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KNOWLEDGE MANAGEMENT & LEARNING STUDY

ASSESSING THE USAID ADVANCE II PROJECT'S GRANTS PROGRAM AS INCENTIVE FOR VALUE CHAIN COMPETITIVENESS: APRIL 2019

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GHANA ADVANCE II PROJECT

COOPERATIVE AGREEMENT NO. AID-641-A-14-00001

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ADVANCE	Agricultural Development and Value Chain Enhancement
BDS	Business Development Services
EPA	Environmental Protection Agency
FBO	Farmer-Based Organization
FGD	Focus Group Discussion
FOG	Fixed Obligation Grant
GAP	Good Agronomic Practice
I-3 Fund	Innovation and Investment Incentive Fund
ICT	Information and Communications Technology
IKG	In-Kind Grant
LPG	Local Partnership Grant
MoFA	Ministry of Food and Agriculture
MT	Metric Ton
NGO	Nongovernmental Organization
OB	Outgrower Business
OG	Outgrower
PHH	Post-Harvest Handling
USAID	United States Agency for International Development
VSLA	Village Savings and Loan Association
ZOI	Zone of Influence

EXECUTIVE SUMMARY

The United States Agency for International Development (USAID) Agricultural Development and Value Chain Enhancement (ADVANCE) project was designed to include a $5 million grant fund. ACDI/VOCA developed the program to cover two broad areas: The Innovation and Investment Incentive (I-3) fund and the Local Partnership Grant (LPG) fund. Of the $5 million, $4 million was allocated to the I-3 fund, which is a flexible financing mechanism to reduce risk associated with investing in new technology and business approaches, foster innovation, leverage resources, and provide incentives to stimulate private sector investment and mitigate constraints in the targeted value chains (VCs) in northern Ghana. The remaining $1 million allocate to the LPG fund enabled the project to engage local NGOs, providers of business development services, trade groups, and other actors to directly provide services to VC actors while building the capacity of local institutions through the grant management process.

This study was designed to empirically test the assumption that grants provided incentives for innovation and investment in the value chains promoted by the project. Therefore, the study's main objective was to assess the extent to which the grants component provided incentives to promote investments and innovation that improve the competitiveness of the project's commodity value chains.

To relate the study's data and results to the results of the project's annual surveys conducted to estimate beneficiaries' yield and gross margins, the study utilized a purposive sampling approach. Thus, the sample was not representative of the variation of grant recipients, rather focusing on recipients of key in-kind grant items such as tractors. The study used a sample of 149, taken from the list of grant beneficiaries (unique count is 592); by purposefully sampling to obtain adequate representation for all 21 equipment types and ensuring regional and gender representation. The total sample of 149 represented approximately 25% of grant beneficiaries, which was determined by logistics and cost considerations. During the study period, 26 people (4 women and 22 men) were not available to participate. Therefore, the final sample included 123 individuals (8 women and 115 men) instead of 149.

The study used electronic questionnaires and checklists for collecting quantitative data and collected qualitative data through focus group discussions and key informant interviews. The study team analyzed quantitative data using SPSS and STATA.

The study results show that the businesses of the OB grantees experienced growth as a result of grants. For example, between 2015 and 2018, the 44 OBs that participated in the study increased the number of hectares ploughed for outgrowers (OGs) from a combined total of 5,436.4 hectares to 19,832.8 hectares after receiving in-kind grants.

Similarly, after receiving in-kind grants, the 44 sampled OBs increased the number of outgrowers they served from 7,842 to 26,822 after grant intervention. This significantly increased their revenue, from GHS 1,178,055 ($261,790) to GHS 4,877,167 ($1,083,815) The introduction of in-kind grants also introduced new services such as shelling, carting, and rotavation to grantees, thereby increasing their revenue (of the 44 sampled OBs) by an additional GHS 1,747,487 ($388,330)

The grantees invested in various equipment using revenue from in-kind grants in equipment, including multi-crop shellers, tractor trailers, complete tractor ploughs, rippers, warehousing, bullock ploughs, rotavators, tarpaulins, weighing scales, mechanized boreholes, and in farm and input business expansion. Non-agricultural business investments include building new homes, education expenses, and medical bills, among others. In total, the sampled grantees invested GHS 1,969,685. ($ 437,708). This investment is likely to increase with time, as the income accrued from using grant-funded equipment will incentivize grantees to invest in additional equipment when required.

Outgrowers who received services from OB grantees increasingly adopted various technologies and practices due to the provision of in-kind grants to the OBs. These new technologies and practices include ripping, mechanical planting and fertilizer application, grain shelling, harrowing among others. The most commonly adopted technologies included shelling (88.6 percent) and harrowing (56.8 percent).

USAID's ADVANCE project provided in-kind grants such as tarpaulins, shellers, grain dryers to OBs and OGs, significantly contributing to improved grain quality. This improved quality meets the standards of most high-end markets and increased OBs' competitiveness. The grantees further engaged with structured markets by using weights and standards, utilizing moisture meters and weighing scales provided as in-kind grants. Because of these project support, grantees interviewed said they had engaged 27 maize, soybean, rice, and sorghum buyers, including Premium Foods Limited, Agricare Company, Avnash, Yedent, and Intergrow, and sold 13,234 metric tons (MT) of grains at a total value of GHS10,715,707 ($2,381,268).

The study also found that OB grantees gave preferential treatment to women and youth during service provision. Most OB grantees (91 percent) indicated that they give preferential treatment to women by ploughing for them first (48 percent), providing discounted services (35 percent), credit services (5 percent) and adding seeds and fertilizers to their ploughing services (12 percent). The remaining OB grantees (9 percent) indicated that they provide services to outgrowers based on demand, regardless of their gender or age.

Grantees listed timeliness as the main challenge to accessing grants, including slow processing times, beneficiaries raising matching funds behind schedule, and late supply of equipment. The project's impact would be improved by a timely process that delivered the equipment a few weeks or months before it is required for use. The grants process needs to be strengthened to ensure that women and youth can apply and cost share at a lower rate than their male counterparts.

Finally, no individual or group contacted through the study complained of bias or unfairness on the part of the project in administering the grant system.

1. BACKGROUND

The USAID Feed the Future Agricultural Development and Value Chain Enhancement (ADVANCE) activity is a five-year project implemented by a consortium led by ACDI/VOCA. The project's goal is to scale up agricultural investments to improve the competitiveness of the maize, rice, and soybean value chains in Ghana. The project adopts a facilitative value chain approach, where smallholder farmers are linked to markets, finance, inputs, equipment, and information through larger commercial farmers and traders, who play the role of outgrower businesses (OBs) and have the capacity and incentive to invest in smallholders' farming activities. These linkages build the capacity of smallholder farmers to improve the efficiency of their farm businesses with improved production and post-harvest handling practices. The project aimed to reach 127,000 smallholder farmers by end of the 2018 fiscal year.

One of the project's strategies for facilitating change is via a grant mechanism, which is the transfer of cash or goods in-kind for a public purpose of support and for catalyzing investments. The project provided cash or in-kind equipment to support organizations whose activities contribute to attaining the overall objectives of the project. The project used the following grant mechanisms:

1. **In-kind grants:** these enabled ADVANCE II to directly procure goods and services for grantees without transferring any cash funds. This is the main vehicle by which most of the equipment grants (tractors, shellers, rippers) were provided at a cost of US$ 2,386,523.37.
2. **Fixed obligation grants (FOG)** support specific activities with well-defined associated costs and easily identified milestones. The projected provided five local NGOs with funds for advocacy action and capacity building under this type of grant. An amount of $ 150,522.41 was disbursed to Northcode, Community Development Alliance (CDA), Sung Foundation, Urbanet and Youth Harvest Foundation Ghana (YHFGH).
3. **Cost reimbursement grants** are appropriately used when outputs are not clearly defined at the outset of activities. An amount of US$ 951,350.13 was provided to Ghana Grains Council (GGC) and Ghana Agricultural Insurance Pool for activities on warehouse receipt system and agricultural insurance respectively.

ACDI/VOCA designed a grant program with two parts: An Innovation and Investment Incentive (I-3) fund and a Local Partnership Grant (LPG) fund. The I-3 fund is a flexible financing mechanism to reduce risk associated with investing in new technology and business approaches, foster innovation, leverage resources, and provide incentives to stimulate private sector investment and mitigate constraints in the targeted value chains (VCs) in northern Ghana. ADVANCE II designed the LPG fund to engage local nongovernmental organizations (NGOs), business development service (BDS) providers, trade groups, and other actors to directly provide services to VC actors while building their own capacity through the grant management process. The grant process usually required that the project assess the size of the award and the potential grantee's financial capability to determine grant type and disbursement terms (see ADCI/VOCA, 2014).

2. PURPOSE AND EXPECTED USE OF THE STUDY

The ADVANCE II project awarded funds and equipment to individuals and organizations to catalyze investments in innovation, to provide incentives for local partnership through capacity building, and to encourage use of equipment and technology. To date, the project disbursed US$ 2,386,523.37 in-kind grants to individuals and groups and US$ 150,522.41 have been disbursed to five organizations for capacity building. The project designed in-kind grants to increase efficiency along the value chain by leveraging private sector investment in infrastructure, equipment, technology, processing, and marketing by agribusiness enterprises, service providers, financial institutions, and farmers' organizations.

The main purpose of the study was to learn, mainly from the grantee perspective, the impact of the grants in catalyzing investment and innovations that lead to improvement in productivity and the competitiveness of the project's commodity value chains, and use the lessons to inform future value chain projects.

The sub objectives to address the main objective are the following:

1. To assess how the provision of grants catalyzed business growth and network connectivity for both OBs and associated service providers
2. To assess how the grants helped increase yields and technology adoption
3. To assess how the grants helped improve product quality and market access
4. To assess the impact of grants on building the capacity of local organizations to influence change
5. To assess the grant program's degree of inclusivity

By addressing these objectives, the study also assessed the sustainability of grant impact. The project anticipates that the positive impacts resulting from grant support on personal and business practices will be lasting and continue to evolve into the future. The study also looked for signs of independent replication or adaptation by other actors without program support.

Each of the five research questions, and their specific sub-research questions, are presented below:

2.1 Research Questions

Question 1: How has the provision of grants **catalyzed business growth and business relationships** for both OBs and in-kind grant (IKG)-associated service providers?

- To what degree has the provision of IKGs promoted additional investments in machines and equipment by OBs, independent of project support?
- To what degree was the provision of IKGs to OBs associated with OB business growth and expansion?
- How has the provision of IKGs affected the quality of service provision in the project's zone of influence (ZOI)?
- Is there a differential impact of the provision of IKGs for OB women, men, and youth?
- How have IKGs directly influenced business relationships between OBs, equipment dealers, and financiers?

- How has the IKG program and any resultant OB growth and improved business relationships impacted the business of equipment dealers and other financiers?

Question 2: Has the provision of grants **contributed to increased crop yields and farm practices and technology adoption?**

- How has the provision of IKGs contributed to increased yields of OBs and outgrowers (OGs)?
- How has the provision of IKGs contributed to increased farm sizes of OBs and OGs?
- How has the provision of IKGs contributed to increased technology adoption (what specific technologies)?
- How has the provision of IKGs contributed to enhancing the practice of climate smart agriculture (e.g., ripper)?
- How has the provision of IKGs contributed to increased and improved use of information and communications technology (ICT) and general business and office management (e.g., ICT grants)?

Question 3: Has the provision of grants **contributed to improving grain quality and access to formal markets?**

- How has the provision of IKGs contributed to improved quality of grains?
- How has the provision of IKGs contributed to premium pricing?
- How has the provision of IKGs contributed to a reduction in post-harvest losses (e.g., threshers, and moisture meters)?
- How has the provision of IKGs promoted the adoption of weights and measures?
- How has the provision of IKGs increased access to structured markets?
- How has the provision of IKGs supported and promoted produce value addition (e.g., rice mills)?
- How has the provision of IKGs promoted job creation?
- How did the expected improvement in grain quality and access to markets impact women, men, and youth?

Question 4: How have grants **improved local organizations' capacity to influence change?**

- How has provision of grants contributed to increased women's participation in agricultural production?
- How has the provision of grants improved the capacity of local organizations to undertake advocacy campaigns?
- How has the provision of grants contributed to advocacy for and/or improvement in safe disposal of agrochemicals by OBs and OGs (Youth Harvest Foundation of Ghana)?
- How has the provision of grants contributed to increased patronage of crop insurance services and coverage?
- How has the provision of grants contributed to adopting and expanding warehouse receipts; and quality standards (GGC lessons learned)?

Question 5: How **inclusive** were the ADVANCE's grants?

- What types of groups are or are not represented in the beneficiary pool (directly as grantees and indirectly as recipients of grant-funded initiatives)? Disaggregate by women and men at a minimum; apply a youth lens if possible.

- Has the process unintentionally included or excluded certain groups?
- Is there a differential impact of IKG provision on women, men, and youth in the research findings above?
- How is this relevant to ADVANCE's goals?
- Can the lessons learned during this project enhance inclusion in the future?

3. METHODOLOGY AND DATA COLLECTION TECHNIQUES

The study was completed in stages, starting with a desk study, research design, sampling, design of the data collection instrument, data collection and management, analysis, and reporting.

3.1 Desk Study

The assignment began with a desk study to better understand the operations of the USAID'S ADVANCE project, and the grant component, and to identify gaps in information and knowledge. The desk study reviewed several project documents.

3.2 Study Design

The study employed a concurrent mixed method design, using both qualitative and quantitative methods for data collection. The study collected data from the four main groups of grant recipients—OBs, FBOs, OGs, and end buyers/processors. The study team interviewed vendors who supplied equipment and NGOs that received capacity-building grants.

3.3 Sampling Approach

The survey was conducted in two phases—the first phase surveyed 149 grant recipients selected from a sample of 592 project beneficiaries who benefitted from the grant scheme. The 25% was based on cost and time considerations and not on probability estimations, since the sampling approach was purposive. All the 21 equipment types were represented in the sample. In cases where the beneficiaries of an equipment type were very few all of them were selected. The purposive sampling procedure will also take into consideration the four regions and gender. Sampling was proportional to the sizes of the various equipment categories. The 149 beneficiary participants included 12 women (8.1 percent), two youth (1.3 percent), and 135 men (90.6 percent). Many of the participants received more than one piece of equipment. The sample also covered the four administrative regions in the project's ZOI. Three of the 13 vendors who provided equipment formed part of the sample. Also, all five NGOs that received grants to improve their advocacy capacity participated in the study. During the study period, 26 people (4 women and 22 men) were unavailable, so the final sample was 123 instead of 149 respondents, as shown in Table 1.

Table 1. Study samples

Region	Sample				Focus Groups	Key Informants
	Women	Men	Total	%		
Ashanti	0	6	6	4.9		2
Brong-Ahafo	4	15	19	15.4	4	7
Northern	0	23	23	18.7	2	5
Upper East	3	37	40	32.5	2	3
Upper West	1	34	35	28.5	2	5
Total	8	115	123	100.0	10	24

Membership of FGD: 3 – 7 people

The second phase of the study consisted of follow-up and mop-up data and information collection from 44 beneficiaries (29 men and 5 women) who received tractors.

3.4 Survey Instruments

The study collected data using semi-structured questionnaires for in-depth interviews and as a guide for key informant interviews and focus group discussions (FGDs). Key informant interviews and FGDs were important components for triangulation. Field staff used mobile data collection software (DATAWINNERS@) to collect quantitative data. However, field staff also carried back-up paper copies of the questionnaire. The instruments were shared with the USAID ADVANCE project team for input before they were finalized and used in the field.

Field staff conducted interviews at convenient locations for respondents, while also ensuring confidentiality. Staff took field notes and some photos.

The study used the data from respondents to test the following hypotheses, among others:

- Grants to project recipients catalyzed business growth and network connectivity for both OBs and IKG-associated service providers.
- Grants contributed to increased crop yields, good farm practices, and technology adoption.
- Grants contributed to improved grain quality, access to formal markets, and premium prices.
- Local organizations' capacity to influence change improved after receiving grants.

3.5 Data Collection

The research team selected and trained data collection enumerators. During the training, the research team introduced the rationale of each section of the questionnaire. Training participants pre-tested the questionnaires and used the observations to improve the final version of the questionnaire. Staff assigned teams of enumerators to collect data in various regions, under the direction of a regional supervisor. While the enumerators conducted interviews in their respective regions, the consultants held key informant interviews and focus group discussions.

3.6 Quality Control

To avoid gaps and inconsistent information, the ADVANCE project's data quality assurance (DQA) team reviewed data on a daily basis. The team then relayed queries generated from data review to the field staff for resolution before moving to the next community.

3.7 Data Analysis

The consultants used mainly descriptive statistics analytical tools, specifically SPSS and STATA, to analyze data to make trusted inferences.

3.8 Study Limitations

The quantitative sample only included eight women, making comparisons between men and women proportionally impossible. This limitation is attributed to the small number of women grant recipients in the sample of beneficiaries used for the 2017 survey to estimate yield and gross margins of crop production. Likewise, the sample contained too few youths to allow for satisfactory statistical analysis. The study lacked a representative sample of grant recipients and/or project beneficiaries. Thus, the study results relied on both the actual data on grant recipients and responses from the sample taken from the grants database. In this regard, the tudy can be considered as a case study, with no room for extrapolation or generalization.

4. MAIN FINDINGS

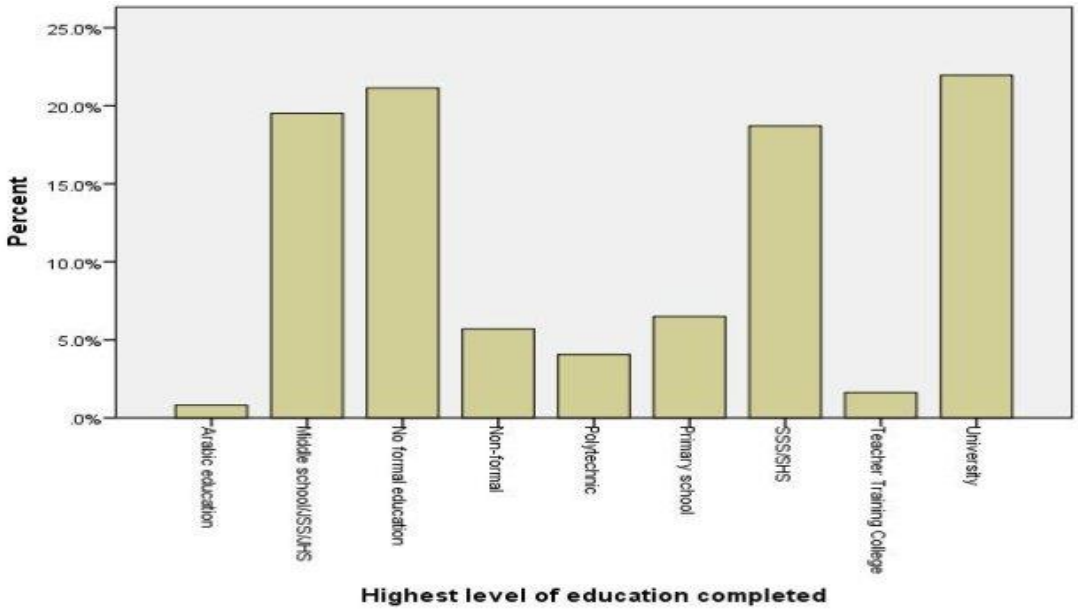
This study covered grants provided by the USAID ADVANCE project and their contribution to the competitiveness of the grant recipients in the rice, maize, and soybean value chains. The grant recipients included OBs, OGs, and FBOs who benefited from agricultural and ICT equipment, as well as NGOs who benefited from grants advocacy. In some cases, grant recipients gave information that spanned USAID'S ADVANCE I and ADVANCE II projects.

4.1 Socio-Demographic Characteristics of Respondents

Of the 123 respondents, 111 are household[1] heads, including two women, while 12 are household members (six women and six men). One of the two women household heads is married, and the other is a widower. Only two grant recipients are unmarried and are 29 and 33 years old. Although not a selection criterion, the project mainly interacted with household heads, which is not surprising as household heads will provide services to their household members as well as to OGs.

[1] A household is defined as a person or group of persons who live together in the same house or compound and share the same housekeeping arrangements, constituting a single consumption unit. (GSS, 2014)

Figure 1. Highest Level of Education of Respondents



Almost 80 percent of the respondents have some form of education, ranging from middle school to university graduates. Twenty-two of the university graduates are crop farmers (OBs) and four are aggregators. The fact that 21 percent of grant recipients have no formal education suggests that the project did not focus only on farmers with formal education.

Table 2. Equipment for field preparation provided as in-kind grants

Item No	Type of equipment	Number of recipients
1	Tractors & accessories	53
2	Ripper	15
3	Power tiller	16
4	Complete plough	12
5	3-Disc plough	3
6	Bullock plough	47
7	Harrow	3

Table 3. Equipment for planting and seeding

Item No	Type of equipment	Number of recipients
1	Manual planter	12
2	Mechanized planter	3
3	Dibblers	142

Table 4. Equipment for harvest and post-harvest processing

Item No	Type of equipment	Number of recipients
1	Reaper	5
2	Sheller/thresher	122
3	Tarpaulin	816
4	Grain dryer	1

Table 5. Equipment for produce transport and marketing provided as grants

Item No	Type of equipment	Number of recipients
1	Motor Tricycle	56
2	Moisture meter	15
3	Weighing scale	72

Table 6. Office management and communication equipment

Item No	Type of Equipment	Number of recipients
1	Motor bikes	45
2	Laptop computer and printer	60
3	Radio sets	983
4	Personal Computer (PC) tablet	162

Tables 2 to 6 show the number of people who benefitted from each type of in-kind grant equipment. The highest number of people benefited from office management and communication equipment. In terms of individual equipment, the highest number of beneficiaries received radios, tarpaulins, PC tablets, dibblers and shellers/threshers, weighing scales, and laptop computers and printers. The project provided some equipment, including radio sets, tarpaulins, weighing scales, and moisture meters, to groups, and therefore many more persons could be "counted" as beneficiaries of the grant equipment. Other equipment, such as tractors and shellers, improved service provision to OGs, extending the benefits beyond the individual recipient.

4.2 Catalyzing Business Growth and Network Connectivity

It was expected that the grant would raise awareness among both recipients and their OGs about the need to invest in equipment that could improve their business and services to their OGs. It is also expected to stir up growth of their businesses and serve their OGs better. This section examines how the grants have stirred up business growth and networking.

4.2.1 ADDITIONAL INVESTMENTS IN MACHINES AND EQUIPMENT

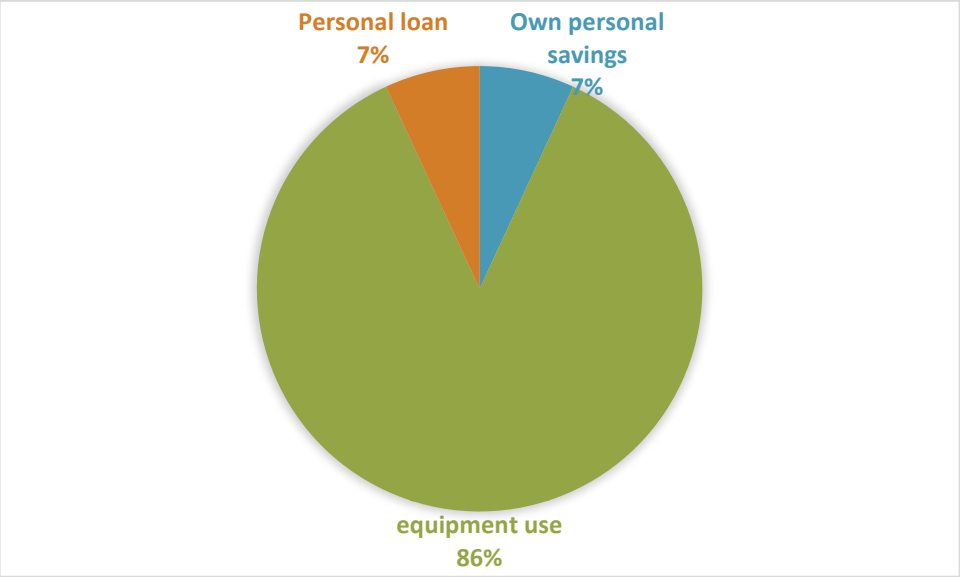
Generally, grantees made additional investments in equipment because of receiving in-kind grants. The study found that 86 percent of respondents purchased additional equipment to support operations using part of the revenue accrued from service provision. The equipment includes tractors, shellers, rotavators, rippers, ploughs, trailers, boom sprayers, weighing scales, bullock ploughs, tarpaulins, tractor tires, and mechanized irrigation systems, among others. Only 15.2 percent of respondents obtained additional equipment through

grants, which required a contribution of 30 percent before receiving the equipment. The remaining 84.8 percent of respondents purchased equipment outright.

The study also found that 86.2 percent of grantees receiving tractors made additional investments into equipment using savings earned as a result of receiving in-kind tractor grants. Again, the additional revenue grantees earned because of the in-kind grants for service provision to OGs also incentivized them to make additional investments in equipment. Beneficiaries also used personal savings and contracted personal loans to fund additional investments in equipment. Personal loans and savings each made up 7 percent of the total spending on additional investments, as shown in **Error! Reference source not found.**.

Apart from these additional investments in equipment, grantees invested in non-agricultural assets to support their operations. The study demonstrated that 66 percent of beneficiaries purchased vehicles, built new homes, paid for educational expenses, or made other payments to support business operations.

Figure 2. Funding sources for beneficiaries' additional investment in equipment

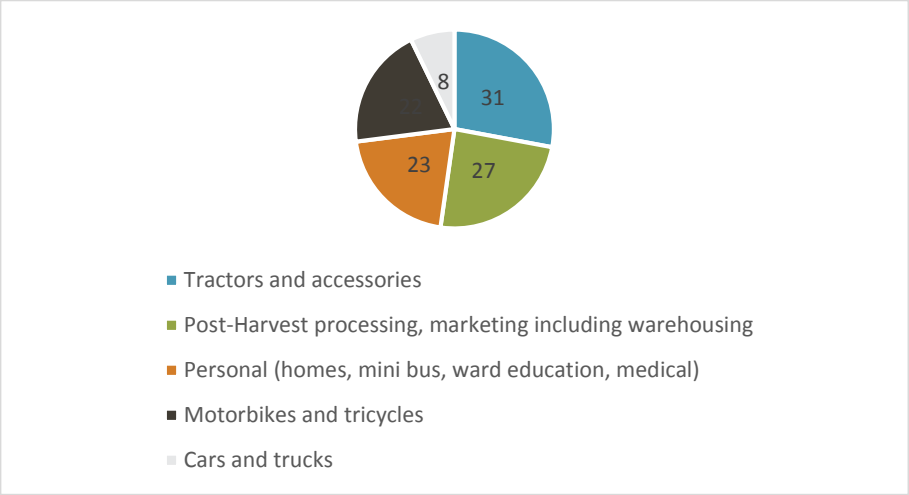


The grantees purchased a total of 114 items including:

- Tractors and accessories 31
- Post-harvest, processing and marketing (including warehouse) 27
- Personal (homes, mini bus, ward education expenses, medical) 23
- Motorbikes and tricycles 22
- Cars and trucks 8
- Others (farm expansion, business expansion, etc.) 3

The tractor and accessories category include eight tractors, seven trailers, and six complete ploughs. The rest include a bullock plough, two boom sprayers, four tractor tires, two rotavators, and a ripper. Items in the post-harvest category include 19 multi-crop shellers, three warehouses, four tarpaulins, and one weighing scale.

Figure 3. Grantees' agricultural and non-agricultural investments in equipment (by item)



The high number of grantees investing in multi-crop shellers further supports grantees' claims that shelling is more profitable than the other services they provide to OGs. **Error! Reference source not found.** shows details of grantees' investments into additional agricultural and non-agricultural equipment.

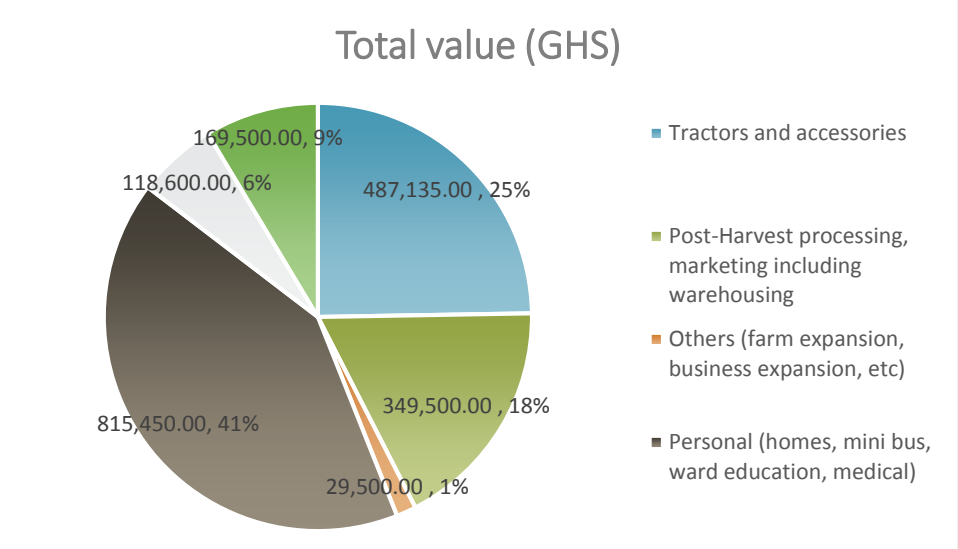
In terms of overall expenditure, the grantees invested the most on personal/household items (41 percent), followed by tractors and accessories (25 percent) and post-harvest equipment (18 percent). Grantees invested a total of GHS 1,969,685 ($437,707.78), including GHS 815,450 ($181,211) spent on personal items such as education, medical expenses, and building houses.

4.2.2 BUSINESS GROWTH AND EXPANSION

IKG contributions to OBs/OGs field acreages and number of farmers reached

There is high demand for ploughing services at the beginning of the rainy season, while most OBs also have time-sensitive work on the large tracks of land they cultivate as nucleus farms. In view of the high demand and rather short window (to avoid late planting), many OGs do not get served, they may get served late, or are not given credit services, which is an important element in their relationship with service providers.

Figure 4. Grantees' investments (by value of expenditure)



However, the project's in-kind grant program brought about a remarkable improvement by providing tractors to grantees. Survey results show that prior to the grant program, the 44 grantees (OBs) could plough 5,436 hectares of land for 7,842 OGs during the ploughing window. After the introduction of in-kind tractor grants, grantee OBs ploughed 19,833 hectares of land for 26,822 OGs. Thus, the average land area serviced per OB increased from 124 to 451 hectares. This will have a ripple effect, benefitting approximately 131,500 household members of direct beneficiaries (OGs).

Survey results also show that grantees increased their own farm acreages from 8452 hectares to 2,423 hectares after receiving in-kind grant support from the project, as shown in Table 7.

Table 7. Hectares ploughed for OGs, OBs own acreage and number of OGs reached before and after intervention

Tractor Service Indicator	Before In-Kind Grant			After In-Kind Grant		
	Men	Women	Total	Men	Women	Total
Area (ha) ploughed by OBs	3,098	2,338.4	5,436.4	12,420.6	7,1412,2	19,832.8
Area of OB nucleus farms ploughed	786.4	58.8	845.2	2,320,4	106	2,426.4
Number of OGs served	3,759	4,083	7,842	13,086	13,736	26,822

Charges from ploughing services

The study found that providing in-kind grants increased grantees' revenues from services provided to OGs. Prior to the grants, the 44 grantees generated a total revenue of GHS 1,178,055 ($261,790) by providing services to OGs. After the introduction of in-kind grants, this value increased significantly to GHS 4,877,167 ($ 1,083,814.89) in the 2018 ploughing season. The expanded equipment base led to a more than three-fold revenue increase. While the value of in-kind payments increased by 273 percent, cash payments increased by over 400 percent (Table 8), which may suggest business expansion to wealthier clients who can afford cash payments.

Table 8. Value of grantees' ploughing services offered to OGs

Type of Payments	Before Intervention	After Intervention	Percent Change
Cash Payments (GHS)	367,230	1,854,330	405
Value of In-Kind Payments	810,825	3,022,837	273
Total	1,178,055	4,877,167	314

Number and value of additional services

The introduction of in-kind grants created the opportunity for grantees to offer additional services to OGs. Notable examples of new services include shelling and carting/transportation of produce. The majority (38) of the 44 grantees in the sample offered a new service.

Table 9. Type of additional services grantees offered to OGs

Type of Service	Gender of Grantee		Total
	Women	Men	
Grantees with no new service	1	4	5
Carting/transportation	2	9	11
Shelling/carting	1	8	9
Shelling only	1	17	18
Total	**5**	**38**	**43**

*includes one non-respondent

Survey results indicate that these services generated additional revenue of GHS 1,660,987 ($369,109) as indicated in **Error! Reference source not found.**. Grantees who benefitted from additional revenue streams could invest in business growth.

Table 10. Value (GHS) of additional services through in-kind grant support

Type of Service	Gender of Service Recipient		Total
	Women	Men	
Carting/transportation	42,187	57,200	99,387
Shelling/carting	35,700	369,530	405,230
Shelling only	49,500	1,106,870	1,156,370
Total	127,387	1,533,600	1,660,987

4.2.3 QUALITY OF SERVICE PROVISION IN THE ZOI

During focus group discussions, OGs indicated that the quality of land preparation services improved as a result of the IKG program. Prior to the project intervention, tractor operators rushed to move to the next OG, rendering low-quality service and sometimes shortchanging the area ploughed. After dealers provided tractor operators with training, and new equipment arrived through in-kind grants, the quality of ploughing services improved. Tractor operators rush less and OGs are able to direct them to plough the correct land areas.

During focus group discussions, OGs also indicated that they earn a better price by using weighing equipment when negotiating with OBs. Both parties weigh the produce together and decide on the price, unlike previous systems that relied on estimated weights to establish prices.

OBs expanded grain drying services after receiving tarpaulins. For example, women's groups in Krabonso, in Kintampo South district, Brong-Ahafo region, have tarpaulins for their members to use, and also earn revenue by renting the tarpaulins to other community members. Another OB in Ahyeam, a community in the Nkoranza North district, Brong-Ahafo region, also rents tarpaulins in the community, in addition to other regular services.

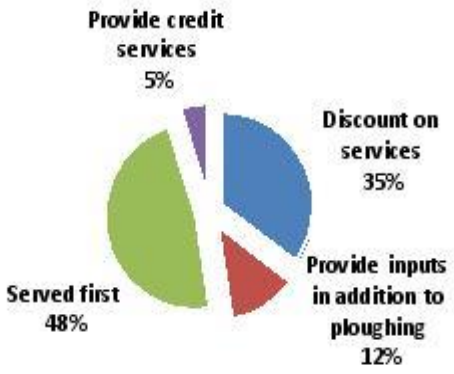
4.2.4 DIFFERENTIAL IMPACT FOR OB WOMEN, MEN, AND YOUTH

The study found that OBs treat men and women OGs differently during service provision: they provide preferential treatment to the women. Interactions with tractor grantees showed that 91 percent of respondents indicated that they treat women differently, while 9 percent believe they treat men and women the same when providing services. Some women's groups that received special preference from their OBs. Examples are a women's group under Chief James Adawuna in Biu, Kasena Nankana Municipal, Upper East Region, the Krabonso women's group (FBO) in Kintampo South District of the Brong-Ahafo region, and the Tuna women's group, led by a woman OB, in the Upper West Region.

Error! Reference source not found. shows the percentage of OBs that offer preferential services to women OGs. Most survey respondents (48 percent) mentioned that they serve women OGs first, followed by discounted services (35 percent), and provision of services in addition to ploughing and credit (12 percent). Most grantees served women OGs first because of their perceived vulnerability. According to these service providers, it is very difficult for most women OGs to access ploughing services from other commercial service providers because of their smaller farm sizes. The small farms make it commercially unattractive to service providers due to the cost of moving machinery.

Similarly, OBs offered discounted services based on their vulnerability. Grantees offered discounts of between 13–20 percent, with a value of GHS 10 ($2.2) to GHS 15 ($3.3) to female OGs for ploughing services. The OBs making service provision more affordable for women OGs motivates them to engage in farming to support their households.

Figure 5. Percent of OBs offering services to women on more favorable terms



The study found that OBs provided credit services in general, and inputs in addition to ploughing, to women OGs based on trust. The OBs justified their preferential treatment by describing women OGs' good credit history and high level of commitment and loyalty. Some respondents indicated that they only bundle input credit with ploughing for women because of this reason.

During a focus group discussion held in Bouti, in the Sissala West District of the Upper West Region, Abilai Fati (an OG with OB Yahaya Seidu) described women's credibility in paying for services rendered by their respective OBs,

"We are faithful in paying our credit and in many cases have better yields than the men because we cultivate small farms and take good care of the farms."

4.2.5 INFLUENCE ON BUSINESS LINKAGES

Relationships between grantees and equipment dealers

The main relationship between grantees who received tractor equipment (53) and equipment dealers was the after-sales service provided. Generally, grantees indicated they were happy with the prompt and reliable servicing regime but complained about the high cost of spare parts and servicing. Grantees with motor tricycles and motorbikes do not depend on dealers (suppliers) for servicing, and therefore had not built relationships with the suppliers.

Relationships with financial institutions

About 65 percent of key informants indicated that they have good working relationships with their financial institutions, mainly Sinapi Aba Savings and Loans and Opportunity International. The rest described difficult relationships with their financial institutions due to unresolved issues from previous engagements. For example, an OB in Mesidan, in the Techiman North District, purchased a tractor through an arrangement with Sinapi Aba. However, the equipment broke down within the first year. Due to issues related to guarantees, servicing, and repayment, the OB kept the tractor parked for over two years. All key informants stated that loan terms requiring repayment within six months are too short and prefer loan terms of nine to 12 months.

4.2.6 IMPACT ON EQUIPMENT DEALERS AND FINANCIERS

Equipment dealers and other financiers shared positive responses with respect to the impact of grants on their businesses. For example, Mr. Maxwell Baffoe Appiah, a local equipment fabricator in Nkoranza in the Brong-Ahafo Region, initially received a contract from the ADVANCE project to supply shellers/threshers in 2011. Since that contract, he has successfully supplied equipment to fulfil orders from individuals introduced to him by the initial grant recipients.

AFGRI Ghana limited, who were agents for John Deere brand tractors had several supply orders due to earlier supplies made to grant recipients. They indicated that many more people are exposed to the brand and have increased confidence in John Deere@ tractors and equipment as a result of the grant program. Grantees continue to provide positive references about the brand and introduce them to new clients.

4.3 Technology Adoption and Improved Crop Yields

4.3.1 REDUCED RISK OF YIELD LOSS DUE TO LATE LAND PREPARATION

In the follow-up survey, all 44 OB respondents indicated that ploughing for farmers outside the ploughing window potentially increases their risk of crop failure and low crop yields. Also, respondents rated the level of risk associated with ploughing outside the ploughing window. Out of the 44 respondents, 57 percent believed that ploughing outside the ploughing window could increase their risk of losing investments by 51–70 percent through significant reduction in yields, while 32 percent believed that the risk of losing investment through delayed land preparation was between 21–50% (Table 11).

Table 11. Respondents' estimate of risk of yield loss associated with late ploughing

	Risk of Yield Loss	
Range	Frequency	%
0–20%	2	5
21–50%	14	32
51–70%	25	57
71–80%	2	5
Over 80%	1	2
Total	44	100.0

Again, all respondents alluded to the fact that crop yields could be significantly affected if the rains end before crops complete their life cycle. Additionally, the very wet soil conditions prevalent outside the ploughing window hamper effective ploughing and significantly affect germination. Respondents also alluded to the fact that yield losses could be significantly reduced if ploughing is done within the required ploughing windows—May to July in the three northern regions; April to May (minor season) and July to August (major season) in the southern zone.

When asked to rate the level of risk reduction through yield losses, over 88%of respondents said that risk attributed to yield losses could be reduced to about 0–20 percent, while 9.1 percent of respondents think this reduction could be higher than 50 percent. The remaining 2.3 percent were nonresponsive.

Table 12. Respondents' estimate of expected yield loss associated with late ploughing

	Expected Yield Loss	
Range	Frequency	Percent
0–20%	38	88.4
21–50%	1	2.3
51–70%	4	9.3
71–80%	0	0
Over 80%	0	0
Total	43	100%

4.3.2 INCREASED TECHNOLOGY ADOPTION

The provision of in-kind grants such as tractors resulted in grantees' adopting various mechanical, agronomic, or office-related technologies promoted by the project.

Figure 6. Percentage of OB respondents adopting mechanical-related technologies

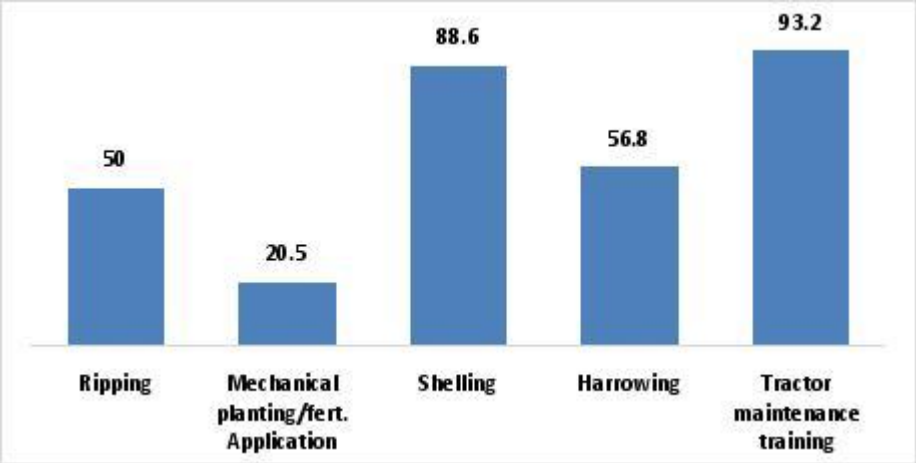


Figure 6 shows that about 93% of respondents adopted tractor maintenance technologies after the OBs and their Operators were trained. Their tractor operators now adhere to basic maintenance practices such as servicing regimes, and significantly improved the quality of ploughing and ripping, increasing OBs' efficiency and enabling them to serve more farmers.

Over 88 percent of respondents adopted mechanical shelling practices as opposed to the manual shelling they previously adopted. Respondents stated that shelling services gives higher returns, improves grain quality, reduces the time required for grain processing, reduces the cost of labor, and grain losses. Other technologies adopted, in descending rates of adoption, include harrowing (56.8 percent), soil ripping (50 percent) and mechanical planting and fertilizer application (20.5 percent). Respondents who adopted harrowing stated that the technology helps them level their fields and allows the use of other advanced technologies, such as mechanical planting and fertilizer application. Other respondents indicated that germination improves when they harrow their fields.

Beneficiaries of ripper technology (50 percent) shared that ripped fields have higher moisture retention and facilitates row planting. Although the lowest percentage of respondents utilized mechanical planting and fertilizer application (20.5 percent), these technologies were highly appreciated for their usefulness. Respondents stated that these technologies save time, reduce labor costs, and save costs on planting and fertilizer application as both activities are done concurrently. Respondents also noted that mechanical planting creates the required plant population per unit area for optimum yields. Low adoption rates are due to the relatively high cost of mechanical planters.

4.3.3 ENHANCING CLIMATE SMART AGRICULTURE

The project introduced rippers to enhance the practice of climate smart agriculture because the equipment supports soil and water conservation. The OBs, through the in-kind grants, received 18 rippers to use on their own farms and to provide services to OGs. According to grantees who received rippers, they used the equipment to rip 356 ha of land during the past two years, ranging from 0.1 to 59 ha with an average of 9 ha

per OB. Most farmers within the ZOI are still learning about the benefits of rippers, and the impact of this technology is expected to grow.

4.3.4 INCREASED AND IMPROVED USE OF ICT

Laptop and tablet computers

All the grantees who received tablets and laptop computers reported using them for recordkeeping, as well as for communication and administrative work. Most OBs engaged young, computer-literate people to assist them with recordkeeping. During key informant interviews, OBs indicated that recordkeeping improved, and some showed their OGs' records on tablets and laptops. Some respondents had out-of-date records, while a few had broken computers. The study found that eight OBs bought additional tablets and 15 bought computers because of the benefits they experienced with the computers provided through in-kind grants.

Motorbikes for field management

The majority (91 percent) of the OBs that received motorbikes under the grant scheme said they are able to visit all their OGs during the production period, and 77 percent reported visiting OGs at least once a week during the season, compared to once a month before the grant program. By building social relationships and improving trust, OBs will build their capacity to solve problems problems in their relationship with OGs.

4.4 Improved Product Quality and Access to Markets

4.4.1 IMPROVED GRAIN QUALITY

The project provided a grain dryer, shellers/threshers, tarpaulins, and reapers to help improve harvest and post-harvest practices with an aim to improve grain quality.

Grain dryer

One beneficiary OB received a grain dryer (1.2 tons capacity per day) in 2017. Before receiving the dryer, she used a plastic sheet to dry grains and regularly lost more than 20 percent of the grain, and up to 70 percent when it rains. The plastic sheet also changed the grain's color, reducing its quality. Presently, the OB can dry grain even when it is raining. The dryer produces good-looking, clean grain, dried to the ideal moisture level for long shelf life. Instead of 20–70 percent losses, she now loses less than 5 percent during drying. She said the dryer has been useful and effective. The OB provides drying services for most of her OGs and sometimes to community members who do not necessarily sell the grain to her.

Tarpaulins

The project granted 96 OBs and OGs with tarpaulins. The majority received between one and three tarpaulins, but some received up to 12 tarpaulins per OB or group, depending on the number outgrowers in the group. Most people use tarpaulins for two or more activities, including drying grain, protecting harvested produce from bad weather, and catching spilled grains under shellers/threshers. Before receiving the tarpaulins, some people used locally produced material or plastic sheets, which were not effective and efficient.

The tarpaulins are especially valued in the Brong-Ahafo and Ashanti Regions, where there is no break in the rains between the main and minor production seasons. Farmers can quickly cover up grains that are drying at the first sign of rain. Some farmers who previously gave up production during the major season have resumed production with the supply of the tarpaulins.

Table 13. Type of improvement in grain quality obtained with use of shellers/threshers and tarpaulin as indicated by respondents

Quality Characteristics	Response Frequency (%)
Clean grains with very little foreign material	21 (43.8)
Faster shelling/threshing process	4 (8.3)
Reduced broken grains	14 (29.2)
Clean and good-quality grains	9 (18.7)
Total	35 (100.0)

Shellers/threshers

Before receiving shellers/threshers, 50 percent of OBs manually shelled/threshed their produce, as shown in Table 14, while 48.3 percent paid other service providers to shell/thresh their produce. Manual shelling results in more broken grains and sometimes mixed with small-sized stones and dirt, resulting in low quality and lower prices. The shellers/threshers reduced manual shelling/threshing and improved the quality of grains.

Table 14. Method of shelling/threshing before the grant

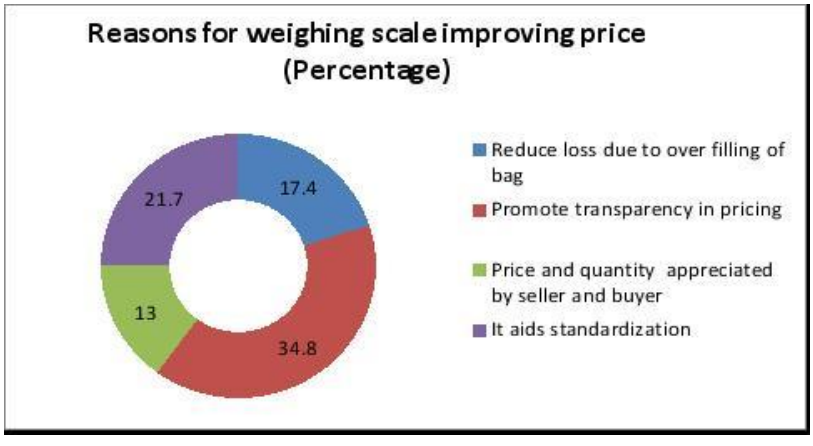
Method	Frequency	Percent
No response	1	1.7
Manual beating	30	50.0
Mechanical threshing/shelling services	29	48.3
Total	**60**	**100.0**

4.4.2 PREMIUM PRICING AS A RESULT OF IMPROVED QUALITY

All the grantees who received equipment indicated that they can push for higher prices with the higher quality grain they produce now. They are able to sell their grains before other producers, or can charge up to 30 percent above normal prices, especially during the lean season. One grant recipient, who uses a grain dryer, reported increased prices of up to 31 percent, and increased income of up to 60 percent.

Of the grant recipients who received tarpaulins and shellers/threshers, 78 percent reported selling at higher prices.

Figure 7. Reasons for weighing scales improving prices



The majority of grantees who received weighing scales (94 percent) reported improved pricing. **Error!**

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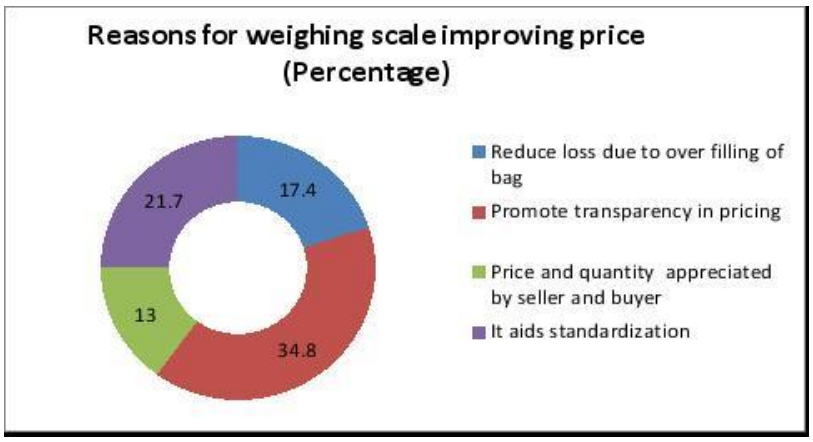
4.4.3 REDUCED POST-HARVEST LOSSES

Some communities had shellers/threshers before the grant program, but the inadequate numbers could not meet the demand. Grantees reported that the shellers reduced processing times, lowering the likelihood that rains will damage their produce after harvest, ultimately reducing losses. They also report that by using tarpaulins, they lose less grain than shelling on the bare ground, which was a common practice before the project interventions.

4.4.4 ADOPTION AND USE OF STANDARDIZED WEIGHTS AND MEASURES

Aggregators avoid buying grain by weight, especially maize, and discourage the adoption of standard weights and measures in the informal market. However, this situation disadvantages their smallholder clients. With the successful introduction of structured markets, like those promoted through contracts with buyers, weighing scales are becoming more common. The majority of grantees that received scales (93.8 percent) reported improved pricing, preventing cheating, and reducing misunderstandings among OGs, OBs, and buyers. Grains are normally packaged in 100 kg bags, making manual handling (loading/offloading) difficult. Additionally, the introduction and use of 50 kg measures facilitates manual handling and reduces the cost on loading and offloading.

Figure 8. Reasons for weighing scales improving prices



4.4.5 INCREASED ACCESS TO STRUCTURED MARKETS

To obtain good prices in structured markets/trading quality and quantity are critical conditions. After benefitting from post-harvest equipment and training on standards and related technologies, the OB participants reported that they now think more about meeting the needs of the structured market than the open market. The project has also linked them to many of these structured markets directly or indirectly. During key informant interviews, all grantees mentioned that the pre-season and pre-harvest events introduced them to the structured markets. Many of them maintain links with buyers who use formal contracts to purchase produce.

The survey results show that 86 percent of 44 grantees interviewed sold their produce in the structured markets since receiving in-kind grants. The data also showed that 27 end-markets purchased commodities—maize, soybean, rice, and sorghum—from these 38 grantees who benefitted from the in-kind grants. These end markets included 20 maize market buyers, three soybean and rice buyers, and one sorghum buyer. The 38 grantees sold 13,238 metric tons (Table 15), including 11,299 MT of maize, 495 MT of soybean, 694 MT of rice, and 750 MT of sorghum to these end markets, for a total value of GHS 10,715,707 ($2,381,268).

Table 15. Estimated volume of produce sales and value through market linkages by respondents

Type of commodity	# of Buyers engaged with OBs	# of OBS involved in market engagements	Volume sold (MT)	Value of sales (GHS)
Maize	20	22	11,299	8,907,267
Soybean	3	4	495	818,900
Rice	3	11	694	892,040
Sorghum	1	1	750	97,500
TOTAL	27	38	13,238	10,715,707

Grantees were asked to indicate their level of satisfaction in engaging with end markets, choosing from excellent, good, fair, and bad (Table 16). Respondents rated 50 percent of maize end markets as good, 23 percent as excellent, and 18 percent as fair, with the remaining 9 percent rating it bad. Respondents rated 25 percent of soybean end markets as excellent 50 percent as good, 25 percent as fair, and none as bad. Respondents rated 55 percent of rice end markets as good, 36 percent as fair, and 9 percent as excellent. No rice end markets received a bad rating.

Respondents who rated end market performances as excellent also believed that such markets offer higher prices, make prompt payments, and provide input credit. Respondents connected prompt payments, credit, and absorbing the cost of sacks and transport as qualities of good markets, and prompt payment and ready markets as characteristics of fair markets. Respondents described bad end markets as markets with default payments, delayed payments, and a lack of trust. Since the provision of grants contributed to obtaining high commodity prices, it also likely contributed to increasing market access.

Table 16. Grantees' ratings of end markets

Type of commodity	Number of respondents per commodity	Rating Parameters (%)			
		Excellent	Good	Fair	Bad
Maize	22	23	50	18	9
Soybean	4	25	50	25	0
Rice	11	9	55	36	0
Sorghum	1	100	0	0	0

4.4.6 SUPPORTING AND PROMOTING VALUE ADDITION OF PRODUCE

In addition to shellers and threshers, the project provided rice processing equipment which is key to the functioning of the rice value chain and employment of women. The project provided the equipment to Sambay Enterprise (Navrongo, Kassena-Nankana District in the Upper East Region), Neybu Biyoona Rice Processing Centre (Nyerizei, Northern Region), Amsig Resource s(Worebuoggu , Tolon District, Northern Region) and Aframso women rice aggregator group (Aframso in, Ashanti Region).

During the key informant interview with Sambay Enterprise, the study team learned that the rice quality produced from the mill is very high, and demand for the product far exceeds supply. According to the owner,

the product is comparable to imported brands, and he plans to gradually increase production to capture the market beyond the Upper East Region. Sambay Enterprise also exhibited their produce during the 2018 Farmer's Day celebration, and the manager emphasized the importance and value of the training provided by USAID'S ADVANCE project grants to the improved value addition.

The other enterprises that benefited are also making similar progress. The project supported Neybu Biyoona Rice Processing Centre to replace an old mill with a capacity of 0.013mt /hour with a new 1.5 mt/hour automated combined mill, with a de-stoner and grader. The firm has processed about 1,343 MT of rice valued at GHS 39,800.00 since the equipment was installed in early 2018. Amsig Resources received a grant facility in 2017 to upgrade their mill to enable them improve efficiency and process paddy without parboiling. Since installation the firm has worked with 360 smallholders producing at the Golinga and Botanga irrigation sites in Tolon and Kumbungu Districts respectively of the Northern Region. The Aframso women rice aggregator group was one of the earliest receivers of rice equipment grant under USAID's ADVANCE I and continued to work with the project in the second Phase to develop a string supply chain for paddy rice. They have been linked to farmers in Lonto, Golinga and Botanga in the Kpandai, Tolon and Kumbungu Districts respectively of the Northern Region. The group have processed more than 468 MT of paddy purchased from over 200 smallholders, worth about GHS 526,500.

4.4.7 PROMOTING JOB CREATION

Although the project did not focus on job creation as a key objective, during key informant interviews, grant recipients mentioned that the purchase of land preparation equipment, motorbikes, and motor tricycles created job opportunities for operators and riders. Also, each operator and rider has an assistant, resulting in two new jobs for each granted item. The motor tricycle riders and tractor operators' assistants are all youth. Additional jobs resulted from carting of produce, while the grain dryer resulted in the creation of four jobs.

4.5 Building Capacity of Local Organizations to Influence Change

The ADVANCE project provided capacity building, as well as cost-reimbursable grants to the following local NGOs to perform assigned tasks:

- Community Development Alliance (CDA); to advocate for improving the enabling environment for agribusiness growth
- Sung Foundation Ghana (SUFOD); to set up new VSLAs, and to conduct monitoring and facilitation of share-out among VSLA groups in the Northern Region
- Urban Agricultural Network (URBANET); for advocacy action on leveraging stakeholder support for enhanced smallholder farmers' access to agriculture extension services
- Youth Harvest Foundation Ghana (YHFG); for advocacy action on Safe Disposal of Agrochemicals Containers
- Coalition for Development of Western Corridor of Northern Region (NORTHCODE); to advocate for "Enhancing women's output of maize, rice, and soya value chains through fostering their access to improved seeds and productive land in the Northern Region of Ghana."

4.5.1 IMPROVED CAPACITY OF LOCAL ORGANIZATIONS TO INFLUENCE CHANGE

The ADVANCE project trained the local organizations on USAID's regulations and compliance with managing grants. The project also trained them on effective advocacy strategies and actions and provided funding to enable them to practice the new skills they had acquired. Before the training, the five organizations (listed above) were already engaged in some form of advocacy, however, each of the organizations indicated

that they learned something new about lobbying, identifying specific advocacy needs, and effective project management. Youth Harvest Foundation Ghana shared that the staff that attended the training cascaded information to all the other staff in the organization, creating a multiplier effect. Their grant fund management capacity increased to the extent that they are now confident and equipped to source funds directly from donors like USAID and provide acceptable reporting and accountability.

4.5.2 INCREASED WOMEN'S PARTICIPATION IN AGRICULTURAL PRODUCTION

Two NGOs worked on advocacy on promoting women's interest. The project provided financial and technical support to the Coalition for Development of Western Corridor of Northern Region to help women increase production by advocating for fertile land and access to good quality seed. The grant helped them advocate for fertile land for 33 women's groups with 25 members each. The support will enable the women to increase their production and their group membership, while land owners increasingly recognize the need for women to have access to productive land.

The Sung Foundation's main objective is women's empowerment and enhanced livelihood through VLSA groups, advocacy for gender equality and rights, and building the capacity of youth through skills development. The project provided grants to Sung Foundation from 2015 to 2018 to train women in the VLSA concepts and guide them to form VSLAs. With the grants, Sung Foundation increased women's participation in VLSA groups from 2,000 to 24,000 of project beneficiaries. The VLSAs saved money which they used to purchase inputs that led to increased agricultural productivity and production, and diversify into other businesses, educate their children among others.

4.5.3 ADVOCACY FOR AND/OR IMPROVEMENT IN SAFE AGROCHEMICAL DISPOSAL

The project developed the capacity of Youth Harvest Foundation of Ghana for advocacy, lobbying, and grant management and provided a grant to them to advocate for the safe disposal of agrochemicals and containers. The organization worked to sensitize the district assembly and farmers about the dangers of improper disposal of agrochemical containers and provided designated disposal points for agrochemical containers in the Upper East Region.

When describing their experience with advocacy, the organization's staff recalled interactions with policymakers that revealed the existence of unenforced laws, as well as the opportunity to make inputs to policy formulation and/or review. The organization had the chance to lead advocacy to the district and municipal assemblies and the Environmental Protection Authority to enforce laws and bylaws on safe disposal of agrochemical waste, and also mounted a public campaign to create awareness about the dangers of improper agrochemical disposal and to identify points for disposal of agrochemical containers after use. The ADVANCE project funded this endeavor, resulting in the establishment of used agrochemical container disposal points in three districts in the Upper East Region.

4.6 Inclusiveness of Grants

4.6.1 REPRESENTATION IN THE BENEFICIARY POOL

Although there was a deliberate effort to target women and the youth, the data and information from the grant scheme (not the study sample) show that they benefitted from the grants but not as much as the adult men. The project set a lower amount required as leverage for women to access grants. Men accessed the expensive items such as tractors, tractor accessories, and planters at a higher rate than women; other less

expensive items such as radio sets, tarpaulins, and PC tablets benefitted women and youth as well. For example, the project distributed 982 solar radio sets to radio listener groups, benefitting 1,790 women and 1,723 men. Individual women accessed 17 of the 862 tarpaulins granted by the program, and approximately 150 women benefited from 25 tarpaulins provided to five women groups. The 142 dibblers were introduced as a labor-saving device targeted at women, and 13 were accessed by women directly or provided to women through their OBs. The project provided 162 PC tablets through OBs, used mainly by youth, some of whom were hired by OBs as their agents for the first time because of the tablets.

Regarding the more expensive items like tractors (53 granted), motorized tricycles (56), motorbikes (45), and laptops/printers (60), the respective numbers accessed by women are five (5), three (3), two (2) and five (5).

4.6.2 UNINTENTIONAL INCLUSION OR EXCLUSION OF CERTAIN GROUPS

The study did not identify any group as intentionally excluded or included in the group of grant recipients. The grant process was open to all OBs and OGs, and those who were willing and able to meet the conditions became grantees. Several candidates applied but could not raise the matching funds. This may be deemed unintentional exclusion, although the project design included targeting mechanisms to support key groups like women and youth to overcome their individual and collective barriers to accessing grants.

4.6.3 LESSONS LEARNED TO ENHANCE INCLUSION IN THE FUTURE

Grant recipients made some observations, as shown in Table 17. These observations are mainly generalized but could enhance future project delivery and inclusion.

- The model of extending grants to cover some OGs by providing grants to FBOs could be expanded.
- Equipment grant support to women should be increased, especially since the few women recipients are performing well. This should be done through some sort of affirmative action.
- Almost all grant recipients advocated for a shortened grant process that starts earlier to ensure timely delivery.

In all the places visited, the team encountered grant recipients and OGs that expressed general appreciation for the grant program and the ADVANCE project as a whole, arguing that it should continue to support smallholders. A group in Biu, in the Upper East Region, describes ADVANCE's exit as a woman who got married to a very good husband and, just as they began to enjoy their marriage, the husband died. The ADVANCE project should not leave them as young widows.

Table 17. Suggestions made by OBs and OGs (by type of equipment) to improve the grant program

Grant equipment and suggestions for improvement	Frequency of response. (%)
(n=55:45.1%) Land preparation equipment	
Timely delivery of the grants to meet the planting season	15 (43)
Improve documentation and processes	4 (11)
More tractor grants should extended to OGs	4 (11)
OBs should be allowed to choose their own vendor	4 (11)
OBs' involvement in decision making on the type of grant to be given	3 (9)

Reduced the percentage leverage payment	2 (6)
Offer complete tractor package	1 (3)
Extend the grant to outgrowers	1 (3)
Increase coverage	1 (3)
Total	35(100)
(n=3:2.4%) Planter	
ADVANCE should provide more planters	1 (50)
Reduction in the required leverage component of the total amount	1 (50)
Total	2 (100)
(n=111: 91%) **Post-Harvest Equipment**	
Prompt delivery	1 (50)
Quick documentation and processing of application	1 (50)
Total	2 (100)
(n=33: 26.4%) **Carting Equipment**	
Prompt delivery of the grants to meet the right season	7 (50)
Expand grant scheme	5 (36)
After sales service is a must	1 (7)
Quick documentation and processing of grant request	1 (7)
Total	14 (100)
(n=55: 44.7%) Standardize Equipment	
Prompt delivery of the grants to meet the planting season	8 (29)
Quick documentation and processing of grant requests	4 (15)
Expand grant scheme	3 (11)
OB should be allowed to choose their own vendor	2 (8)
Provide a complete pack of grant equipment to OBs	2 (8)
After-sales service should is a must	2 (8)
More training should be provided	2 (8)
Modified weighing scale to enhance movement	1 (4)
ADVANCE should support the process of procuring loans from financial institutions for deposit required for assessing the grant	1 (4)
Equipment should be thoroughly checked before distributing	1 (4)
Increase the equipment grant support to women	1 (4)
Total	27(100)
Laptop Equipment Grant	

Satisfactory performance, ADVANCE should return, continue work, and expand to other actors	6 (24)
Constant training on the use of the laptop should be provided	5 (20)
Laptop battery should be improved	4 (16)
Prompt delivery of the grants laptop	4 (16)
Laptop should be well tested before disbursing	3 (12)
Quick documentation and processing of grant request	3(12)
Total	25 (100)
Tablet	
Timely delivery of the grant	16 (36)
Satisfactory work done	10 (22)
Extend grant to support more actors	9 (20)
Quick documentation and process of application	5 (11)
Providing training on the use of the tablet	5 (11)
Total	45(100)

5. KEY OBSERVATIONS AND CONCLUSIONS

The study showed that OBs increased the size and revenue from their businesses because of grants provided by the project. They increased the number of OG clients (men and women), as well as the sizes of their farms. They have been able to provide more services to OGs and, in some cases, to community members who are not direct beneficiaries of the project. There is now better linkages between the OB, OG, and buyers. Yields of both OBs and their OGs have also increased by over 100 percent, which is attributed to the grants sand training. Some 17 percent of grant recipients bought additional equipment after receiving their first grant. In many cases, the grant facilitated recipients to purchase equipment earlier than otherwise possible. Others plan to add more equipment later, when the need arises. Some OBs are saving for future equipment purchases, incentivized by the grants they received. Grant recipients also influenced other farmers in the ZOI to purchase equipment, such as tarpaulins.

Generally, providing technology transfer without assistance to acquire the technology results in low adoption rates. In the case of this project, OBs adopted new technologies at high levels because the equipment needed to adopt the technology and the demonstration were provided through grants. The field agents working directly with OBs reached 91 percent of OGs and visited up to 77.5 percent of them weekly with motorbikes. Through these visits and trainings, beneficiaries adopted new technologies such as proper land preparation, row planting, using improved certified seeds, good agronomic practices, and better post-harvest handling practices using shellers and tarpaulins.

Beneficiaries' use of grain dryers, tarpaulins, shellers/threshers, and reapers resulted in high quality grains, free of dirt or contamination. This high-quality produce attracts more buyers, resulting in contracts in the structured market with firms such as Agricare and Premium Foods.

USAID ADVANCE II's capacity building program yielded results because of its structure, providing funds alongside *on-the-job* technical assistance. The project built the capacity of staff from five organizations in advocacy; the staff then trained other members of their organizations and proceeded to engage in advocacy activities, applying the skills they acquired.

The main challenges to grant access were related to timeliness—late processing of grants, late raising of matching funds, and late supply of equipment. Beneficiaries would appreciate receiving equipment before it is required. Youth and women should be given more preferential access to interventions since they cannot compete with adults and men as equals. Additionally, the quality of the sheller provided in 2018 was a challenge for grant recipients.

No respondents, including OBs, OGs, and FBOs, complained of any form of bias or unfairness on the part of ADVANCE. The benefits of project grants, in conjunction with capacity building efforts, have begun changing the lives of both direct and indirect grant recipients. The grant recipients commended the project staff for their hard work. With the exception of challenges related to poor quality shellers and late equipment delivery, the project has been successful and will have a lasting impact for years to come.