hundred farmers. This group of farmers benefitted tremendously from ADVANCE II project by way of skills acquired through capacity building, demonstration of good agronomic practices to increase production and yields per unit area.

According to the participants, the explicit benefits included row planting, use of certified seeds and high yield varieties, bookkeeping, and safe use and handling of agrochemicals to boost production, and grading of grains for quality standards. Some of the farm machinery benefitted by the farmers are tractors, power tillers, and shellers.

The extent to which ADVANCE II project collaborated with other relevant USAID projects and/ or other donor programs and the private sector to increase the competitiveness of the maize, rice and soybean value chains in Ghana

The stakeholders expressed mixed reactions to how ADVANCE II collaborations helped them. Even though the majority of the participants expressed enormous appreciation and hailed the collaborations describing the support as magnificent and even wishing that the project continues there were others who shared contrary views.

For those who hailed it the project reasons highlighted were that the project had created linkages for beneficiaries to access loans from the financial institutions and provided them with market linkages as well as linking them to the agro-input dealers. Additionally, the representatives from the financial institution corroborated this with the explanation that with the support of ADVANCE II, the banks were now better placed to trace the farmer groups and assist them with financial support.

To most of the financial institutions in the various FGDs, they were optimistic that, the banks were now more poised than ever to advance loans to farmers and FBOs who were creditworthy so that in the event of default they the groups served as collaterals.

Contrary to this, were those who also shared the sentiments that though beneficiaries were introduced to some financial institutions such as Sinapi Aba, it was very difficult if not impossible to access funding. They added that beneficiaries did not have the requisite collateral securities needed for funds to be advanced to them. On the part of the financial representatives from such districts, the information gathered was that ADVANCE had not contacted them to support anybody.

According to the one nucleus farmer, between 80 – 90 % of women have been empowered through technical trainings and financial assistance which is making them contribute enormously to the upkeep of their households in terms of meals, health, education, and shelter.

The prospects for sustainability of the results produced by the ADVANCE II Project

In their view, ADVANCE collaborated more with the Regional Agricultural offices than the DOA which in their opinion should not have been the case. Their argument stem from the fact the as district offices they are closer to the farmers than the regions and such huge interventions should not take place without their involvement. They explained that the kind

of engagement they had with the project could be best described as 'tokenism'. They believed that they know the farmers better and could have been able to ensure continuity after the expiration of the project.

Another issue that was subtly brought had to do with ADVANCE II staff not living with the people at their various communities. They indicated that the staff would just come around during the day and left again in the evening to the bigger cities. They said the resources that were used to pay for accommodation outside the districts could have also helped in the local economic development and further strengthen their relationships with the staff.

Opportunities after ADVANCE II

1. Farmers now have access to bank loans especially smallholder farmers

2. There are aggregators to buy farmers produce

3. Yields have increased beyond 60%

4. Women now have access to arable land to farm with good yields

5. Private stakeholders engaging farmers to return their empty agrochemical containers for recycling to reduce chemical poisoning at the farms.

Risks after ADVANCE II

1. The organization of farmers is a bit difficult due to the expiration of ADVANCE II support. This was so because during the time of the project, anytime workshops or trainings were provided participants were provided with refreshments and money and so now that the project has exited people are reluctant to attend meetings because that component cannot be borne by the organizers.
2. Dangers of disposing agrochemical containers in farms which is contaminating water bodies.

General Issues Emerging from the FGDs

- Internet connectivity was one of the biggest constraints that affected the FGDs. Sometimes, one could be discussing something then before ending the submission a dialogue box pops up indicating that the person has left the meeting. This delayed the entire process and extended the time to four hours in some instances.
- The inconsistency in the internet connectivity could have affected the data collection and therefore, the team quickly strategized by liaising with the Agric Directors to get people to take notes to complement what was taken at the various locations.
- It is important to note that most of the Agric Directors were very supportive in terms of organizing the FGDS. Though a few of them were not supported but generally to a large extent their immerse support cannot just pass without commendation.
- The Advance Focal Person was also very instrumental in the process. He however could not participate in most of the FGDs because the information was almost the same at most of the districts.
- Most of the FGDs were rescheduled several times because it was sometimes very difficult to get through to some of the participants. A participant could be called several times without them picking and sometimes the phones were off for days and the team with the support of the Agric officers use different means to get them. This, therefore, resulted in the rescheduling of some of the discussions.

- One intriguing revelation was that these FGDs was their first time for most of the participants to take part in a virtual meeting and was therefore unanimously described as very interesting even though it was characterized by the internet connectivity challenges the excitement outweighed the challenges.
- In one of the districts, the contact details of the beneficiaries were not provided and so the Agric offices were task to get the people to participate.
- The FGDs were not held in Wenchi Municipal because District Agric Director indicated that the ADVANCE project is not operational there.

Conclusions

The extent to which the ADVANCE II Project achieved its intended goal and objectives as stated in the project results framework varied across the value chain and the districts. For instance, many of the districts hailed the achievement in terms of linkages to the financial institutions, markets placing them on a comfortable pedestal to compete favorably. A few others expressed discontentment in terms of the same linkages and therefore describing the achievement levels as partial.

The focus group discussions confirmed the need to build a strong collaboration at both the individual and organizational levels to ensure a program inclusive of the host community, and in which individual and institutional collaboration play a strong role in ensuring the achievement of the overall goal. A broader sensitization and information campaign on managing the indiscriminate disposal of agrochemical containers is considered essential to protect the water bodies. The campaign will particularly need to address the dangers of such indiscriminate disposal.

ANNEX IX ADVANCE II RESULTS FRAMEWORK