



Strengthening Agricultural Input and Output Markets in Africa (SAIOMA)

FINAL EVALUATION OF SAIOMA PROGRAM

Final Report

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Acronyms

AC	Aggregation Centre
ACE	Agricultural Commodity Exchange
AD	Agrodealer
AGMARK	Agricultural Market Development Trust Africa
AGRA	Alliance for a Green Revolution in Africa
BMGF	Bill and Melinda Gates Foundation
CABE	Centre for African Bio-Entrepreneurship
CPI	Capacity Performance Index
FGD	Focus Group Discussion
FISP	Farm Input Support Programme
FO	Farmer Organisation
FOSUP	Farmer Organisation Support Program
FtF	Feed the Future
FUM	Farmers Union of Malawi
GDP	Gross Domestic Product
KII	Key Informant Interview
LOA	Level of Achievement
LUANAR	Lilongwe University of Agriculture and Natural Resources
M&E	Monitoring and Evaluation
MT	Metric tonne
NASFAM	National Smallholder Farmers Association of Malawi
NGO	Non-Governmental Organisation
NRI	Natural Resources Institute, University of Greenwich
PASS	Program for African Seed Systems
RUMARK	Rural Market Development Trust
SAIOMA	Strengthening Input and Output Markets in Africa
SGA	Sorghum Growers Association
SHP	Soil Health Program
SPA	Sorghum Pioneer Agency
UN	United Nations
USAID	United States Agency for International Development
USD	United States dollar

Executive Summary

Background and objectives of the evaluation

Strengthening Agricultural Input and Output Markets in Africa program is a multi-partner initiative working to improve inclusive agricultural sector growth in Kenya, Malawi and Zambia through a Global Development Alliance supported by the United States Agency for International Development, the Bill & Melinda Gates Foundation, and the Swedish Ministry of Foreign Affairs. Alliance for a Green Revolution in Africa (AGRA) is the prime recipient of the cooperative agreement.

SAIOMA pursued its overall goal through two primary program objectives:

1. Improved Agricultural Production through strengthening agro-dealer networks to improve smallholder farmers' access to improved agro-inputs and appropriate agronomic practices.
2. Improved smallholder farmers access to markets through investing in market development, storage and services and direct procurement. The focus crops for market access activities are greengrams, pigeonpea, cowpea, groundnuts, sunflower, sorghum, cassava, and maize.

The main objective of this final evaluation was to assess the overall program performance in relation to its objectives, and to provide input into the new strategic directions or implementation designs/strategies of future investments. The evaluation assessed what has worked, what did not work very well, key lessons learned and what areas should be emphasized or adjusted, in future programming. The evaluation covers the following three components:

- (i) Programmatic impacts – assessment of what outputs have been delivered, what changes (outcomes, both intended and unintended) have occurred among the beneficiaries, relevance of program interventions, sustainability of the achievements to-date, government policies around farm input and output markets and their implications on the program performance in each country.
- (ii) Program delivery mechanisms – review of the approaches adopted by the program to achieve program objectives, such as models for farmer organization strengthening, agro-dealer development and various marketing approaches employed in the target countries: how successful these models have been, what lessons can be drawn, whether these results are likely to be sustainable.
- (iii) Project management for results- evaluation of management processes; assessing their adequacy, efficiency and effectiveness, including: program structure; staffing; grant-making processes; quality of grants funded; level of integration and alignment with other Feed the Future and AGRA projects.

The SAIOMA program final evaluation was carried out by the Natural Resources Institute and partners between August-November 2016. It assessed SAIOMA performance since its inception in October 2012 and covered the three target countries of Kenya, Malawi and Zambia.

The evaluation used a mixed methods approach to address the evaluation questions, with collection and analysis of both qualitative and quantitative data. The qualitative data analysis was used primarily to address the relevance, effectiveness and sustainability of the program and the program theory of change. It included assessment of context of the program and partnership and collaborations during implementation. Qualitative methods involved review and analysis of relevant documents, Key Informant Interviews and Focus Group Discussions. Quantitative methods were used to assess program outcomes and impact at household level and inform Key Performance Indicators. A survey of

1600 households (57 % women) was conducted in sampled program areas in the three target countries together with a survey of 72 agrodealers. Performance of the program against key SAIOMA program indicators used secondary data from World Bank/UN sources and primary data from the evaluation household survey.

Key evaluation results

Program objective 1 – Increasing smallholder agricultural production through access to improved inputs

SAIOMA's program implementation strategy for Improved Agricultural Production was the rapid development of agro-dealer networks in rural input markets to deliver appropriate technology inputs and information to smallholder farmers. Under this objective, the focus was on strengthening agro-dealer networks in targeted areas in order to improve smallholder farmers' access to improved agro-inputs and appropriate agronomic practices.

Key achievements under Objective 1

- **Training:** The program trained a total of 1,286 agro-dealers against a target of 1,310 in the life of the program, representing 98% achievement.
- **Grants:** Micro-grants were provided to 169 agro-dealers against a target of 93, representing 182 per cent achievement. The grants aimed at stimulating faster business growth among trained agro-dealers.
- **Hub-agro-dealers:** SAIOMA supported the development of 92 agro-dealer hubs against a target of 63 hubs which represented an achievement of 146%.
- **Access to credit access:** The program facilitated 67 agro-dealers to access credit from commercial banks by organizing business to business (B2B) meetings. This represented an achievement of 100% compared to none at baseline.
- **Demonstration plots:** SAIOMA facilitated establishment 629 demonstration plots against a target of 282 which represented an achievement of 223%.
- **Field days and exhibitions:** 208 field days were organised against a target of 150, representing an achievement of 139% of the initial target.
- **Input and extension delivery:** Program-supported agro-dealers sold a total of 44,175 MT of improved seed against the target of 24,406MT which represented an achievement of 179% above the target. SAIOMA-supported agro-dealers recorded a total sale of 14,446 tons of fertilizers by project-trained agro-dealers against a target 41,760 MT representing an achievement of 35%.
- **Access to inputs and extension:** Farmers' access to inputs and extension in terms of distance they travelled to reach suppliers improved: Kenya was almost achieving an average target of 3 km whereas the project-supported farmers in Malawi covered shorter distances to access extension services, compared to farmers who did not receive support.

A key question is how to sustain agricultural input markets in remote areas with thin demand? There is need to improve infrastructure; create demand; promote subsidised support to agro-dealers to strengthen associations (following some success in Zambia); market franchise and social capital (trust).

Recommendations for SAIOMA and government and policy-makers:

- **Training** of agro-dealers should be based on needs assessments and provide fresher courses for already trained agro-dealers and full courses for vendors or seasonal agro-dealers. The agro-dealer training should involve government agricultural extension workers and agribusiness advisors to build their capacity for follow-up activities beyond the program.
- **Grants:** Provision of grants to agrodealers without matching capital, but with potential to reach difficult to reach rural markets, should be considered. Provision of bridging capital to buy stock for those with good business plans should also be considered for this group.
- **Agro-dealer hubs** are not all functioning as envisaged. The Sorghum Pioneer Agency (SPA) in Kenya is a unique case with a history of working as both as a hub-agro-dealer and a grain aggregator. Its hub agro-dealer model involved setting agro-dealer shops in which serve as franchises linked to agro-dealer shops are aggregation centres. SPA is involved in both forward and backward linkages through sorghum supply contracts to EABL and buyer contracts to sorghum farmers. SPA provides several services to contracted farmers. This complex model is supported by many development partners including SAIOMA in through capacity building and linkages to markets and financial institutions. These are key elements for strengthening the hub and spoke agro-dealer model. The recommendation is to support these linkages and provide linkages to financial markets for larger ADs.

Recommendations for policy:

- There is need to **link agro-dealers to extension services** to provide farmers with multiple sources of information on inputs and practices and for business services.
- **Linkage of agro-dealers to Farm Input Subsidy Programmes (FISP):** future programs should take on a lobbying role to involve ADs in the government subsidy programmes, where they have sufficient capacity. There has been some success in this by Nutri-Aid and partners in Zambia.
- **Agro-dealer associations** have a key potential role in monitoring and supporting ADs but are generally weak. An exception was Chibombo agro-dealer association in Zambia where SAIOMA partners established a platform for agro-dealers and input suppliers. The platform strengthened relationships of actors in the sector -- and especially broadened the base of input suppliers by bringing on board new agro-dealers. Future programs should consider support for such platforms in other countries and regions.

Program objective 2 – Improving smallholder access to structured markets

The market access objective of SAIOMA aimed at training farmers in marketing their agricultural commodities (largely grains), linking them to markets, and building their capacity with various skills such as leadership and governance, postharvest management practices, and business and negotiating skills to enable them to achieve higher value returns on their farming activities. It also aimed at improving storage structures for grain aggregation at local district/sub county level.

Different models for linking smallholder farmer to structured markets were promoted under the program: on-spot buyers, bulk buyers, warehouse receipt system (Malawi), and agrodealers. Farmer organisations were supported to engage with these markets. The theory of change behind linking smallholder farmers to formal markets is based on a number of assumptions, such as good information and transparency in operations and good understanding by all market players of the financing and management arrangements.

Key achievements under Objective 2:

- **Total grain storage capacity** increased by 22,096 m² under SAIOMA: 118% achievement of target.
- **Program-supported farmers marketed** 86,998 MT of SAIOMA commodities: 110% achievement of target.
- **Number of farmers trained in improved post-harvest management practices** was 96,673 (63,620 women and 33,053 men): 102% achievement of the target
- **Improved post-harvest storage practices** were adopted by 61% of SAIOMA supported farmers in Kenya, 69% in Malawi and 66% in Zambia: 93%, 99% and 109% of respective country targets.
- **Post-harvest storage losses** were 6.5% for pigeonpea farmers in Kenya, 13.4% for maize farmers in Malawi and 6.3% in Zambia. This represents 167%, 149% and 317% achievement of targets.

Eighty-seven aggregation centres have been renovated under SAIOMA building storage capacity in rural areas. However, the number of farmers involved in aggregation under the program to date is 44,793 against a target of 60,000 (75%). The shortfall is due to reluctance by farmers to deposit their grains as a result of: poor harvests, mistrust within farmer organisations, higher prices offered by informal buyers, and the need for smallholders to sell and receive payment immediately after harvest due to pressing needs such as school fees and farm inputs. Sustainability of some of the aggregation centres is in doubt where the centres are privately rented rather than not owned by the Farmer Organisation or the government.

Adoption of improved post-harvest management practices by smallholder farmers was found to have increased for technologies such as drying, sorting, improved storage bags and use of storage pesticides. A key observation is that the main post-harvest losses continue to occur in other stages of the value chain not targeted by the project: namely in-field losses. The training models adopted were: direct training of farmer organisation leaders and aggregation centre staff, use of extension worker trainers, and training of lead farmers as trainers. Adoption of some post-harvest practices has improved but not significantly compared to control farmers. Extension staff and lead farmers were generally not well supported in their on-training of farmers which has reduced uptake of some technologies. Training in grading has not generally improved returns as differential pricing is not practiced in many markets.

Recommendations on improving market access

1. All of the constraints to smallholder farmers' participation in formal output markets need to be considered including: farmer organisation governance to improve transparency and trust so that farmers increase aggregation, and crop insurance in event of crop failure.

2. All aggregation centres should be owned or leased on long-term arrangements (e.g. from government) by the participating farmer organisations (not rented from private individuals); where this is not possible, new warehouses could be built if assessed to be cost-efficient.
3. Training on in-field post-harvest management is needed to address the main stages at which losses are occurring.
4. Ongoing support for smallholder farmers in post-harvest management is needed. This can be provided through building capacity and buy-in of local service providers. Formal inclusion of local extension services in training e.g. through MoUs or service agreements, rather than ad hoc contracts, would improve trainer and farmer capacity and the sustainability of the interventions.
5. Inclusion of non-SAIOMA potential crops such as pigeon pea and rice (in Malawi) would have improved program performance indicators.
6. A longer period of program implementation (minimum 5 years) would sustain and translate improvements in farmer postharvest and marketing knowledge to practice and performance.

Cross-cutting activities - Farmer Organisation Capacity Building and Women's Leadership

SAIOMA's direct project interventions, extending and deepening input markets and improving output markets, were supported by two crosscutting interventions: farmer organization (FO) capacity building and gender activities.

Key achievements under cross-cutting activities:

- **Improved capacity of FOs** using the Capacity Performance Index (CPI): 60% of FOs have improved their CPI during the reporting period, with 59 % improving their CPI above the 43% target.
- **Level of women representation in leadership of FOs** is 56%, compared to a target of 60%: 93 % achieved.
- **Involvement by women in household decision-making on produce sales** has stayed constant or increased for 98% of SAIOMA women beneficiaries. For decision-making on control over income from sales it has stayed constant or increased for 95% of women.

Lessons

Farmer Organisation strengthening was a critical component for the overall success of SAIOMA and to the sustainability of program outcomes. As a cross-cutting intervention in the program, its importance was recognised in program design. However, this component received the smallest share of budgeting and resources and this limited the scope of its activities.

The Capacity Performance Index tool used by the program was useful in identifying broad levels of FO capacity, but was not effective in identifying and addressing underlying management, governance and accountability issues. The modular approach taken to training FO leadership faced similar challenges. In some cases SAIOMA partners were able to provide backstopping to their FOs, but coaching and mentoring would ideally have been an ongoing principal activity. Overall CPI scores for SAIOMA supported FOs increased slightly over the life of the programs, which is commendable, however there is a danger that this might not be sustainable with leadership turnover.

FO capacity building was provided by partners and sub-contractors as individuals, which has left FOs without backstopping services. Long-term agreements with partners should be promoted to ensure coaching and mentoring is available over the medium to long-term to enable FOs to survive and grow.

The SAIOMA program implemented gender activities to ensure participation of women and youth in leadership position in the FOs. The main activities were gender training for program staff and gender activities to encourage women in program implementation and leadership.

Recommendations on FO strengthening

1. Farmer Organisation strengthening needs to be placed at the centre of any future market strengthening program and provided with adequate resources and support
2. Assessment and interventions to support FO should be based on a wider measure than the CPI to capture levels of accountability and trust: to encourage more smallholder farmers to aggregate their produce through groups.
3. Formal collaboration with local partner organisations including Ministries of Agriculture and Trade, and Department of Cooperatives (e.g. through service agreements) will enable follow-up and sustainability of FOs beyond the program.

Program management

Program activities were delivered successfully by prime, country leads and program partners despite some challenges arising over the course of the program. The majority of LOAs were achieved.

Key management findings:

1. The consortium concept piloted under SAIOMA is innovative, combining strengthening input markets, output markets and farmer organisation capacity building in one program. Initially partners implemented activities in silos, though cooperation has improved significantly over the course of the program with management support. For consortia to work successfully there is need for clear working modalities agreed at inception, including lines of reporting.
2. More equitable support for the different components is needed to ensure sustainability. Strengthening smallholder farmers to aggregate and enter formal markets requires more emphasis on the foundations of the pyramid: capacity building of Farmer Organisations. This was given the lowest priority in resource allocation of program investments. It is recommended that guidelines for partners on allocation by objectives are considered.

3. After initiation of program start-up activities the program effectively operated on the ground for only two seasons: too short to see a significant shift by risk-averse smallholder farmers to new marketing arrangements and to embed new processes in farmer organisations. Ideally, an input and output strengthening program would have an inception stage, minimum of 3 years full implementation, and an exit phase to ensure sustained impact.
4. Contextual factors, particularly the weather, had a major impact on harvests and thus program outcomes. Weather insurance schemes could be considered as part of future investments.

Program impacts and outcomes at smallholder farmer level

Performance against program impact and high level outcome indicators – to which the program would be expected to contribute – is positive for change in agricultural GDP (indicator #3), although below the target rate of 35%. For percentage of rural households living below the poverty line, the targets were 91% and 80% met in Kenya and Malawi respectively, with Zambia lagging at 58% (#1). Per capita household expenditure (#15) is well below the baseline level. Reasons for non-attainment of targets are a combination of external factors (such as agricultural sector performance and government policies on input subsidies and commodity trade) and high target levels.

On outcome targets, performance on distance travelled by smallholders to access agro inputs has improved over the program period, and is close to LOA targets in Zambia (96%). Targets on use of improved input (#10) were exceeded in Malawi and Zambia (118% and 122% respectively for improved maize varieties). In Kenya targets were only 60% and 40% met: here local varieties are also in demand (sorghum). Gender-disaggregated data shows that farmers in female-head households also exceeded the targets in Malawi and Kenya, but trailed in Kenya, though the difference between male- and female-headed households was not significant. Assessment of post-harvest storage losses at household level shows that targets were significantly exceeded for the key commodities assessed: pigeonpea in Kenya, maize in Malawi and maize in Zambia (#18). Finally, targets on SAIOMA beneficiary smallholder adoption of improved post-harvest storage were met in Zambia, whilst in Kenya adoption was 93% and Malawi (99%) (for at least one practice) (#21).

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SAIOMA Key indicators: Targets and level of achievement at end of program 2015/16

	Indicators	Kenya			Malawi			Zambia		
#		LOA target	LOA Achieved	% LOA Targets met	LOA target	LOA achieved	% LOA Targets met	LOA target	LOA achieved	% LOA Targets met
1	Impact Indicator: Percent of rural households living below poverty line	45%	49%	91%	45%	57%	80%	50%	78%	64%
3	Outcome Indicator: Percent change in agricultural GDP		3.5%			6%			6.3%	
4	Outcome Indicator: Average distance travelled by farmers to access agroinputs	3 km	3.9 km	77%	3 km	7.6 km	39%	10 km	10.4 km	96%
10	Outcome Indicator. Percent of targeted farmers using a. improved seeds: maize/sorghum b. fertilizers	73 73	44% 27%	60.3% 36.9%	73 73	86% 90%	117.8% 123.3%	65 65	79% 95%	121.5% 146.2%
15	Outcome Indicator: Per capita expenditures of targeted smallholder farmers (proxy for income)	\$5	\$0.92	18%	\$4	\$0.28	7%	\$5	\$0.33	7%
18	Outcome Indicator: Post-harvest losses (pigeonpea/maize) percent	11	6.6	167%	20	13.4	149%	20	6.3	317%
21	Outcome Indicator: Percent of smallholder farmers adopting improved post-harvest storage practices	65%	61%	93%	70%	69%	99%	60%	66%	109%

Part I: INTRODUCTION

1. Background

1.1. Introduction

The Natural Resources Institute (NRI) of the University of Greenwich, in collaboration with Lilongwe University of Agriculture and Natural Resources (LUANAR), Centre for African Bio-Entrepreneurship (CABE) and Muwe Associates, was commissioned by the Alliance for a Green Revolution in Africa (AGRA) to carry out a final evaluation of the Strengthening Agricultural Input and Output Markets in Africa (SAIOMA) program. The evaluation was carried out in the three SAIOMA program countries, Kenya, Malawi and Zambia, between August and November 2016.

The report is structured as follows. Part I, Introduction, provides background to the program and the evaluation, evaluation objectives and questions, and the methodology used by the evaluation team. Part II presents Results of the evaluation. Chapter 2 gives findings on Quality and Relevance of program design. Chapters 3-5 present results by program objective: Chapter 3: Objective 1 - Improving smallholder agricultural production; Chapter 4: Objective 2 -Improving smallholder access to markets; and Chapter 5: Strengthening Farmer organisations and Gender. Chapter 6 presents findings on Program Outcomes and Impact at household level against Program performance Indicators. Chapter 7 – SAIOMA Management, gives findings on program management. Additional information is provided in the Appendices to the report.

1.2. Background and Context

The Alliance for a Green Revolution in Africa was founded through a partnership between the Rockefeller Foundation and the Bill and Melinda Gates Foundation with a mission of improving the productivity and incomes of resource poor farmers in Africa.

Strengthening Agricultural Input and Output Markets in Africa program is a multi-partner initiative working to improve inclusive agricultural sector growth in Kenya, Malawi and Zambia through a Global Development Alliance (GDA) supported by the United States Agency for International Development (USAID), the Bill & Melinda Gates Foundation, and the Swedish Ministry of Foreign Affairs. SAIOMA pursued its overall goal through two primary program objectives:

Program Objective 1: Improved Agricultural Production

The implementation strategy for Improved Agricultural Production is the rapid development of agro-dealer networks in rural input markets to deliver appropriate technology inputs and information to smallholder farmers. Under this objective, the focus was on strengthening agro-dealer networks in targeted areas in order to improve smallholder farmers' access to improved agro-inputs and appropriate agronomic practices.

The theory of change is that when producers use improved agricultural inputs and employ good agronomic practices, they increase their yields and incomes. Demand creation activities for agricultural inputs such as field days and demonstration plots are therefore important both for the development of agro dealer businesses, and for farmer adoption of improved inputs and practices.

Program Objective 2: Improved smallholder farmers' access to markets

The Program Objective 2 addresses factors that hinder farmers from marketing their produce profitably by investing in market development, storage and services and direct procurement. The focus crops for market access activities are green grams, pigeon pea, cow pea, groundnuts, sunflower, sorghum, cassava, and maize. The overall approach included:

- Strengthening the functioning of farmer groups/organizations with emphasis on improving their storage capacities (through post-harvest crop management, aggregation and improvement of storage infrastructure).
- Facilitating linkages to structured markets for participating farmer organizations and training them on commodity marketing (e.g. contract negotiations) and meeting the quantity and quality requirements of the target markets.
- Once the program succeeds in promoting crop aggregation of farmers' surplus production, it connects the farmers or aggregating entity (e.g. FO, agro-dealer) to large commodity bulk buyers, including food processors, animal feed manufacturers and other industries.

Cross-Cutting Program Activities

a. Farmer Organization Capacity Building

SAIOMA used Farmer Organisations (FO) as the primary entry point for technology transfer to smallholder farmers to increase their access to input and output markets. Furthermore, this allows the FOs to benefit from economies of scale in service provision in activities such as input procurement, bargaining with commodity buyers, collection of market information and produce marketing.

The program was intended to engage with different types of FOs from the lower level (Clubs, Clusters, Farmer Based Organisations or FBOs) to the intermediate (associations, commodity associations) to the higher level (apex, federation), depending on the country or the specific sub-sector or value chain. The program focused on strengthening FO operational efficiencies and governance structures. It executed a gender-responsive farmer organization capacity assessment and monitoring tool, the Capacity Performance Index (CPI).

b. Gender Inclusiveness

Women farmers are often at a disadvantage in input purchasing and produce marketing as they may have limited knowledge of the markets and ability to negotiate in their best interests. While women manage marketing of agricultural produce in local markets, they have often been excluded from participation in broader marketing activities.

SAIOMA intended to support the role of women and youth in increased access to input and output markets by including women and youth groups among participating farmer groups wherever possible. Other strategies included the timing of program trainings when women are not busy with house chores, implementing affirmative action for women in the provision of micro-grant to start-up agro-dealers, and a gender-responsive farmer capacity assessment and monitoring tool, the Capacity Performance Index (CPI).

1.3. Objectives of SAIOMA final evaluation

The main objective of the final evaluation is to assess the overall program performance in relation to its objectives, and to provide input into the new strategic directions or implementation designs/strategies of another phase should funds be available. The evaluation assessed what has

worked, what did not work very well, key lessons learned and what areas should be emphasized or adjusted, in the second phase. The evaluation covers the following three components:

- (i) *Programmatic impacts* – assessment of what outputs have been delivered, what changes (outcomes, both intended and unintended) have occurred among the beneficiaries, relevance of program interventions, sustainability of the achievements to-date, government policies around farm input and output markets and their implications on the program performance in each country.
- (ii) *Program delivery mechanisms* – review of the approaches adopted by the program to achieve program objectives, such as models for farmer organization strengthening, agro-dealer development and various marketing approaches employed in the target countries. Discern how successful these models have been, what lessons can be drawn, whether these results are likely to be sustainable.
- (iii) *Project management for results*- evaluation of management processes; assessing their adequacy, efficiency and effectiveness, including: program structure; staffing; grant-making processes; quality of grants funded; level of integration and alignment with other Feed the Future and AGRA projects.

1.4 Scope of the evaluation

The evaluation assessed SAIOMA performance since its inception in October 2012 and covered the three target countries of Kenya, Malawi and Zambia. In Kenya SAIOMA was implemented in four counties of Eastern Kenya: Machakos (*Yatta and Mwala sub-counties*), Kitui (*Kitui Central and Lower Yatta sub-counties*), Meru (*Tigania West sub-county*) and Tharaka Nithi (*Tharaka North sub-county*). The focus crops were sorghum, greengrams, pigeonpea and cowpeas. In Malawi SAIOMA was implemented in the six districts of Balaka, Machinga, Zomba, Mangochi, Mulanje and Phalombe, focusing on maize, soya bean, groundnuts and cassava. In Zambia the program was working in six districts of Lundazi, Chipata, Katete, Petauke (*Eastern Province*) and Chibombo and Mumbwa (*in Central Province*), with focus crops: soybeans, groundnuts, sunflower and maize.

SAIOMA was implemented through a consortium approach and the evaluation covered the work by all sub-partners in each program country. An in-depth review of program investments was conducted to determine progress towards achieving its stated goal and objectives. Table 1 shows the impact and outcome indicators assessed under the evaluation using household survey and secondary data. USAID-required disaggregates were also considered when collecting data for these indicators (USAID Feed the Future monitoring manual). The evaluation also examined commodity exchange activities in Malawi, where the approach was piloted, including successes, challenges and lessons learned.

Table 1 SAIOMA Impact and Outcome indicators

Objective	Sub-Objectives	Indicators	Measurement Methods
Improved Agricultural Production	Increased women and men smallholder farmers' access to agricultural inputs Improved agricultural practices among women and men smallholder farmers	- Percent change in agricultural gross domestic product - Percent of rural households living below the poverty line - Average distance travelled by farmers to access agro-inputs - Farmer awareness levels on promoted farm inputs in target areas	- Review of secondary sources of information – Central Banks, WB, UNDP, etc - Household surveys
Improved smallholder farmers access to markets	Increased adoption of improved post-harvest management practices by smallholder farmers Improved marketing structures and linkages for smallholder farmers	- Per capita expenditures of targeted smallholder households (proxy for income) - Percentage reduction in post-harvest losses - Percentage of smallholder farmers adopting improved post-harvest storage practices	- Review of secondary sources of information – Central Banks, WB, UNDP, etc - Household surveys

1.5 Key Evaluation Questions

1. Quality and relevance of program design

- What were the major changes in program design, threats and opportunities which may have occurred since the inception of SAIOMA, and which may have had implications on the program performance?
- Assess program risks and test the underlying hypotheses and assess how these were managed.
- What were the program strategies and how they respond to emerging risks and national and USAID/Feed the Future priorities in target countries?

2. Program performance

- Assess the extent to which program outputs, outcomes and objectives were achieved at all levels.
- What were the positive and negative, direct and indirect, planned and unplanned results of the program? Discuss factors that impacted outcomes positively and negatively that cannot reasonably be attributed to the program.
- How effective were the program activities?
- What are the strategic importance of the program achievements and how it interfaces with the next phase of the program tenure?
- What are the challenges, lessons learned and best practices in program implementation?
- What is the potential and options for future sustainability, scalability and replicability?

3. Management issues

- What management issues such as the overall organizational structure of SAIOMA, staff configuration, execution modalities, and quality of grant making and management approach, arrangements for implementing grants, capacity gaps, utilization of the

expertise of the SAIOMA team and AGRA Program Officers from AGRA programs such as Markets, PASS and FOSCA in technical assistance and how all this affected program results?

4. Lessons learned

- i. What key lessons have been learned from SAIOMA?
- ii. What has worked well and what has not worked well?

1.6. Methodology

The evaluation used a mixed methods approach to address the evaluation questions, with collection and analysis of both qualitative and quantitative data. The qualitative data analysis was used primarily to address the relevance, effectiveness and sustainability of the program and the program theory of change. It included assessment of context of the program and partnership and collaborations during implementation.

Qualitative methods involved review and analysis of relevant documents, Key Informant Interviews and Focus Group Discussions. Program documents including proposal, quarterly and end of program reports, AGRA program reports, plus published reports and data from UNDP, FAO and National Statistics Offices were reviewed. In depth key informant interviews and focus group discussions were conducted with program stakeholders: consortium partners, agro-dealers, farmer organisations and associations, warehouse operators, Ministry of agriculture staff and commodity exchanges (Malawi). A list of Key Informants is given in Appendix 1.

Quantitative methods were used to assess program outcomes and impact at household level and inform Key Performance Indicators. A household survey and agrodealer survey were conducted in sampled program areas in the three target countries of Kenya, Malawi and Zambia.

Sampling

A sample of 600 households per country (total 1800) households was drawn based on several statistical assumptions as shown in equation 2. This sample included both the beneficiaries (30 %) and control farmers (60 %).

Following Ekesa *et al.* (2013), our sample size is determined by

$$n = t^2[p(1 - p)]/m^2$$

where n is the survey sample, t is the confidence level at 95% (standard=1.96), p is the proportion of households who have adopted the practices advocated by SAIOMA, or have increased their market access, which we conservatively assume to be at least 20%, and m is the margin of error, which we set at 3%. For the agro-dealer survey, p is the proportion of agro-dealers who stock seeds and other inputs promoted by SAIOMA, which we conservatively estimate to be at least 95%.

The final number of households sampled was reduced by 12% to 1605 households (due to time and resource constraints). Of these, around 57% were women. The sample comprised 1114 (69.4%) beneficiary households and 491 (30.6%) non-beneficiary households (control group). Table 2 shows key characteristics of sampled households by country.

Table 2 Sampled household characteristics

Variable	Kenya			Malawi			Zambia		
	Total	SAIOMA	Control	Total	SAIOMA	Control	Total	SAIOMA	Control
Total sample (n)	508	373	135	458	332	126	639	409	230
(%)		(73.4)	(26.6)		(72.5)	(27.5)		(64.0)	(36.0)
<i>Respondents</i>									
Female (%)	72.9	74.7	68.2	65.1	67.5	58.7	37.9	34.7	43.5
Male (%)	27.1	25.3	31.8	34.9	32.5	41.3	62.1	65.3	56.5
<i>County/District</i>									
Machakos	125	88	37						
Kitui	153	98	55						
Meru	112	101	11						
Tharaka Nithi	118	86	32						
Balaka				113	88	25			
Machinga				244	182	62			
Zomba				101	62	39			
Lundazi							218	153	65
Chipata							210	125	85
Chibombo							211	131	80

Source: Evaluation survey

The study adopted a multi-stage sampling procedure to select respondents. In the first stage, we randomly select beneficiary target areas (zones, Extension Planning Areas etc). The number of targeted areas selected depended on the population of beneficiaries; hence, we used the 'probability proportional to size' approach. Using the same approach, in the second stage we randomly sampled the households and agro-dealers from beneficiary lists provided by the program and local Ministry officials. We also identified suitable control villages around 10-20km from the program areas with similar characteristics to SAIOMA villages and randomly selected the control households from them.

In addition to the smallholder household survey, the agrodealer survey surveyed 72 agrodealers for interview in the selected beneficiary target areas. In Kenya, 22 agrodealers were interviewed, in Malawi, 23, and in Zambia, 27. Thirty-three percent were women agrodealers. Participants were selected from lists of SAIOMA-supported agrodealers held by SAIOMA Inputs support partners.

Survey Instruments

Several instruments were developed for data collection;

- A household survey questionnaire
- An agro-dealer questionnaire
- Farmer Organisation focus group discussion checklist
- A key informant interview checklist

The development of the questionnaire was based on evaluation objectives outlined in the request for proposal and outputs/outcomes contained in the program's logical framework and a review of program documents (SAIOMA) to understand the how the evaluation objectives fit into the broader objectives of the SAIOMA and AGRA's mission, policies and projects.

Once the questionnaire was reviewed and accepted the questionnaire was piloted. We selected and trained experienced research assistants to administer the questionnaire and used the pilot as part of

the learning process. The pilot exercise involved a small subset of households, key informants, and FDG groups. Modifications to the questionnaire were carried out after reviewing the experience of the pilots.

Field plan

A field plan was developed by the evaluation team with assistance from SAIOMA staff. The evaluation team then trained all field staff involved in executing the survey.

The training modules comprised:

- Introduction to the Survey. Familiarization with the program and questionnaires.
- Defining roles of the enumerator and the supervisor.
- Understanding the survey and survey questions – question by question explanation and discussion.
- Interviewing techniques. Tips for good interviewing.
- Practice Role Playing. Practice interviewing and recording responses.
- Supervision and monitoring (*for supervisors only*). Review responsibilities; explain expectations regarding enumerator, supervisor, and survey manager communication. Survey quality control will be stressed.
- Household selection process (*for supervisors only*) – based on sampling methodology.
- Practice interviews – to give interviewers and supervisors practical experience.
- Interview moderation (*for FGD interviewers*). This provided a practical environment to practice how to moderate a discussion.
- Review of survey process (for supervisors only). Overview of possible problems, causes, solutions, example situations and how to deal with them, schedule review.
- Quality control reviews (for supervisors only). With hardcopy questionnaires, supervisors and or Field Survey Editors reviewed all questionnaires in the evening following enumeration. Anomalies were identified at this time and corrected by the enumerator(s). This sometimes included having to return to the household the next day.

Data quality control

Stringent measures were put in place for data quality control before, during and after data collection. Before data collection, we ensured that the tools to be used were effective and enumerators well trained on how to ask questions and minimize data recording errors. During data collection, we ensured that there is minimum and timely coverage and appropriate engagement with the respondent. After the data collection, entry of the data was supervised to ensure that the errors of entry were minimized. Data corrections including missing values and extreme values were addressed during data cleaning and analysis.

Key Informant and Focus group Discussions

To complement the primary household and agro-dealer data, we conducted key informant interviews and focus group discussions. FGDs were organized with program participants spread representatively over the program area. In addition, we interviewed traders dealing with grains to establish the market dynamics within which the SAIOMA operates, including operators of agricultural commodity

exchanges (Malawi). The key informants and FGD participants were purposively selected to target respondents with substantial knowledge and experience of the SAIOMA program.

Data entry and analysis

SPSS was used for data entry and maintenance of the database. Analysis was carried out in SPSS and STATA programs with scripts saved and stored for replication of results. Analysis included descriptive statistics, test of means and correlations. Differences-in-differences measures were used to compare the effect of the intervention (SAIOMA program) on the beneficiary target group versus the control group by comparing the change in a series of outcomes over the program period (before the start and at the end of the program).

1.7. Challenges

A number of challenges were faced during the evaluation. The first set were related to the baseline. The baseline household surveys conducted in 2013 in each country collected data on the program indicators. However, the sampling frame appears to not have reflected the general smallholder population as data on key variables in some cases (such as input use) seems inaccurate. The evaluation team therefore used farmer recall for data from 2013 which was triangulated where possible against the baseline findings.

A second challenge was the timing of the evaluation which was conducted in the final year of the program before the end of the 2016 marketing season. This meant that data collected was mainly on performance during the previous two years of the program. Field activities mainly started in 2014 so the data captures only 1-2 cropping years. These experienced drought which resulted in below average yields in all three countries.

Time and resource limitations were a third challenge which meant that the sample size had to be reduced by 12 %. There was a particular challenge to find households to interview in areas where the program had not had many activities. Nevertheless the sampling frame and results remain robust.

PART II – RESULTS

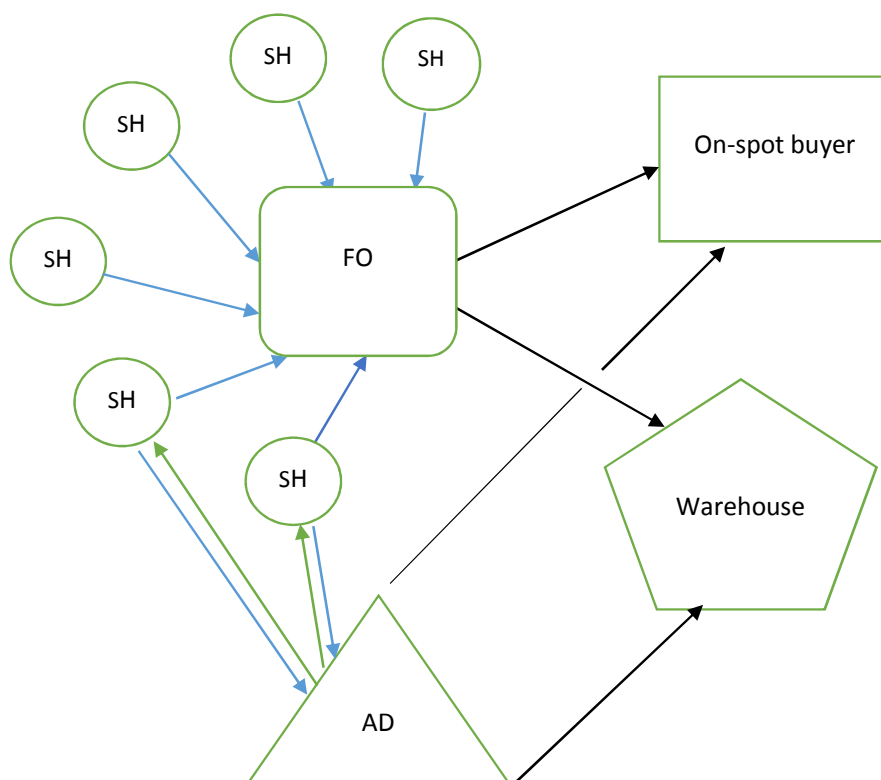
2. PROGRAM DESIGN AND RELEVANCE

2.1. Quality and relevance of program design

The program design effectively brought together three core components into the program, illustrated in Figure 1 (constructed from program documents and discussions with program staff):

1. Improving input markets: increased supply of improved inputs from agrodealers (AD); agrodealer hubs and facilitation of linkages between agrodealers and farmer organisations (FO); increased use of improved inputs by smallholder farmers (SH) resulting in increased production.
2. Improving output markets: increased smallholder engagement with (structured) markets; strengthening associations; training on post-harvest handling and engaging with markets; improving storage facilities – structures and management; promoting aggregation through farmer organisations; linking farmers with structured trade systems – commodity exchanges (Malawi), warehouse receipt systems; top-of-supply chain buyers (food processors, animal feed manufacturers etc.); promotion of access to finance.
3. Farmer Organisation Capacity Building: formalisation of farmer organisations (official registration, establishing formal structures); capacity building of FOs in governance and operational management.

Figure 1 Actors and linkages in SAIOMA program Theory of Change



Each of the components is critical to achieving the goals of the program. Overall program performance depended on efficient functioning of the separate components of the program together with an efficient coordinating arrangement. The performance of the different and joint components are discussed in subsequent chapters. Here, we note that the cross-cutting activities – Farmer Organisation capacity building and Gender – were also key to the success of the whole program.

Where capacity of farmer organisations was already strong or strengthened by the program, in combination with favourable market opportunities, the program was able to achieve its aim of improving smallholder farmers' access to structured markets (see case study: Makutano Grain Aggregation Centre, Tharaka North). In other cases, where not all components were fully functioning, combined with limited market opportunities, farmers were either unable or unwilling to sell through structured markets (see case study: Machakos Wamunyu Aggregation Centre). As a result, overall SAIOMA program targets for marketing were met in terms of quantity of grain aggregated, but below target in terms of numbers of smallholders selling through structured markets (44,793 farmers involved in produce aggregation against a target of 60,000: 75 % achieved vs. target).

The approach of combining support to smallholder farmers through inputs, outputs and farmer organisation capacity building activities is novel within AGRA and the experience of SAIOMA can inform future programming.

2.2. Relevance of countries

Three countries were selected for SAIOMA based on four criteria (SAIOMA Program Document:17)

- The critical need to improve agricultural incomes and address under-nutrition in these countries;
- The complementary role that the SAIOMA investments will have with the bilateral USAID Feed the Future investment strategies;
- AGRA's experience in and knowledge of these countries;
- The fact that these three countries represent diverse development stages and constraints so that the lessons learned from the SAIOMA investments will have broad applicability to the varied development needs of Africa.

These *a priori* criteria were met by the three SAIOMA countries, Kenya, Malawi and Zambia. All are countries where Feed the Future and AGRA have extensive experience. This enabled SAIOMA to build on existing relationships and partnerships (e.g. consortium leads) and investments (e.g. PASS, Market Access and Agrodealer Programs) which contributed to the successful implementation of the program within a short time period. The three selected countries represent a diversity of development conditions and constraints so that lessons from SAIOMA can be applied to other FTF and AGRA programmes within the region and beyond (though consideration of national and local agroecological, social, economic, political and institutional contexts will also be critical).

2.3. Relevance of commodities

The selection of commodities for inclusion in SAIOMA - sorghum, greengram, pigeonpea and cowpea in Kenya; maize, soya bean, groundnut and cassava in Malawi; and soybean, groundnut, sunflower and maize in Zambia – was primarily on the basis of Feed the Future priority crops, which had previously been agreed upon with national stakeholders.

In terms of individual national priorities for cereals, maize is a staple and priority food security crop in Kenya and Zambia and sorghum, to a lesser extent in Kenya, particularly in the program Arid and Semi-

Arid Land locations. For legumes and oilseeds, soya, groundnut and sunflower are emerging cash crops in Malawi and Zambia and relevant to national priorities. The choice of cassava was not favoured by program stakeholders in Malawi (inserted by IITA a previous consortium member) due to its specific production and marketing characteristics. The Malawi programme adapted by linking up with a BMGF-supported project C:AVA to supply planting materials and link to markets (although there may be sustainability issues beyond the life of the C:AVA project for cuttings).

In a few cases, the choice of commodities was not well matched to the agroecologies of SAIOMA program areas. In Malawi for example, groundnuts and soya are not well suited to some of the targeted Extension Planning Areas (EPA) of Balaka and Mangochi districts. Maize, whilst being the major food crop in Malawi and Zambia, is generally not drought tolerant and was badly affected by drought during two of three program seasons.

Other crops were preferred by smallholder farmers and markets in Malawi over SAIOMA commodities: particularly rice (Zomba and Machinga) and pigeonpea. The quantities of these commodities aggregated by Farmer Organisations – in program-supported storage facilities - were considerably higher than for the SAIOMA crops: these are considered as unintended benefits of SAIOMA investments and are documented in the Appendix.

2.4. SAIOMA target group

The main target groups for SAIOMA are not explicitly identified in the Program document. However, following AGRA models, the main target group can be identified as market-ready smallholders (Figure 2: Participation pyramid). Commercial smallholders are also targeted indirectly as part of the aggregation process. Vulnerable but viable smallholders with limited capital and highly vulnerable smallholders, such as households headed by women, elderly people, children and people with disabilities, with limited capacity to generate market surplus, are not explicitly targeted but some of the project activities may spillover to bring benefits, particularly where they are able to join groups. Value chain actors and service providers, including agrodealers and farmer organisation officials, are also targeted under the program.

The rationale behind the choice of target groups is related to expectations over the ability of the program to reach these smallholders and make a difference. For vulnerable but viable smallholders the assumption was that that if they were organised into groups, provided with training and advice, facilitated access to inputs and markets, they could transform their production and livelihoods. For market-ready smallholders, the observation is that they are already using some improved inputs and market some of their produce, so the aim would be to increase rates of commercialisation.

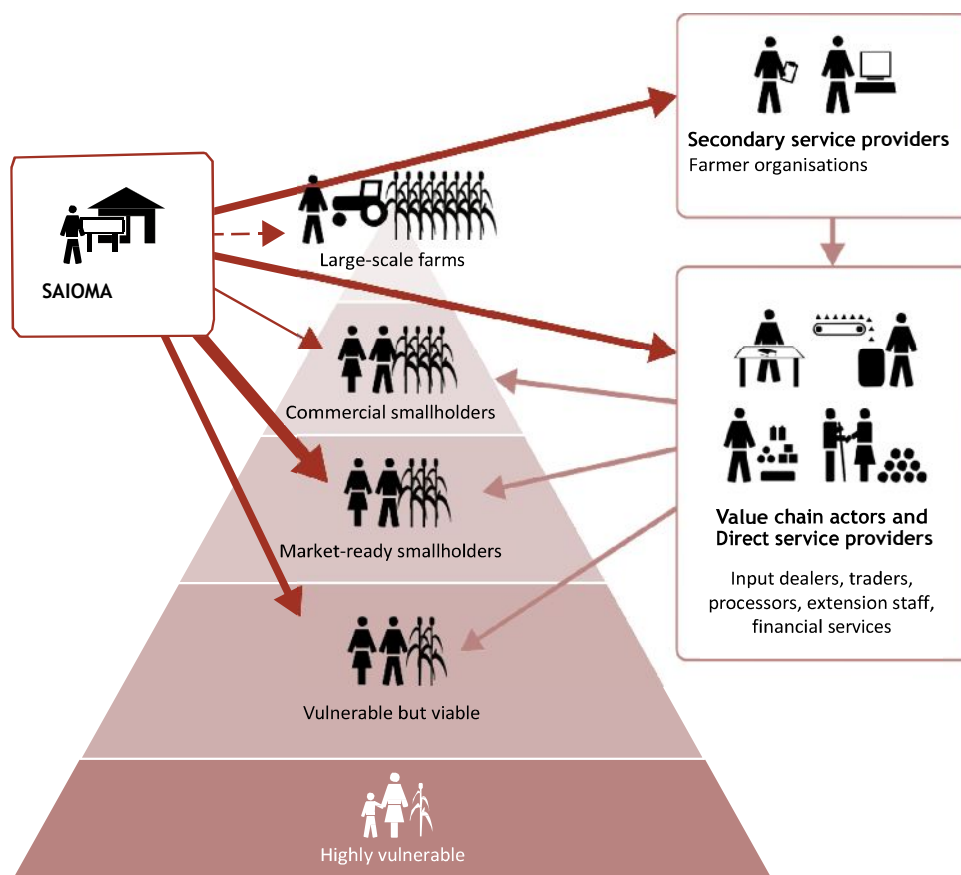


Figure 2 Farmer groups targeted under SAIOMA

Adapted from Investing in Soils, AGRA 2012

Gender

Women farmers are often at a disadvantage in input purchasing and produce marketing as they may have limited knowledge of the markets and ability to negotiate in their best interests. In some cases women may manage marketing of agricultural produce in local markets, but they have often been excluded from participation in broader marketing activities. The program planned a number of initiatives to support the role of women in increased access to input and output markets, including (SAIOMA Program document):

- Emphasis on the need for gender analysis and activities in requests for grant proposals.
- Participation of gender specialists in technical review of all grants proposals.
- Inclusion of gender analysis in implementation planning.
- Ensure that all training activities are structured to include both women and men. An example of the importance of this approach was highlighted in the AGRA supported NutriAID activity in Zambia, which found that men attended ADP training despite the fact that their wives usually managed their small stores. The problem was the timing and location of the training and the fact that the women could not to leave their families and also were often illiterate. This was resolved by shifting to use of on the spot training in local languages.
- Strengthen women's farmer groups for bulk input purchasing and aggregated produce sales

using a cascading approach in which larger, more experienced farmer organizations will train smaller ones. Activities were focused on training that strengthens their skills to access local, national and even regional markets (including knowledge of trading regulations, understanding of grades and standards, understanding consumer needs and how to meet them) and linking to market information systems.

The program set gender-disaggregated targets to reach women smallholder farmers, agrodealers and farmer organisation leaders. The impact of SAIOMA on women's knowledge, practices, production and livelihoods is assessed from the evaluation household survey (Chapter 6). This shows that, overall, no significant differences were found between key outcomes for men and women farmers surveyed, indicating that program activities (combined with other contextual factors and activities) have not had a differential impact.

3 PROGRAM PERFORMANCE – INCREASING SMALLHOLDER AGRICULTURAL PRODUCTION THROUGH ACCESS TO IMPROVED INPUTS

3.1 Overview

SAIOMA's program implementation strategy for Improved Agricultural Production was the rapid development of agro-dealer networks in rural input markets to deliver appropriate technology inputs and information to smallholder farmers. Under this objective, the focus was on strengthening agro-dealer networks in targeted areas in order to improve smallholder farmers' access to improved agro-inputs and appropriate agronomic practices.

The program used a theory of change (ToC) that links producers' increased yields and incomes to their use of improved agricultural inputs and good agronomic practices. Following this ToC, SAIOMA implemented a number of demand-creation activities for agricultural inputs such as demonstration plots, field days and exhibitions geared towards the development of agro dealer businesses, and farmer access and adoption of improved inputs and practices.

This chapter highlights findings and achievements against two sub-objectives namely, i) agro-dealer-led input delivery, and ii) improved agronomic practices (demand-creation), challenges, lessons learned, conclusions and recommendations.

3.2 Agro-dealer-led input delivery

The components of agro-dealer capacity building for input delivery include: training, grant giving, supporting hub-agro-dealers and facilitating their access to credit from commercial banks. Although not initially a component of this objective, the program encouraged agro-dealers to form agro-dealer associations (final year of program).

Training

SAIOMA program aimed to train agro-dealers in business management skills to increase their incomes through input-output marketing and sales as well as improved management of their business relations, records and clients. The program also trained agro-dealers on good agricultural practices including soil health, safe product handling and recommended application of agro-inputs. Table 3 shows that the trained 1,286 agro-dealers were trained in Kenya against a target of 1,310 in the life of the program, representing 98% achievement.

Table 3 Agro-dealers trained over the life of program

Country	Male ADs trained	Female ADs trained	Total ADs trained
Kenya	241	233	474
Malawi	249	60	309
Zambia	353	150	503
Total	843	443	1, 286

Source: SAIOMA Project Final Report, November, 2016

In Kenya SAIOMA project trained a total of 474 (241 Male, 233 Female) in five topics against a target of 400 agro-dealers representing 119% achievement.

During Focus Group Discussions (FGDs) with agro-dealers in four counties and key informant interviews (KIIs) with AGMARK Training Director M&E Officer, it was found that start-up agro-dealers were required to go through all training topics, while already trained agro-dealers selected topics of interest. However, some sent their untrained spouses or employees to the training. In the first phase of training, only half of agro-dealers turned up. The subsequent trainings were well attended after agro-dealers learnt of benefits of the training – particularly certification which would earn them recognition by financial institutions and government programs.

In Malawi, the project trained 309 agro-dealers (249 Male and 60 Female) on the five topics. As in Kenya, agro-dealers were registered and certified by the Pesticide Control Board. This legal recognition strengthened their linkage to input suppliers while the acquired business skills enabled them to identify business opportunities in remote areas and provide innovative service package including setting up of seasonal shops.

In Zambia, the project trained 503 agro-dealers against target of 450 representing 112 % achievement. The licensing of agro-dealers participating in the government subsidy electronic voucher scheme by Zambia Environmental Management Agency (ZEMA) to trade in crop protection products triggered another wave of demand for training activities. FGDs and KIIs confirmed that many agro dealers do have the capacity to pay for demand driven trainings which they consider important for their business.

Overall, training enabled start-up agro-dealers to receive certification to qualify for SAIOMA grants while existing agro-dealers received both refresher training and advanced business training.

Grants

The SAIOMA grants were used for renovating agro-dealers shops - including improving interior ventilation, business branding, and providing shelves. Grants were available only to those agro-dealers who had received business skills training and were announced to prospective beneficiaries during the various business management training sessions. Table 4 shows that the project administered micro-grants to 169 agro-dealers from a target of 93 representing 182 per cent achievement. The grants aimed at stimulating faster business growth among trained agro-dealers.

Table 4 Agro-dealers receiving grants over life of project

Country	Target grants	no.	Grants administered	Level of Achievement
Kenya	45		40	89%
Malawi	28		28	100%
Zambia	20		101	505%
Total	93		169	182%

Source: SAIOMA Project Final Report, November, 2016

In Kenya, the project provided micro-grants to 40 agro-dealers against a target of 45 grants representing an achievement of 89 per cent.

The Evaluators (through KII with AGMARK project staff and agrodealers) found that AGMARK negotiated for support to agro-dealer start-ups to use the grant of up to US\$ 1,500 for infrastructure only (renovation of premises, painting, window for aeration, burglar-proof door, shelves, pallets,

weighing scales, cash box, table, chair, and counter). The supported agro-dealer's contribution was in the form of paying rent, license fees, stocking the shop, and paying employees. This was aimed at ensuring sustainability of the businesses.

In Malawi 28 grants were administered to renovate: an achievement of 100%. Each agro dealer recipient received a micro grant averaging USD700. Of the sampled 24 agro dealers 11 agro dealers had their shops renovated in this arrangement. One beneficiary was Grevin Hamis an agro dealer in Zomba who had his shop painted; floor, shelves and counter constructed with the grant (Figure 3).



Figure 3 Mr. Grevin Hamis' Agro-dealer shop in Zomba, Malawi renovated under SAIOMA

In Zambia, partners provided micro grants to 101 start-up agro-dealers from a target of 10 agro-dealers. As a result, the project reduced the amount of the grants to each grantee, which in turn required the agro-dealers to put in more of their own investments. The evaluators found that start-up agro-dealers were also linked to input suppliers.

Hub-agro-dealers

SAIOMA identified existing agro-dealers with growth potential and supported the development of agro-dealer hubs to strengthen links with seed suppliers who in turn would advance small amounts of inputs on consignment basis to start-up agro-dealer retailers. The support included training in output marketing in order for them to participate in crop aggregation. The project supported the development of 92 agro-dealer hubs against a target of 63 hubs which represented an achievement of 146%. The support to the agro-dealers hubs included training in various modules (viz. agro-dealer business growth strategies, agro-dealer retail pricing strategies, business planning for agro-dealers, customer service, advanced financial management, retail store management and strategic planning for hub agro-dealers). Some hub agro-dealers were aggregating crops and establishing forward linkages with commodity buyers for output crop marketing (see below).

In Kenya, the program developed 12 agro-dealer hubs. The Sorghum Pioneer Agencies (SPA) is one of the successful hubs. SPA works as a hub-agro-dealer hub and as a grain aggregator. It has 15 agro-dealer shops in Tharaka Nithi County which serve as franchises (see Box 3.1). It employs 12 staff. SPA has 41 aggregation centres, with the main store at Mukothima – due to high demand by farmers to

also to ease transportation to the buyers or main store. SPA provides a range of farmer support services: ploughing, threshing and winnowing, and bagging and labour, input and service credit –seed, ploughing, guaranteeing credit, transport, etc. According to an interview with the SPA owner, Beatrice Nkatha, “Before SAIOMA, farmers had very limited access to tractors for ploughing and threshers. Also, through a SAIOMA grant, SPA has brought farmers’ to access this service closer to them --- sometimes at credit. SAIOMA introduced two mobile threshers per group which have eased labour burden and encouraged farmers to plant more sorghum”.

Box 3.1: : About Sorghum Pioneer Agencies

Sorghum Pioneer Agencies (SPA), owned by Ms Beatrice Nkatha, was registered in 2009. SPA was contracted by East African Breweries Limited (EABL) in 2010 – and was initially linked to 400 farmers: it is now working with 14,000 farmers. SPA is the main supplier of sorghum to EABL. Its supplies rose from 1,450 MT in 2010 to 3,500 MT in 2016. Since 2014, farmers have been demanding contracts with SPA for sorghum supply: in 2015 SPA signed 47 contracts with groups. Each group was to supply on average 30 tonnes: most groups were able to supply above 30 tonnes after SAIOMA linked farmers to Equity Bank to support production. SAIOMA also linked SPA to ROOT Capital who financed the business as an agent of EABL – to support spot payments to farmers. SPA also serves as a grain aggregator.

In Malawi, the program supported the development of 24 agro-dealer hubs. However, the evaluators found that some hub agro dealers were essentially agro dealers with contracts with seed companies under the Farm Input Supply program (FISP): during seasonal sales they supply some of their contracted seed to fellow agro dealers to help them sell the stock quickly. None of hub agro-dealers was selling both wholesale and retail products at the time of evaluation. The hub-spoke agro-dealer arrangement contributed to reducing distances travelled by agro dealers to order their products.

In Zambia, the program supported the development of 56 hub agro-dealers. The program encouraged agro-dealers to operate as aggregators. Based on a key informant interview with SeedCo, the company reported that its market share had increased by 12% due to the SAIOMA. The project had also brought healthy competition to input suppliers in terms of quality and pricing. The number of agro-dealers defaulting on consignment credits and delaying payment has reduced.

Credit access

SAIOMA facilitated agro-dealers to access credit from banks by organizing business to business (B2B) meetings: 67 agro-dealers to access loans from commercial lenders.

In Kenya, through an interview with AGMARK, evaluators found that the project increased access to business credit by agro-dealers – with 55 agro-dealers accessing credit from local banks compared to none at baseline. This achievement was attributed to the favorable environment in Kenya in terms of existing interest rates that are reasonable. In addition, some banks (including Barclays Bank, Kenya Commercial Bank and Equity Bank) have loan products targeting SMEs such as agro-dealers. In Malawi, RUMARK investigated options of linking agro-dealers to commercial banks. However, the interest rates offered were at commercial levels (35-40 percent) and it therefore concluded there was no business case for linking agro-dealers to commercial credit.

Agro-dealer Associations

Although not originally an activity of SAIOMA, this issue of agrodealer associations came up repeatedly during FGDs and KIs with agro-dealers and consortium partners. SAIOMA encouraged agro-dealers to form associations after training to give agro-dealers a voice for negotiating with governments and also help agro-dealers to police themselves and prevent unscrupulous traders from damaging genuine businesses.

In Kenya, three associations were formed at County level – one each in Kitui, Meru and Tharaka Nithi; Machakos County had an existing agro-dealer association. The program provided support in the form of rent for some AD Associations.

In Zambia, SAIOMA partner Nutri-Aid facilitated the establishment of Chibombo agro-dealer association as a platform for agro-dealers and input suppliers. It strengthened relationships of actors in the sector – in particular, broadening the base of input suppliers by bringing on board new agro-dealers exposed farmers and agro-dealers to large input suppliers and potential produce buyers.

3.3 Improved agronomic practices (demand-creation)

The demand-creation activities for agricultural inputs included demonstration plots, field days and exhibitions geared towards farmer access and adoption of improved inputs and practices.

Demonstration plots aimed to provide an important platform for smallholder farmers to learn agronomic practices with specific focus on correct application and utilization of agro-inputs such as seeds and fertilizers. These activities also provided good avenues for driving business to the agro-dealer shops.

SAIOMA project established 629 demonstration plots against a target of 282 which represented an achievement of 223%. Demonstration plots were set up in collaboration with farm input supply companies, Ministry of Agriculture, agro-dealers and FBO. The engagement of input companies and agro-dealers to set up demos to a large extent increased the number of demos that were set up.

The project set up 125 demonstration sites in Kenya; 121 and 383 demonstration plots were also established in Malawi and Zambia, respectively. Project partners were committed to increasing farmer reach by establishing demonstration plots and partnered with private sector companies who were willing to support demos in areas where SAIOMA had organized farmers.

The purpose of Field days and exhibitions was to improve farmer's knowledge on use of improved agricultural inputs, technologies and agricultural management practises to improve on their farm productivity and incomes. The project organized 208 field days against a target of 150, representing an achievement of 139% of the initial target in Kenya, Malawi and Zambia.

In Kenya under AGMARK, the program supported 45 field days and exhibitions with 10,551 farmers attending. Demos and field days were seen as effective by AGMARK key informants through being practical, while exhibitions were effective through bringing many stakeholders together.

Agro-dealers participated in field days and input fairs to promote use of improved inputs. These demand activities provided opportunities for sharing ideas and as a source of markets for inputs and commodities. In some cases, government extension staff and input suppliers also benefited from agro-dealer training.

3.4 Agro-dealer performance

Agro-dealer profile and activities

Table 5 shows the profile of agro-dealership since 2013 in Kenya and Zambia from a survey of 72 agrodealers conducted under the evaluation. In Kenya, about 60% of the agro-dealers interviewed set up their business in 2013; with about 77% selling fertilizer and 73% selling improved seeds. Among those who set up businesses in 2013, about 87% have already obtained business licenses. In addition to selling farm inputs, half of agro-dealers buy maize and green grams with the intention to resell later when price rises. About 65% of agro-dealers who set up their businesses in 2013 became members of agro-dealer associations.

Table 5 Agro-dealer profiles and activities

Variable	Kenya	Malawi	Zambia
Change in agro-dealership since 2013 (% sample)			
• Started agro-dealer business	60.0	43.5	51.9
• Started selling fertilizer	77.3	26.1	37.0
• Started selling improved seeds	73.9	43.5	63.0
Started buying grain since 2013 (% sample)			
• Sorghum	16.0		
• green grams	32.0		
• Maize	36.0	30.4	29.6
• Cowpeas	16.0		
• soya beans		4.3	22.2
• Groundnuts		8.7	12.1
• Sunflower			14.8
• Cassava		4.3	
Other agro-dealer characteristics (% sample)			
• Buy grains from farmers	50.0	8.7	63.0
• Member of agro-dealer association	65.2	8.7	40.7
• Joined agro-dealer association since 2013	100	21.7	44.6
• Business licensed	87.5	47.8	100

Source: SAIOMA Evaluation Agro-dealer survey (2016)

In Malawi, about 43% of the agro-dealers interviewed set up their business in 2013. Of these, 26% started selling improved seeds while 43% stocked fertilizer. About half (47%) were licensed with 30% buying and reselling maize. Less than 22 percent of agro-dealers were members of agro-dealer associations.

In Zambia, about 51% of the agro-dealers interviewed set up their business in 2013 and all have obtained business licenses. About 63% of the agro-dealers started with selling improved seed with only 37% selling fertilizer. Apart from selling farm inputs, 63% of these agro-dealers also buy maize from farmers to resell later when prices appreciate. About 44% are members of agro-dealer associations.

Input and extension delivery

SAIOMA-supported agro-dealers sold a total of 44,175 MT of improved seed against the target of 24,406MT which represented an achievement of 179% against Level of Achievement target. This was attributed to the impact of demand creation activities (such as demonstration plots, field days, input fairs and linkages with farmer organizations) on agro-dealer sales of agro-inputs. Agro-dealers also managed to get input loans which helped them have adequate stock.

SAIOMA-supported agro-dealers recorded total sales of 14,446 MT of fertilizers by project-trained agro-dealers against a target 41,760 MT representing an achievement of 35 per cent. This below target achievement was attributed to the fact that most farmers did not use fertilizers on SAIOMA-supported crops such as groundnuts, sorghum, pigeon pea, sunflower and green grams. Also, selling of fertilizers among start-up agro dealers was a challenge because many agrodealers did not have enough capital to procure fertilizers.

Findings from the Evaluation household survey show that SAIOMA increased the number and spread of agro-dealers – reducing distances travelled by farmers to access improved seeds and fertilizers. Table 6 shows farmers' access to inputs and extension in terms of distance they travelled to reach suppliers and extent to which they bought inputs from suppliers. Kenya is close to reaching the SAIOMA average target of 3km. Overall, there was little difference in distance to input supplier between SAIOMA farmers and control farmers. One factor may be the location of control farmers and the spillover effects of the SAIOMA investment in agro-dealers. Another reason may be the seasonality of many agro-dealers: they only locate in rural areas during the rainy season and are not available at other times of the year (for example, during irrigated farming activities). The majority of SAIOMA beneficiary farmers made use of the input suppliers: 87.7 percent to access seeds and 71.7 percent for fertiliser.

Table 6 Sources and accessing of inputs

Variable	Kenya		Malawi		Zambia	
	SAIOMA	Control	SAIOMA	Control	SAIOMA	Control
Distance to input supplier (Km)						
Seed	3.9	3.9	7.6	6.7	10.4	9.3
Fertilizer	4.8	4.2	8.5	7.5	13.6	11.3
Agrochemical	4.1	4.0	7.9	7.6	13.5	11.3
Extension service	6.3	5.9	6.1***	4.2	7.0	6.8
Use of input supplier (% sample)						
Seed	87.7	84.9	98.5	100	84.5	82.5
Fertilizer	71.7	73.0	99.1	100	85.2	83.4
Agrochemical	91.6	92.9	96.3	99.2	73.1	67.8
Extension service	68.9**	56.8	97.8**	94.2	59.4	62.4

******, *******: difference between SAIOMA and control farmers is significant at 5% and 10% respectively

Source: Evaluation household survey (2016)

In Malawi, SAIOMA-supported farmers covered shorter distances (by about 2 km) to access extension services, compared to farmers who did not receive support. There was also more use of extension service by the SAIOMA-supported farmers. In Zambia, the distance covered by farmers supported by SAIOMA was almost the same as that covered by farmers who were not supported. There was no

significant difference in the use of services provided by seed, fertilizer, agrochemical suppliers and extension service provider between the two groups.

Table 7 shows smallholder farmers' use of agro-dealers to source inputs at the before the start of the program and in 2015. In Kenya, there was an increase in use of agro-dealers by both SAIOMA and control farmers for all input types between 2013 and 2015. In Malawi, there was an increase by SAIOMA beneficiaries in use of agro-dealers as a source of seed between 2013 and 2015 which was significantly higher than the control group. In Zambia, SAIOMA beneficiaries saw a significantly greater increase their choice of agro-dealer as a source of agro-chemicals compared to the group. Farmers in Malawi and Zambia were slightly less likely to buy fertiliser from agrodealers in 2015 but this was not found to be significant and may be related to the decline in numbers of Farm Input Subsidy beneficiaries.

Table 7 Smallholder use of agro-dealers as sources of inputs (% sample)

Country and input	2015		2013		Difference in differences
	SAIOMA	Control	SAIOMA	Control	
Kenya					
Seeds	53.9	45.9	37.3	32.6	3.3
Fertilizer	25.5	30.4	22.0	21.5	-5.4
Agrochemicals	81.8	85.9	61.7	63.0	-2.8
Malawi					
Seeds	66.6***	45.2	48.8**	38.9	11.5
Fertilizer	34.3	24.6	35.2	30.2	4.7
Agrochemicals	42.5	37.3	36.1**	26.2	-4.7
Zambia					
Seeds	46.2	50.0	26.9	27.0	-3.7
Fertilizer	17.8***	27.0	18.6**	24.8	-3.0
Agrochemicals	10.0***	3.5	5.6***	0.9	1.8

******, *******: difference between SAIOMA and control farmers is significant at 5% and 10% respectively

Source: Farmer Survey (2016)

Agro-dealers as sources of information

Findings on new adopters' (since the start of SAIOMA) sources of information on improved inputs shows that in Kenya, new growers of improved sorghum and greengram varieties were more likely to receive information through farmer organisations (35% and 43%) and training (27% and 33%) than through field days and demonstrations (Table 8). Similarly in Malawi, 42% of the farmers received information on improved varieties through farmer's organizations, although demonstration plots were also reported to reach 44% of new growers. In Zambia, very few farmers had taken up new varieties since 2013 (only 2.7 percent of the sample). Here agro-dealers and farm input companies play a role in disseminating information on new varieties. Overall, farmer organisations and training are the most important sources of information for farmers on improved seed varieties. Field days and demos offer opportunities were not important as sources for new information except demos for maize.

Table 8: Sources of information on improved varieties

Country/crop	Kenya		Malawi	Zambia
	Sorghum	Greengram	(Maize)	(Maize)
New growers of improved varieties (% sample)	8.5	11.8	19.4	2.7
Source of variety information (% new growers)				
SAIOMA/farmer organization	34.7	43.5	42.0	12.8
Agro-dealers/input companies	4.0	7.3	7.6	21.8
How farmer learnt of variety (% new growers)				
Through demo	4.0	7.2	44.3	16.5
Through field days	6.5	5.1	2.4	9.8
Through training	27.4	33.3	4.2	3.8

Source: Household survey (2016)

3.5 Challenges

- **Training:** Initially Training for agrodealers was only provided for existing agrodealers but start-up agrodealers were also brought into the program. The training sessions were found to be useful to agrodealers but many still lack capacity in the practice of managing a business. Backstopping for agrodealers is a challenge. The program supports coaching of start-up agrodealers by mature ADs. Agrodealer associations, Ministries of Agriculture Agribusiness officers, Ministries of Trade, and Department of Cooperatives have potential roles in providing ongoing support for rural agrodealers.
- **Capital:** The program grant was for rehabilitation not for stock but the majority of small agro-dealers lack capacity to buy or hold stock – and could not enter the market after receiving training. Similarly, hub agrodealers lacked capital to offer wholesale prices.
- **Climate issues:** Climate issues – in one year, there was near total crop failure which affected program activities such as demos and grain aggregation
- **Accessing data:** Difficulty in accessing agro-dealer data on sales, profitability etc. make it challenging to evaluate program performance.

3.6 Lessons learned

- Business coaching is needed to provide agribusiness advisory services
- Hub agro-dealer franchise models may be more workable; with contracts, personal contacts.
- Policy lessons require bringing together training and certifying bodies for agro-dealers
- A systems of ongoing support involving established agrodealers, Ministries of Agriculture, Trade and Cooperatives needs to be established to provide capacity building of agro-dealers, coordination of training, monitoring, backstopping.

3.7 Conclusions and recommendations

How to sustain input markets in remote areas with thin demand? In response to this question, there is need to improve infrastructure; create demand; promote subsidised support to agro-dealers to strengthen associations (following some success in Zambia); market franchise and social capital (trust). The following recommendations can be discerned for SAIOMA and government and policy-makers:

Recommendations for SAIOMA:

- **Training** of agro-dealers needs to go beyond training courses to tailored capacity building and coaching. Ongoing support based on needs assessment and involving established agrodealers, Ministries of Agriculture, Trade and Cooperatives needs to be established to provide capacity building of agro-dealers, coordination of training, monitoring, backstopping
- **Grants:** Provision of grants to agrodealers without matching capital, but with potential to reach difficult to reach rural markets, should be considered. Provision of bridging capital to buy stock for those with good business plans should also be considered for this group.
- **Agro-dealer hubs** are not all functioning as envisaged. The Sorghum Pioneer Agency (SPA) in Kenya is a unique case with a history of working as both as a hub-agro-dealer and a grain aggregator. Its hub agro-dealer model involved setting agro-dealer shops in which serve as franchises linked to agro-dealer shops are aggregation centres. SPA is involved in both forward and backward linkages through sorghum supply contracts to EABL and buyer contracts to sorghum farmers. SPA provides several services to contracted farmers. This complex model is supported by many development partners including SAIOMA in through capacity building and linkages to markets and financial institutions. These are key elements for strengthening the hub and spoke agro-dealer model. The recommendation is to support these linkages and provide linkages to financial markets for larger ADs.

Recommendations for policy:

- There is need to **link agro-dealers to extension services** to provide farmers with multiple sources of information on inputs and practices and for business services.
- **Linkage of agro-dealers to Farm Input Subsidy Programmes (FISP):** future programs should take on a lobbying role to involve ADs in the government subsidy programmes, where they have sufficient capacity. There has been some success in this by Nutri-Aid and partners in Zambia.
- **Agro-dealer associations** have a key potential role in monitoring and supporting ADs but are generally weak. An exception was Chibombo agro-dealer association in Zambia where SAIOMA partners established a platform for agro-dealers and input suppliers. The platform strengthened relationships of actors in the sector -- and especially broadened the base of input suppliers by bringing on board new agro-dealers. Future programs should consider support for such platforms in other countries and regions.

4. PROGRAM PERFORMANCE – IMPROVING SMALLHOLDER ACCESS TO STRUCTURED MARKETS

4.1 Overview

The market access objective of SAIOMA aimed at training farmers in marketing their agricultural commodities (largely grains), linking them to markets, and building their capacity with various skills such as leadership and governance, postharvest management practices, and business and negotiating skills to enable them to achieve higher value returns on their farming activities. It also aimed at improving storage structures for grain aggregation at local district/sub county level.

For this objective, the following were the main program components:

- Strengthening capacity on storage
- Training in post-harvest management practices at farm, warehouse level.
- Supporting crop aggregation
- Facilitating linkages to structured markets

4.2 Strengthening capacity on storage

Under the project, 87 storage facilitated were rehabilitated: 30 in Kenya, 33 in Malawi and 24 in Zambia. This compares with a target of 96 improved stores: 91 % Level of Achievement vs. Target. The shortfall was due to insufficient funding to develop the remaining stores.

Rather than embarking on construction of new facilities, the program undertook rehabilitation of existing warehouses to enhance postharvest storage. This was a logical approach where there were existing stores owned by the groups or loaned to them by local government bodies. These improved structures served as aggregation centres and provided an opportunity for smallholder farmers to have better market access as the structures guaranteed improved storage and served as avenues for negotiated bulk selling. However, in a number of cases suitable stores were not available for the groups. In other cases the location of the rehabilitated warehouses did not take into account the location of FOs.

4.3 Training of smallholder farmers in improved post-harvest technologies

The program aimed to improve post-harvest management practices at both aggregation centre and farmer household level. According to SAIOMA Final report (2016) 96,673 farmers were trained (33,053 male and 63,620 female) – exceeding the target of 95,000 farmers (102% LOA achieved vs. target).

Topics included: use of tarpaulins, cleaning and sorting of grain, use of moisture meters, use of polythene or clean bags, siting of bags, improved stores, application of chemicals (following an Environmental Assessment and development of an Environmental Management Plan) and farm business skills. Initial training by SAIOMA partners took place at aggregation centres or training centres for group leaders and some farmers. To reach other smallholder farmers, the approach taken was trainer of trainers (ToT) or lead farmers who were inducted by program implementing organizations. An individual ToT or lead farmer received training directly from the implementing agent and was then required to pass on the training provided to 10 or more fellow farmers. In some cases (especially in Zambia) the trainer farmer received training materials such as posters. The training approach had the

advantage of reaching a large number of farmers. The disadvantage was that the training they received was mostly one-off and since local extension staff were not always involved in the initial training, there was limited back-stopping available for the ToT, impacting on uptake and sustainability, due to limited resources.

Findings on beneficiary farmers trained on different post-harvest topics is summarized in Table 9. In Kenya and Malawi a large majority of SAIOMA program beneficiaries interviewed during the evaluation survey were trained in at least one topic was highest in Kenya (99.2%) followed by Malawi (91.7%). In Zambia only one-third of farmers had been trained (33.7%) in post-harvest management practices. In Kenya, topics in which most farmers were trained were improved varieties (97%), improved storage (86%), chemical application in storage (86%) and marketing (84%). In Malawi, the topic on which most beneficiaries were trained was chemical application for stored grains (85%), followed by sitting of bags in store (84%), farm business management (81%) and marketing (77%). At least 67% of beneficiary farmers were trained on all topics. Beneficiary farmers in Zambia received little training compared to other countries. About 25% were trained on improved varieties while 21%, 18% and 17% were trained on marketing, chemical application on stored grains and farm business management, respectively. Only 3% were trained on improved storage for grains.

A gender disaggregated analysis shows that the proportion of farmers trained on each topic did not differ significantly by sex of household head except for use of polythene bags and farm business management in Kenya where women-headed households received less training, and farm business training in Malawi where male-headed households reported less training than female headed households.

Table 9 SAIOMA program farmers trained in post-harvest technologies by sex of household head (%)

Training Topic	Kenya			Malawi			Zambia		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
At least one topic	100	99.0	99.2	88.2	91.7	90.8	38.8	36.6	37.0
Improved varieties	94.1	97.9	97.3	76.3	68.1	70.1	28.6	24.4	25.1
Use polythene/clean bags	61.5***	85.6	80.5	66.7	66.5	66.5	8.1	6.2	6.6
Siting of bags	75.0	80.2	79.1	83.6	84.3	84.1	18.0	15.4	15.9
Improved storage	94.7	84.0	86.0	67.9	73.1	71.1	3.4	2.6	2.8
Chemical application (grains)	88.6	84.7	85.6	81.0	86.9	85.4	14.8	18.3	17.7
Farm business management	69.7**	84.1	81.1	76.3	82.6	81.0	23.9**	15.2	16.9
Marketing	82.5	84.1	83.8	70.6	79.0	76.9	24.5	20.4	21.2

, * Differences between female- and male-headed households significant at 5% and 1% respectively

Source: SAIOMA evaluation household survey

4.3.1 Postharvest Management Practices

Farmers adopting improved post-harvest storage practices

Table 10 shows results for adoption of improved post-harvest technologies from the evaluation survey. Across the three countries, the most adopted technologies were grain drying technologies (plastic sheet, tarpaulin, and special stacks such as Mandela cock) and storage pesticides for either grain dusting or fumigation. Adoption rates for grain drying technologies in Kenya and Malawi exceeded 60% for SAIOMA farmers in 2015, but was below 40% in Zambia. SAIOMA increased adoption grain drying technologies in in Kenya by 7.6 %age points. However, in Malawi, change in adoption was higher among the control than beneficiary farmers. In Kenya and Malawi, use of grain

storage pesticides increased for both beneficiary and control farmers. However, in Malawi, this increase was huge, from less than 2% in 2013 to about 70% (76% in control group) in 2015. The use of hermetic bags was almost zero in Malawi and Zambia, but in Kenya, it ranged from 2-3% in 2013 to about 6% in 2015, with SAIOMA program impact being 1.2 percentage points. Overall, the net impact of the program on SAIOMA program beneficiaries appears limited for the adoption of these technologies. It should however be noted that in Kenya, the most commonly stored grain, maize, was not targeted by SAIOMA, hence adoption of post-harvest technologies could be higher than reported here.

Table 10 Farmers adopting improved post-harvest technologies (%)

Country and technology	2015		2013		Change 2013-15		Difference in differences
	SAIOMA	Control	SAIOMA	Control	SAIOMA	Control	
Kenya							
Drying grain on plastic sheet/tarpaulin	64.6	48.9	49.6	41.5	30.2%	17.8%	7.6
Raised store	6.4	5.2	5.4	4.4	18.5%	18.2%	0.2
Hermetic bags	6.2	5.9	2.1	3.0	195.2%	96.7%	1.2
Storage pesticide	60.6	69.6	56.8	60.7	6.7%	14.7%	-5.1
Use moisture meter/salt-in-bottle test	9.1	6.7	2.4	1.5	279.2%	346.7%	1.5
Improved grain store	14.7	9.6	10.7	5.9	37.4%	62.7%	0.3
Malawi							
Drying grain on plastic sheet/tarpaulin*	63.0	61.9	19.0	13.5	231.6%	358.5%	-4.4
Raised store	2.1	0.8	1.8	0.0	16.7%		-0.5
Hermetic bags	0.0	0.0	0.0	0.0			0.0
Storage pesticide	69.0	76.2	1.8	0.8	3733.3%	9425.0%	-8.2
Use moisture meter/salt-in-bottle test	3.6	0.0	0.3	0.0	1100.0%		3.0
Improved grain store	14.2	11.9	0.9	0.8	1477.8%	1387.5%	2.2
Zambia							
Drying grain on plastic sheet/tarpaulin*	32.3	29.1	nd	nd			
Raised store	1.7	1.3	nd	nd			
Hermetic bags	0.5	0.0	nd	nd			
Storage pesticide	65.5	61.3	nd	nd			
Use moisture meter/salt-in-bottle test	2.5	5.2	nd	nd			
Improved grain store	6.8	5.7	nd	nd			

* For Malawi and Zambia, this includes Mandela cocks for groundnuts nd = No data

Source: Evaluation household survey

Post-harvest losses

Post-harvest grain losses were estimated from surveyed farmer responses using visuals of grain damage at the beginning and end of storage in 2015: Sorghum for Kenya and Maize for Malawi (Table 11). This shows that over 50 % of farmers experienced grain damage in store. In Kenya, the control group experienced less damage than SAIOMA farmers in their stored sorghum (58.5 % seeing no damage compared to 49 %), whilst in Malawi SAIOMA farmers were less likely to see their maize damaged maize than the control group (46 % compared to 43 %).

Table 11 Maize grain damage at beginning and end of storage 2015

Country/commodity	Grain damage (%)	2015 Beginning		2015 End	
		SAIOMA	Control	SAIOMA	Control
Kenya - Sorghum	0	77.1	67.0	49.3	58.5
	2	5.4	2.6	17.9	21.7
	5	3.7	10.4	14.4	5.7
	10	9.9	12.2	14.7	8.5
	25	2.3	3.5	1.2	3.8
	50	1.4	1.7	0.6	0.0
	75	0.3	1.6	2.0	1.9
Malawi - Maize	0	94.8	87.9	45.7	43.1
	2	4.3	5.7	30.4	26.8
	5	0.9	4.0	12.0	10.6
	10	0.0	2.4	9.2	14.6
	25	0.0	0.0	1.2	1.6
	50	0.0	0.0	0.3	1.6
	75	0.0	0.0	1.2	1.6
Zambia - Maize	0	82.3	85.5	14.7	18.2
	2	10.5	6.1	30.3	29.4
	5	3.6	2.3	22.4	15.4
	10	2.3	4.2	12.6	15.4
	25	0.8	0.9	6.2	5.6
	50	0.0	0.0	8.0	5.6
	75	0.5	0.9	5.9	7.5

Stages of crop loss

Table 12 shows the reported crop losses at storage stage for both SAIOMA and control groups. Sorghum and maize were used as case crops. Across the three countries, farmers reported most losses in the field, during harvesting, and threshing. Losses in other stages were reported by less than 5% of the growers. Therefore although the project intervention mostly focused on grain storage stage, these results indicate that farmer training and support in post-harvest losses should ideally also include harvesting stages.

Table 12 Grain loss at storage stage (%)

Country, crop and stage	2015		2013		Difference in differences
	SAIOMA	Control	SAIOMA	Control	
Kenya: Sorghum	10.9	24.5	11.7	22.9	-2.4
Malawi: Maize	12.2	8.9	15.4	26.4	14.3
Zambia: Maize	6.8	5.7	5.8	6.7	2.0

Source: Evaluation household survey

4.4 Marketing of SAIOMA commodities

4.4.1 Farmer participation in output markets

Farmer participation in output markets has increased considerably for most crops in all countries over the SAIOMA program period (Table 13). In Kenya, positive program impacts were achieved in pigeon peas and cowpeas where the difference in SAIOMA market participation over the control group was 7.5 and 6.4 percentage points respectively. In Malawi, the impact of SAIOMA appears positive for all crops except maize. The largest impact was in soya beans where SAIOMA farmers increased their market participation by 35.1% over control farmers, followed by cassava (6.4%) and groundnuts (6%). Results for Zambia show that SAIOMA had negligible impact on farmer participation in output markets.

Table 13 Households marketing SAIOMA crops (%)

Country & crop	2015		2013		Change 2013-15		Difference in differences %
	SAIOMA	Control	SAIOMA	Control	SAIOMA	Control	
Kenya							
Sorghum	59.1	64.2	45.9	40.0	28.8%	60.5%	-11.0
Pigeonpea	48.8	41.9	43.8	44.4	11.4%	-5.6%	7.5
Green gram	63.6	67.6	60.7	62.1	4.8%	8.9%	-2.6
Cowpea	44.9	52.3	41.8	55.6	7.4%	-5.9%	6.4
Malawi							
Maize	25.1	8.9	27.7	10.3	-9.4%	-13.6%	-1.2
Cassava	36.4	8.3	30.8	9.1	18.2%	-8.8%	6.4
Soya Bean	39.4	-	4.3	-	816.3%	-	35.1
Groundnut	39.9	8.3	37.4	11.8	6.7%	-29.7%	6
Zambia							
Maize	68.3	71.0	53.4	56.0	27.9%	26.8%	-0.1
Sunflower	12.1	12.5	12.9	13.3	-6.2%	-6.0%	0.0
Soya bean	18.4	20.8	12.4	9.7	48.4%	114.4%	-5.1
Ground nut	23.8	17.0	12.8	6.1	85.9%	178.7%	0.1

Source: SAIOMA evaluation household survey

4.4.2 Facilitating linkages to structured markets

Crop marketing

While Malawi and Zambia have only one rainy season, Kenya has two, the main and short rainy seasons. Not all beneficiary smallholder farmers sold SAIOMA promoted crops from the 2013 and 2015 seasons as can be seen from Fig 4. In Malawi, 65% of the beneficiary farmers sold SAIOMA promoted crops from the 2015 season and 62% from the 2013 season, in

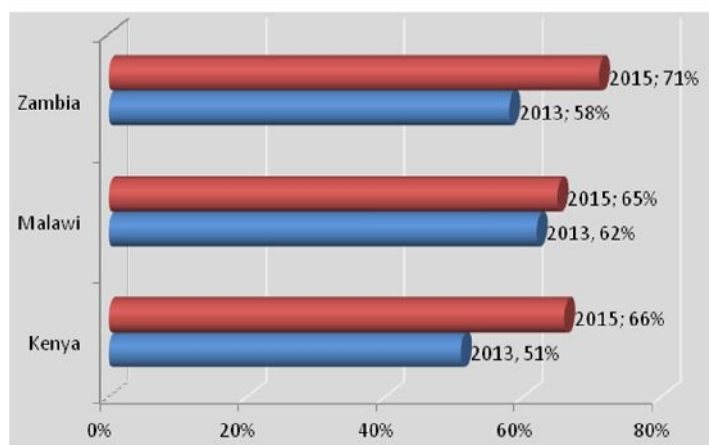


Figure 4 Farmers selling SAIOMA crops 2013 and 2015 (%)

Kenya, 51% and 66%, and in Zambia, 58 and 71% respectively.

The upward trend in number of farmers selling SAIOMA promoted crops, particularly pulses in Kenya and Malawi – pigeonpea, cowpea and soyabean - may be attributed to the impact of the project interventions as regards promotion of these crops and the attendant perceived income from crop sales.

Household marketing practices of smallholder farmers

While the findings showed that in Zambia crop marketing for both 2013 and 2015 seasons was mainly an activity for male adults with 56% and 55% participation respectively, this was not the case for Malawi and Kenya where female adults were the ones mainly involved in crop marketing. About 67% of women were involved in crop marketing in Kenya for the 2013 season and the number rose to 70% for the 2015 season. For Malawi, 37% of women were involved in 2013 and 39% in 2015. Not surprisingly, children were the least involved in household marketing in all the three countries. The control sample for all the three countries mirrored the same practice in terms of household marketing practices. In comparison to the 2013 season, the number of actual participation of smallholder farmers in marketing SAIOMA promoted crops in Zambia and Kenya increased in 2015 by 25% and 35% respectively, while in Malawi there was almost no change.

Buyers for smallholder farmer produce

SAIOMA primarily used an aggregation approach for enhancing SHF's access to structured markets. In this respect, SHFs were to undertake collective selling of their produce in order to attract better prices through bulk selling to structured markets. This was to be fostered through SHF's respective FOs linkages to large structured output markets. FOs were also linked to structured markets through some agro-dealers.

The survey findings showed that the most frequent buyers for smallholder crops for 2013 and 2015 seasons were small traders in all the three countries while the large traders were the second most important crop buyers in Kenya and Zambia as indicated in Figure 5. However in Kenya for the 2015 season there was an observable shift from small trader crop buyers to structured markets such as SAIOMA group, farmer organisation, consumers, supermarkets, food processors, and millers.

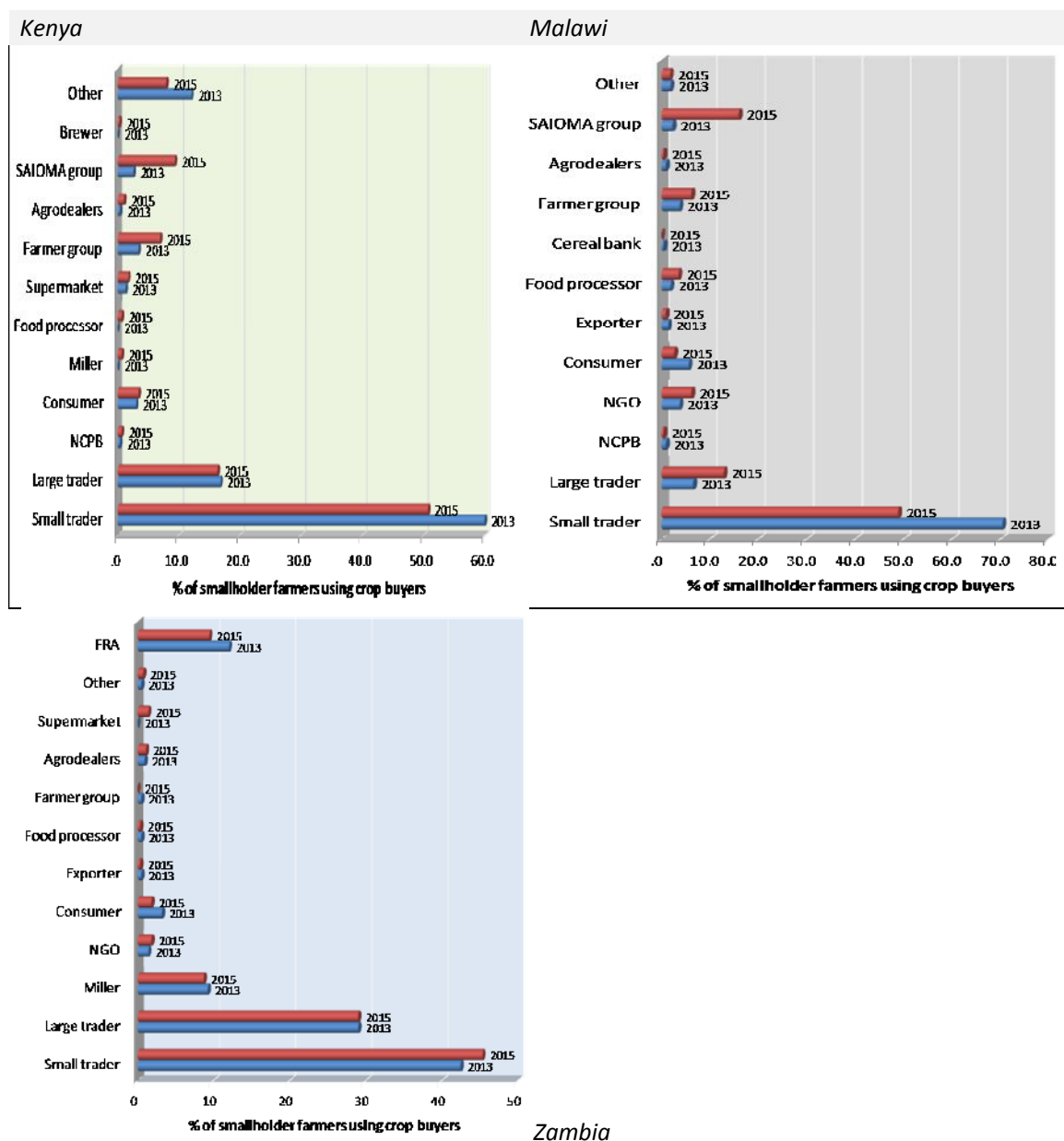


Figure 5 Buyers for smallholder crops for 2013 and 2015 (% farmers)

In Malawi, the use of small traders reduced from about 70% in 2013 season to 50% in the 2015 season, which also had a sharp rise in the use of other buyers such as large buyers, SAIOMA group, farmer groups, food processors, and NGOs. In Zambia however, the trend was different showing an increase in dealing with small traders from 42% in 2013 to 45% in 2015. The percentage of beneficiaries dealing with large buyers in Zambia remained the same (29%) for both seasons, while there was a noticeable reduction in those dealing with the FRA from 12% in 2013 to 9.4% in 2015. A few Zambian smallholder farmers also managed to sell to supermarkets in the 2015 season.

These findings imply impact of the project on farmer market engagement through market awareness and negotiating skills making it possible for the beneficiary famers to pursue options for better paying buyers in terms of price, payment duration and convenience. In terms of date of sale for their crops,

the findings showed that most of the beneficiary farmers sold their produce within the year they harvested their crop. The average selling date varied from country to country. In Zambia, the findings showed that most farmers sold their produce from July to August with a good number still selling in September, while in Kenya most of the farmers sold around March and August of the harvesting year owing to the two seasons. In Malawi, peak crop selling in both the 2013 and 2015 seasons took place from July to August of the harvesting year.

Farmer marketing of different AGRA commodities through structured markets (including large traders, farmer organisations and agrodealers) is shown in Table 14. This indicates a general increase in the percentage of farmers marketing through these channels over the project period for most crops except greengram in Kenya and maize in Malawi. However, the increases were not highly significant compared to the control group. This appears to reflect the challenges of low agricultural surpluses during the project years, a wider move towards structured markets in some commodities (e.g. sorghum in Kenya), and continuing attraction of informal sector buyers as a source of ready cash income.

Table 14 Farmers marketing grain through formal markets (% growers)

Country and crop	2015		2013		Difference in differences
	SAIOMA	Control	SAIOMA	Control	
Kenya					
Sorghum	12.8	13.2	2.4	5.7	2.9
Pigeonpeas	5.4	1.2	8.8	11.1	6.5
Greengrams	16.8	18.9	17.4	9.1	-10.4
Cowpeas	12.3	9.3	5.0	6.2	4.2
Malawi					
Maize	1.5	0.0	4.1	0.9	-1.7
Soyabeans	3.2	0.0	0.0	0.0	3.2
Groundnuts	3.8	0.0	1.6	0.0	2.2
Zambia					
Maize	20.0	18.6	16.0	15.0	0.4
Sunflower	2.0	2.1	1.3	2.7	1.3
Soyabeans	6.4	5.6	1.0	1.6	1.4
Groundnuts	1.2	0.9	1.5	2.4	1.2

Source: SAIOMA Evaluation household

Payment for Crop Sales

In all the participating countries, the smallholder farmers were largely paid on delivery in both seasons as indicated in Figure 6. For the 2015 season, the number of beneficiary farmers in Kenya paid on delivery reduced from 95.3% in 2013 to 80%, while in Malawi the number reduced from 76% to 53%. In both these countries there was also an increase in payments made in advance and later (after delivery).

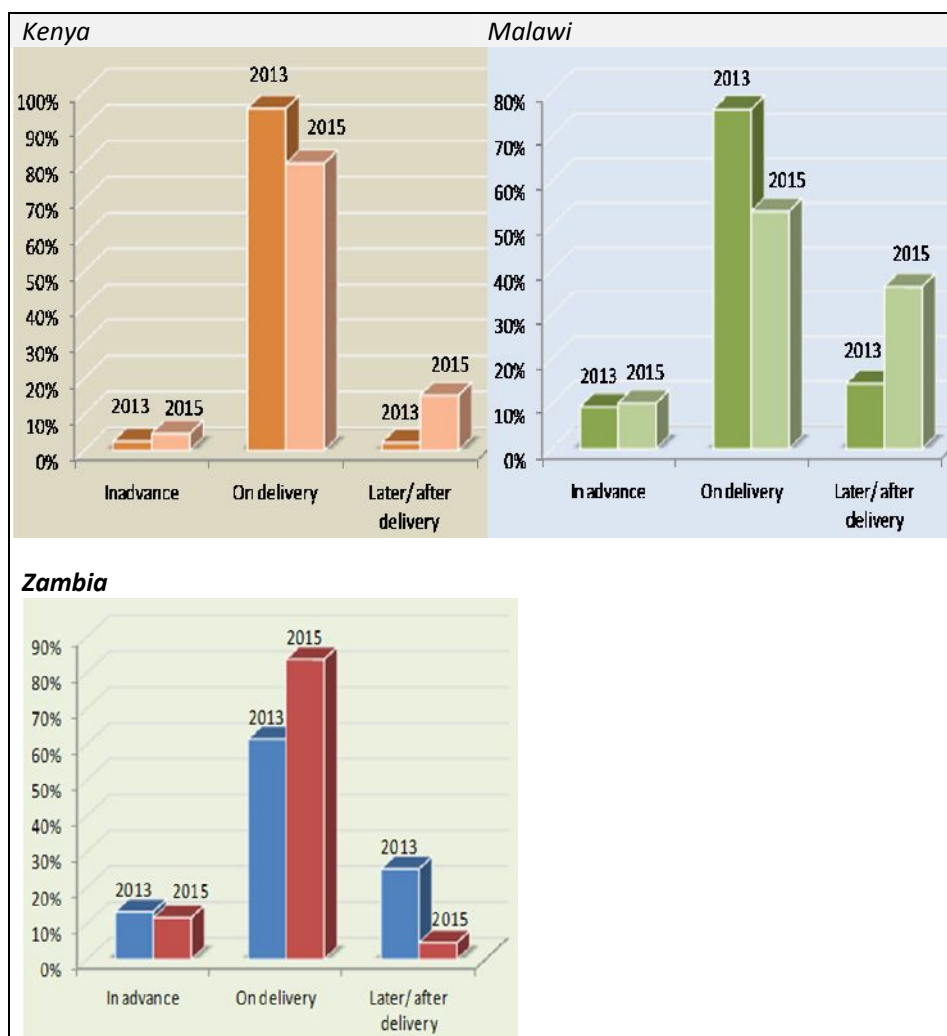


Figure 6 Mode of payment for crop purchases

However, in Zambia the trend was different showing an increase in number of farmers paid on delivery from 61% in 2013 to 84% in 2015, although there was a significant reduction in the total number of smallholder farmers with produce to sell, an outcome that could be linked to poor rainfall in 2015. There was also a noticeable reduction in number of smallholder farmers receiving payments in advance and after delivery.

4.4 Country experiences

Case studies of aggregation centres visited during the evaluation and key informant interviews show differentiated country experiences under SAIOMA's improved access to markets.

In **Kenya**, farmers bring produce to aggregation centres where they are issued with a receipt showing the quantity stored, but no immediate payments are made. There are however good performing centres located in more productive areas such as Meru and Tharaka nithi. Once secured in the aggregation centre the grain is dusted with pesticides or kept in hermetic bags. However, there are challenges with level of aggregation in some centres. For instance, at Wamunyu grain aggregation

centre (GAC) the group aggregated 10.1 tons of grain in 2015 and 11.3 tons in 2016 (12% increase). However, these figures translate into an average of about 20kg of grains per group member, indicating a very low rate of aggregation. The most aggregated crop was greengrams followed by cowpeas. Aggregation of cowpeas declined in 2016 compared to 2015 due to low prices encountered in 2015. For sorghum, aggregation was negligible. Farmers cultivated little sorghum due to bird damage problems associated with the popular varieties. Secondly, the crop did not attract buyers after harvest. Demand for pigeonpeas was high, but the crop was attacked by blight. Moreover, farmers were receiving indications of the possibility of a better price (Ksh 150) in Mombasa while the aggregation centre was promising farmers only Ksh 80. This made many farmers not to aggregate. For beans, sales were limited by the high prices set by the GAC. Another challenge in aggregation was that farmers wanted spot cash upon delivery of their grains to enable them pay pressing bills such as school fees. The aggregation centre did not have capital to pay farmers for grain delivered. As local traders offered lower prices, grain was sold to bulk traders from Nairobi and Athi River Town. The GAC has been linked to about 20 cereal companies and individual buyers. It is therefore hoped that these linkages will result in more value for the smallholder farmers in future.

In **Malawi**, this component was supported by NASFAM and the Agricultural Commodity Exchange for Africa. The program promoted three models for linking smallholder farmers to structured markets:

- a. The direct buyer. Farmers were trained on the use of on spot markets and linked to direct buyers.
- b. NASCOMEX. This worked using the satellite warehouse system. Farmers could use this to market to a direct buyer, NASCOMEX or district warehouse. This idea was to encourage trade through increased volumes through farmer associations. On the cassava value chain the program worked with Cassava Value Addition for Africa (C:AVA), which linked them with UNIFARM (Carlsberg breweries was the ultimate buyer of the high-quality cassava flour).
- c. Warehouse receipt system (WRS). An individual needed to have a minimum of 1500kgs. They would then book and deliver it to the district warehouse where they received a warehouse receipt. Text messages on prices were sent out to the farmers daily. Once a farmer was satisfied with the price they could an issue instruction to sell. Balaka has a district warehouse; in Zomba there is a warehouse at Mwandama; in Mangochi at Namwera; Mulanje; and NASFAM offices. The district warehouses were operated by ACE and the warehouse receipt system. Most of the volumes were channeled through the warehouse receipt system. The WRS allowed farmers to pledge 70% of their deposited volumes to get a loan to buy more grain and deposit again. Farmers were able to access bridging finance from or through ACE. The financing was accessible to farmer organizations, although interest was charged at market rates (Commercial lending rates in Malawi are above 40% in some banks)

The aggregated produce in Malawi was not only (or primarily) from member farmers: other traders and farmers within the location could also bring their grain. For example, Nsanama emerged as the best cooperative yet a sizeable proportion of its aggregated grain was not from members. Also the aggregated quantity was generally low, making it challenging to attract bulk buyers. In Chikewo ACE turned down produce (as it did not reach minimum quantity/standards), discouraging farmers: on farmer dumped 60 bags of rice at the centre. Further, the process of price setting was not well understood and transparent to some smallholder farmers, thereby raising suspicion. For example,

some farmers felt that ACE was delaying sales not because a market had not been found but so that ACE could make a profit. WRS training by ACE only targeted leadership of cooperatives while Cooperative training was more inclusive- people opted in/out. Farmers only became aware of the deducted costs later in the transaction

The need by farmers for quick payment on their crop sales in order for them to attend to pressing needs such as purchase of inputs and other necessities was the main factor behind their direct selling to buyers: informal markets remained their main outlet for sales.

Some of the satellite warehouses in Malawi are rented or belong to government and are therefore not owned by the farmer organisations. This is proving unsustainable as farmer associations fail to pay rent after the end of SAIOMA. It was also observed that non-SAIOMA crops such as pigeon pea and rice, turned out to be viable for aggregation – and more successful than the official SAIOMA commodities. The unfavourable rainy season was a significant factor affecting production of maize and other non-drought tolerant crops in Malawi.

Regarding aggregation in Malawi, indicative findings are:

- It works very well with institutions and people who understand and can manage volume business. The direct system is limited as direct buyers usually peg a price. The farmers' negotiation powers are limited, especially for soya which is a first crop. The bridging finance met with challenges of loan default. Some individuals opted to get the loan but did not deposit their commodity to ACE. NASCOMEX had fewer defaulters as the beneficiaries were traditional NASFAM members.
- Farmers Union of Malawi supported the process of transformation of clubs to clusters to associations (service provision) to cooperatives that are more into business. Cooperatives have the capability of being a market for their farmers by using the capital, which they obtained through bridging finance. This helped cooperatives to mobilize more members by giving them incentives. However, not all groups were ready or willing to reach cooperative status.
- A question for further investigation is the prices received by farmers under the different models: Did farmers who sold to structured markets /aggregators receive a higher price?

In **Zambia**, market access was supported by Frontier who endeavored to reach out to 35,000 farmers. The approach involved conducting training and refurbishment of warehouses for grain aggregation. The training approach initially involved the use of Camp Officers (COs), who are government employees, to train farmers but this proved ineffective and unsustainable as the COs seemed not well motivated in the absence of pecuniary benefit for them. Another approach involving the use of lead farmers as trainer of trainers (TOTs) was introduced. The challenge with this approach was that the TOTs faced transport problems, lacked motivation and it was also difficult to monitor them to ensure training actually took place. To motivate TOTs, Frontier started giving ZMK100 for each lead farmer per 100 farmers trained. An attendance list was used for verification. However some competitor organizations paid their TOTs much higher fees for conducting similar training. The transport challenge was overcome by opting for TOTs to conduct training within their respective locations.

To assess farmer improvement arising from the training interventions, field trips were conducted by Lusaka-based senior Field Officers. The findings revealed that knowledge retention by farmers tended to be low largely due to low literacy levels, and because some farmers missed a number of training meetings. This necessitated conducting refresher training for both the lead trainers and farmers. In other instances, it was clear that retention had improved especially in areas around aggregation centres.

The program's approach for market access enhancement took into consideration the nature of the Zambian structured markets for smallholders which did not set advance prices due to market volatility, making it difficult to secure forward contracts. Therefore the approach taken was simply to link the farmers to identified markets and then empower them through training.

Some of the key lessons learnt relating to the market access training interventions:

- Leadership and governance are critical for cooperative development.
- Repeated training is needed focusing on areas from input marketing to post harvest.
- A relatively longer implementation period is likely to yield better results given the generally innovative market approach and low literacy levels among the beneficiary smallholder farmers.
- In future programs, there is need to conduct an assessment of incentives to the TOTs (lead farmers).

Aggregation centres in Zambia were not effectively used during the 2015 season due to poor rains, as well as smallholder farmers generally opting to sell their produce through the small traders who paid on delivery and followed them to their respective locations to purchase the produce. The issue of individual farmers paying for security of their produce while bulked at the aggregation centre, and also the waiting period for securing bulk buyers and eventual payment for their produce were other factors discouraging the farmers from bulking. As income from sale of their produce is their main source of livelihood, smallholder farmers cannot wait long to receive payment once they have sold their crop as they have numerous pressing needs and end up selling to small traders who normally pay cash on delivery. This therefore meant that the aggregation centres were empty most of the time. There were also challenges relating to leadership and governance of these aggregation centres. SAIOMA attempted to address these through the leadership and governance trainings conducted.

However there were some benefits of the aggregation centres which were much admired by various local stakeholders including government and the private sector. Alternative uses of the sheds by the beneficiary farmers and other key stakeholders were being pursued even during project implementation. For instance, the government through the Ministry of Commerce and Cooperatives provided additional investment at the shed sites in Nkanyu, Zumwanda, Lusuntha, and Kabulinde by installing solar milling plants. The sheds have also become attractive to agro dealers for input and output marketing as well as value addition agro services. These alternative uses of the sheds by both the government and private individuals will result in enhanced sustainability of SAIOMA investments. It is also hoped that the acquired commodity marketing and negotiating skills (e.g. contract negotiations) as well as the acquired knowledge on quantity and quality requirements of the target markets will make it easier for smallholder farmers to access structured markets.

4.5 Challenges

Challenges faced in relation to Smallholder farmer market access included the following:

1. *Crop aggregation*: The created capacity was not effectively utilized due to a number of aggregation challenges, such as poor rains and farmers wanting spot cash upon delivery of their grains to enable them pay for their pressing needs such as school fees, sickness and funerals. The aggregation centres did not have capital to pay farmers for grain delivered. Furthermore, smallholder farmers were not prepared to pay for security for their aggregated crops as they claimed they did not have cash to pay before crop sales.
2. *Training in post-harvest management practices*: The training approach for smallholder farmers through trainer of trainers without building capacity for ongoing support is likely to affect the sustainability of this activity as new post-harvest issues arise, such as new pests and diseases.

4.6 Lessons and Recommendations

The following are considered as key lessons and recommendations on access to structured markets by the targeted smallholder farmers.

1. All of the constraints to smallholder farmers' participation in formal output markets need to be considered including: farmer organisation governance to improve transparency and trust so that farmers increase aggregation, and crop insurance in event of crop failure.
2. All aggregation centres should be owned or leased on long-term arrangements (e.g. from government) by the participating farmer organisations (not rented from private individuals); where this is not possible, new warehouses could be built if assessed to be cost-efficient.
3. Training on in-field post-harvest management is needed to address the main stages at which losses are occurring.
4. Ongoing support for smallholder farmers in post-harvest management is needed. This can be provided through building capacity and buy-in of local service providers. Formal inclusion of local extension services in training e.g. through MoUs or service agreements, rather than ad hoc contracts, would improve trainer and farmer capacity and the sustainability of the interventions.
5. Inclusion of non-SAIOMA potential crops such as pigeon pea and rice (in Malawi) would have improved program performance indicators.
6. A longer period of program implementation (minimum 5 years) would sustain and translate improvements in farmer postharvest and marketing knowledge to practice and performance.

4.7 Conclusions

Different models for linking smallholder farmer to structured markets were promoted under the program: on-spot buyers, bulk buyers, warehouse receipt system, and agrodealers. Farmer organisations were supported to engage with each of these markets. The theory of change behind linking smallholder farmers to formal markets is based on a number of assumptions, such as good information and transparency in operations and good understanding by all market players of the financing and management arrangements.

Aggregation centres have been renovated under SAIOMA. However, they have not operated as envisaged due to reluctance by farmers to deposit their grains as a result of poor harvests, mistrust within farmer organisations, higher prices offered in some cases by informal buyers, and the need for smallholders to sell and receive payment immediately after harvest due to pressing household needs. Sustainability of some of the aggregation centres is in doubt where the centres are not owned by the group or the government.

Adoption of improved post-harvest management practices by smallholder farmers was found to have increased. However, this does not appear to have translated into reduced post-harvest losses on-farm for all commodities. A key observation is that the main PHL continue to occur in other stages of the value chain not targeted by the project: namely in-field losses. The training model adopted was trainer of trainers: ToTs were not adequately supported in their training to farmers which is likely to affect sustainability of uptake of some technologies. Training in grading has not generally improved returns as differential pricing is not practiced in many markets.

5. PROGRAM PERFORMANCE – CROSSCUTTING ACTIVITIES: STRENGTHENING FARMER ORGANISATIONS AND GENDER

SAIOMA's direct project interventions, extending and deepening input markets and improving output markets, were supported by two crosscutting interventions: farmer organization (FO) capacity building and gender activities. The sections below present the activities done under each crosscutting intervention, the successes registered and the challenges encountered.

5.1. Capacity of smallholder farmer organizations

Farmer organisations are the structures underpinning the aggregation and marketing activities in SAIOMA. The organizations were a necessary collective marketing strategy to enable smallholder farmers to benefit from economies of scale, access competitive markets and reduce transaction costs. In this regard smallholder farmers were to aggregate their produce through FOs and be linked to large structured output markets. As such, there was a critical need for the program to understand the capacity and functioning of individual FOs and build on these to develop sustainable outcomes for their members. The main activities carried out under the FO component were: establishing and registering FOs into associations and cooperatives, recruiting farmers into FO membership and training of FOs in leadership and practices.

5.1.1 Establishment and registration of FOs

The project has worked with various types of FOs namely: clusters or clubs, marketing committees, associations, cooperatives, community based organizations (CBOs) or aggregating centers. Some FOs were already in existence before SAIOMA program, having been formed by organisations such as the Ministry of Agriculture or other NGOs, while in a few cases the program formed its own. In Malawi the program has worked with 31 FOs as associations and cooperatives. Before the SAIOMA program only 7 FO were registered but 15 more have been registered as cooperatives under the program. In Zambia the SAIOMA program has supported the establishment of 24 marketing committees. These committees have received hand over certificates of sheds to ensure proper ownership and also to avoid ownership disputes. In Machakos County in Kenya there were 6 registered CBOs before the program, growing to 14 by January 2016. As registered entities, FOs have constitutions, clear structures comprising committees such as executive, production, savings and credit, marketing, grading and discipline. The SAIOMA program has facilitated drafting of business and strategic plans to guide the FOs to run as businesses.

While there is progress in terms of number of FOs established and registered the evaluation exercise has revealed that there in some cases FOs do not appear to be functional and farmers are withdrawing for various reasons. For example, in Malawi, of the 6 FOs visited only 3 could be declared functional, one indicator being failure to conduct meetings by the FOs. The farmers who were claimed to be members could not remember having attended any meeting with the FOs. In Machakos, Kenya, one group has left the aggregation center because of conflicts.

5.1.2 FO capacity building

The underlying assumption was that the SAIOMA project would use existing registered FOs. A rapid capacity assessment was carried out using the Capacity Performance Index (CPI) tool to establish the baseline level of FOs and identify the capacity gaps for training. The capacity indicators are Accountability, Professional Capacity, Income Diversification, Strategic Potential, Production Management, Marketing Strategy, Participation, Advocacy Capacity. The project has used this tool in Continuous Performance Assessments (CPA) to capture progress and emerging issues over time. The assessment is based on three different tier systems:

- Tier 1 (Level 1 – Not capable D (49% & below), C – (50-55%), C+ (56 – 59%)
- Tier 2 (Level 2 – Capable B- (60-64%), B+ (65 – 69%)
- Tier 3 (Level 3 – Very capable A-(70-75%), A+ (75 – 79%), A++ (80%+)

Based on capacity gaps identified, the leaders of the FOs have been trained in leadership and group dynamics, record keeping, entrepreneurship, business management, member mobilization and strategic planning. They have also participated in trade fairs and exchange visits. The final assessment has shown that 60% of FOs improved their CPI, with 59% of FOs improving their CPI above the initial target of 43%. This improvement has ended into FOs being able to access markets. In Zambia, capacity building of FOs has made a fundamental change in the mindset of smallholder farmers who previously joined cooperatives to access inputs, now they cooperate in crop marketing and other enterprises.

Despite progress on farmer mobilisation there are challenges related to disputes, mistrust and lack of interest in FOs. In Malawi, a number of farmers knew little about their membership of FOs and its affiliation to SAIOMA aggregation centres. These farmers had to be reminded about the day they were called to a meeting to be informed about the program, indicating they are not working effectively as groups. In some cases members felt as if they were being used by leaders of the FOs or the implementing partners: on some occasions, farmers did not want to be interviewed during the survey and expressed disappointment with the program. Unfortunately, underlying issues of mistrust, disputes and transparency are not addressed in efforts on capacity building under the program. This may be because capacity building is guided by the Capacity Performance Index tool which is not designed to capture and address underlying issues such as governance and group dynamics.

5.1.3 FOs and aggregation

The ultimate goal of collective marketing was to link participating farmers to formal markets to enhance marketing of cereals and minimize exploitation of farmers by middlemen. As discussed in Chapter 4, SAIOMA promoted different models through which FOs can sell their produce: directly selling to bulk buyers, to agrodealers and the satellite store through the Warehouse Receipt system.

A major SAIOMA activity was mobilization of smallholder members through the FOs to aggregate their agricultural commodities. The project managed to mobilise 33,850 farmers to aggregate, representing 56% level of achievement (SAIOMA Final Report, 2016). Reasons for low levels of aggregation include: insufficient produce for aggregation, lack of trust and uncertainty over the benefits of aggregation.

The case studies below from the three countries show different experiences of FOs which have been organized and are aggregating produce at satellite stores.

Kenya

Aggregation centers in Kenya have varying experiences. Some have experienced challenges stemming from low production, resulting in low aggregation (Table 15). In Machakos, aggregation of cowpeas declined in 2016 compared to 2015 due to low prices the previous year. For sorghum, aggregation was negligible. Farmers cultivated little sorghum due to bird damage problems associated with the popular varieties. Secondly, the crop did not attract buyers after harvest. Demand for pigeon peas was high, but the crop was attacked by blight. Moreover, there were rumours that the crop was fetching better prices (Ksh 150) in Mombasa while the aggregation centre was promising farmers Ksh 80 which discouraged aggregation. For beans, sales were limited by the high prices set by the GAC. Another challenge in aggregation was that farmers wanted spot cash upon delivery of their grains to enable them pay school fees and other pressing needs. The aggregation centre did not have capital to pay farmers for grain delivered.

Table 15 Grain aggregation and sales at Wamunyu GAC

Crop	Grain aggregated (Kg)			Grain sold (Kg)		Grain prices received	
	2014	2015	2016	2015	2016	2015	2016
Cowpeas		4,320	2,610	4,320	1,800	60-70	30
Green grams		2,610	5,220	2,610	5,220	90-100	80-90
Pigeonpeas		810	270	810	270	70-90	50
Sorghum		2	0	2	30	0	-
Maize		90	1,170	90	0	26	-
Beans		270	0	180	-	60-75	-
Total		10,117	11,286	10,027	9,336		

Makutano Grain Aggregation Centre

Established in 2014, Makutano GAC has currently has 260 members (with some drop-outs and new members), with 13 committee members from all the 13 member groups. There are a total of 65 groups across the whole sub-county – aggregating through 6 stores. The aim is to enhance marketing of cereal and minimize exploitation by middlemen (including use of false weights and measures) and search for markets and collective marketing. Under SAIOMA program the GAC held sensitization meetings, conducted elections, and received training in post-harvest handling, entrepreneurship and collective marketing.

Initially, most farmers were skeptical of the collective marketing until the returns were received. Each group had different levels of adoption. After coming together as GAC, the group gained more bargaining powers; it aimed at eradicating brokers - accessing market information and using it to bargain. They have now accessed new buyers such as Imara Kenya Limited. GAC has established a store (capacity: 4,000 90 kg bags) and are pursuing linkages with EAGC to be certified as a WRS by the end of this season with credit facilities. It has 5 rented stores: 1 community owned and 1 owned by the group. Total capacity is 1000 Bags in 5 stores & 600 bags in 1 store. Average time of storage: 1 week. Each member is deducted Ksh1 PER KILO to support admin expenses and other support services (Now KSh2). Aggregation is shown in Table 16. Members were originally paid cash but now each

member has an account for payment. The buyer negotiates with the marketing committee on pricing, packaging, loading, quality, time of collection and payment. Most buyers pay within one week; Imara Kenya Ltd within 24 hours. Prices received by the aggregation centre are shown in Table 17.

Table 16 Aggregation by Makutano GAC (Main store) MT

Crops:	2014	2015 season 1	2015 Season 2	2016 main season
Sorghum	84	161	81	200
Green grams		200	140	375
Pigeon peas				150**
Cow peas		100	40	50

** has a contract of 700mt of pigeon pea with Imara Kenya Limited; also buys green grams

Other buyers are: Unga Kenya Limited –Green grams and sorghum; Sorghum Pioneer Agencies –mostly sorghum; EABL/Through Mutegi Co. Ltd; WFP-Sorghum.

Table 17 Prices received by Makutano GAC

Crops:	Before 2013/kg	2014	2015	2016
Sorghum	18	29.5	28-35*	29
Green grams	60	70	80	81 –110 ^b
Pigeon peas	50			82 ^a
Cow peas	20	50	60	0 ^c

*WFP bought at Ksh35 per kg ^a –contract price, yet to supply the 700mt ^b –sold 60mt to a trader –Munduve ^c Did not aggregate any cowpea due to poor crop yields due to diseases

Why is Makutano so successful? The GAC has high levels of accountability and trust. In part this appears to be due to good practices of accountability and transparency: issuing receipt (in triplicate) for every delivery upon weighing and verification, stock cards to enhance reconciliation of daily transaction. For CESS deductions members are sensitized on how the money is utilized and committee members communicate all changes or decisions to their fellow members in their respective group. All 13 member groups are linked to anchor buyer Beatrice Nthaka with forward contracts. In case of dispute, resolution is undertaken by GAC officials and if not resolved, is mediated by officials from the Ministry of Gender Social Services. Sustainability elements include: Scaling up aggregation and collective marketing, recruiting new groups for buy-in, a business plan for Aggregation, MPESA, Agro-vet; collection of CESS to support administrative services; monthly contributions enhance capital base; search for more contracts for bulk-selling; governance skills are well entrenched in the GAC with enhanced trust relations and conflict resolution. SAIOMA program has contributed to this success story with equipment, training, forming strong market linkages, networking with other counties producing similar crops; farmer exchange visits.

Gaps remain: more training is needed in entrepreneurship and post-harvest handling – training was done between 2014 and 2015 so new members were not trained. Storage facilities are limited: there is need to pursue cost-sharing arrangement for establishing stores: this will enhance ownership.



Figure 7 Kenyan smallholder farmers aggregating grain

Malawi

In Malawi, the Farmers Union of Malawi supported the FO capacity building component of the program. Different types of FO have been supported under SAIOMA including existing NASFAM Associations, Cooperatives and WALA groups. In terms of group mobilisation, some groups clearly followed the transition from one program e.g WALA in Balaka Bazale EPA to SAIOMA. In some cases, FUM supported the process of transformation of clubs to clusters to associations (service provision) to cooperatives. Cooperatives have the capability of being a market for their farmers by using the capital mobilised through membership and potentially through bridging finance, helping cooperatives to mobilize more members by giving them incentives. However, NASFAM groups were ready or willing to reach cooperative status so FUM could not to coerce associations into becoming cooperatives.

The Malawi experience with FOs supported under the program is mixed. Four FOs were found to be very active in aggregating commodities, with between 50 and 100 members bringing soya and other commodities for aggregation by NASFAM in 2016: three of these were in Mulanje district. One, Mabuka, was an existing cooperative established by the Ministry of Trade. In other cases, FOs were not active in aggregation for various reasons including the fact that production by members was low to deposit in warehouses. By contrast, in Domasi, the Water Users Association had planned for rice to be aggregated but the executive has not been transparent in the past with rice sales so farmers have not deposited their produce. This indicates how trust issues compromise on aggregation.

Issues of governance appear to be critically impacting the performance of the FOs. For example, at Likhomo Association, the chair is also the village chief and other association leaders are her relations; members follow the chair blindly: they did not even know the name of their group or what its objectives are. By contrast, in Chikwewo, Machinga, there is separation of power: keys for the warehouse are kept by a separate individual from the chair and there is a clerk as a third check on the

store. Farmers at Chikwewo are committed to the group and are aggregating: other organizations are now working with Chikwewo which is viewed as a successful case.

Zambia

In Zambia, the project worked primarily with existing cooperatives which had been set up around 2011 by the government as a conduit for the Farm Input Subsidy Program. For some groups this was their primary interest and although members expressed commitment to the aims of the program there was a gulf between aggregation targets and performance. In other cases (Uyanga Aggregation Centre: Case study to be inserted) the FO had existing activities such as a group farm. Here group organisation and member cooperation was much stronger and provided a good base on which the project could provide capacity building support.

5.1.4 Farmer perceived benefits from SAIOMA

Surveyed farmers who have participated in the SAIOMA program indicated a range of benefits from program activities (Figure 8). In all three countries, farmers indicated they have benefited from training on farming with smaller numbers benefiting from training in post-harvest handling and marketing. To date, few farmers surveyed have seen improvements in income from their participation in the program.

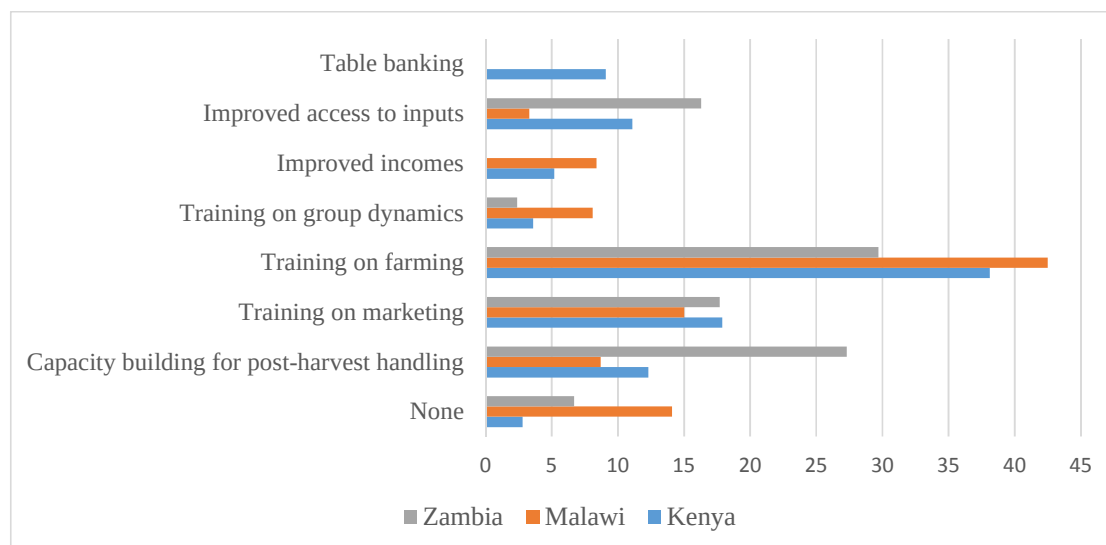


Figure 8 Benefits from SAIOMA membership (% members interviewed)

5.2 Women and youth participation in leadership positions

The SAIOMA program implemented gender activities to ensure participation of women and youth in leadership position in the FOs. The main activities were gender training among program staff and gender activities to promote women's participation in program implementation. Results of the evaluation exercise confirm that women are the majority or participants in the program activities.

Some FOs were women-only while others were mixed: for example, in Machakos, Kenya, 7 FOs were women-only while 3 were mixed.

Women have been quite successful in securing leadership positions. For example, in Machakos, Kenya, the Wamunyu CBO management committee comprises 5 men and 8 women and the ordinary member committee, 22 women and 1 man. In Malawi, the Chair of Likhomo Cooperative is a woman: she is also a board member of Farmers Union of Malawi. However, these achievements are not solely attributable to SAIOMA since the FOs which form the aggregation centres were already in place at the start of the program.

Several changes in women's involvement in decision-making have been reported in the three countries over the course of the program. Whilst, these changes cannot be directly attributable to SAIOMA, they have occurred within the context of women's participation in the program. Figure 9 shows SAIOMA program female participants reporting an increase in their involvement in household decision-making on produce sales as: 36% in Kenya, 29% in Malawi and 26% in Zambia. These increases were higher than for women respondents in the control group. Overall, a majority of women reported there no change in their involvement in decision-making. Less than 1% indicated they had reduced their involvement in decision-making over the program period.

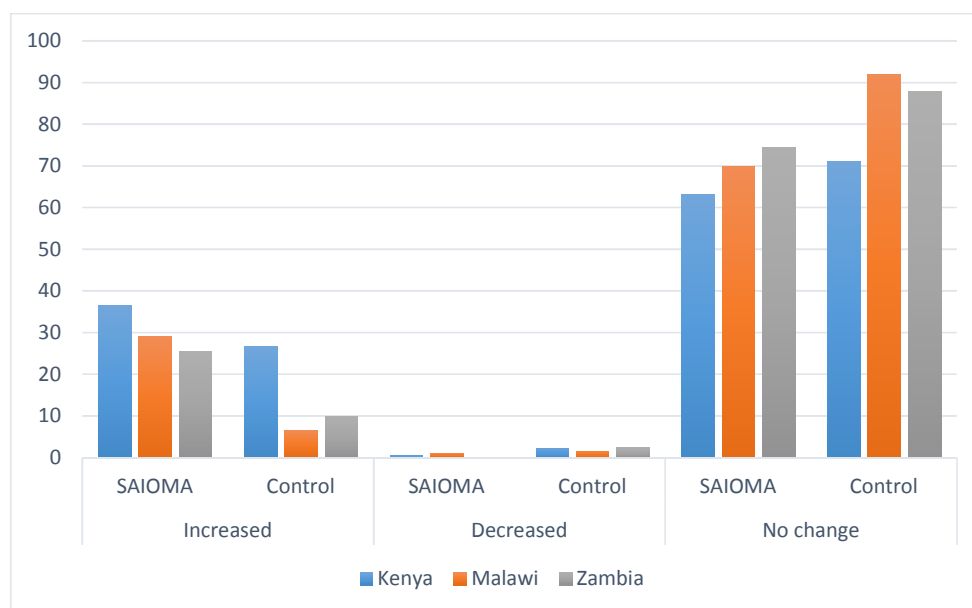


Figure 9 Perceptions of women's involvement in decision-making on produce sales (% women)

Women respondents gave similar responses on their involvement in decision-making over income from sales of crops: 36% in Kenya, 29% in Malawi and 23% in Zambia stating an increase over the period of the program (Figure 10).

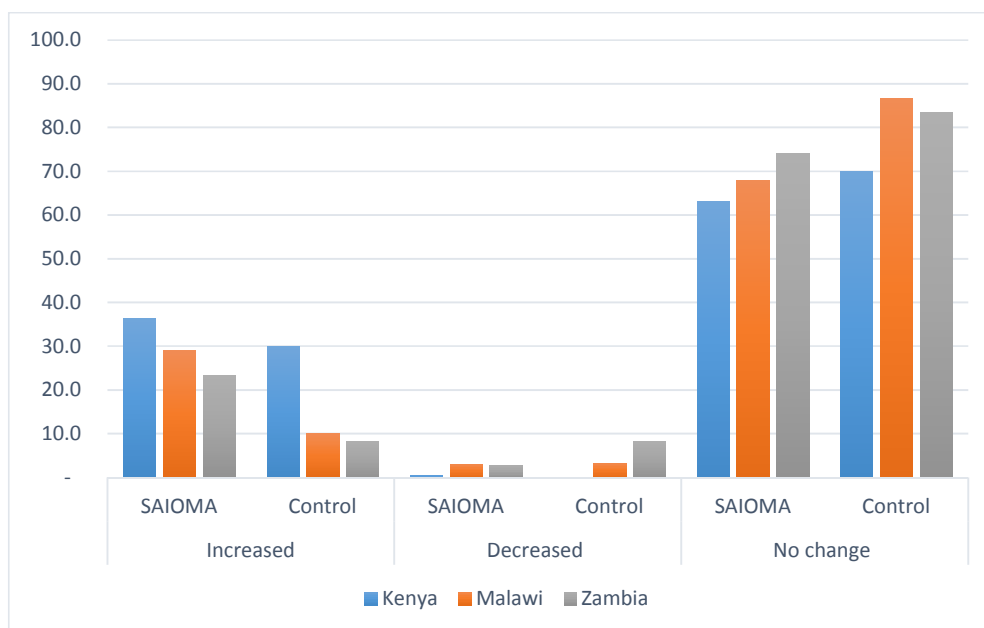


Figure 10 Perceptions of women's involvement control over income from sales (% women)

During focus group discussions women revealed that structured markets have enhanced transparency whereby even if their husband is taking produce to the market wives now demand to see receipts to confirm the sales. Again, by targeting women, SAIOMA has become a vehicle for the emergence of businesswomen, who end up being in control of their business activities.

We also find that the CPI tool is designed as a gender-focused tool and includes gender disaggregated scores. The SAIOMA program achieved its target on women in leadership roles (55 %). This is within a context where a majority of group members are women and many groups had women officials before the start of the program. Nevertheless, SAIOMA's gendered targeting and gender specific activities have contributed to building the leadership capacity of rural women which is commendable.

5.3 Challenges faced

A number of challenges were faced in supporting FOs, which could not be well handled by the CPI tool. As indicated above governance and accountability were critical factors determining the effective participation of farmers in the FO with resulting impacts on the performance of the FO/Aggregation Centre. The CPI tool is administered to project leadership, without participation of members, so there is no in-built mechanism for triangulation of results. Generally, project stakeholders felt that the tool was a blunt instrument which could not assess issues of governance, participation, accountability etc.

Again, the CPI framework is useful in assessing the performance of FOs, but the focus is fairly general (on leadership, financial management and governance etc.) rather than being a tailor-made needs assessment for individual groups. Issues such as trust, relationships and transparency are critical areas requiring in-depth coverage for numbers of groups.

Increasing the capacity of non-leaders was not a focus of the program: it was expected that this would be achieved through a trickledown approach (in some cases trainer of trainers). In practice, there was generally no effective mechanism for sharing learning outside the leadership committee. This had the

disadvantage of limiting capacity building to current leadership, although committees changed membership during the life of the project resulting in new members who were not trained. In some cases the approach may have reinforced the underlying lack of transparency and trust which existed in a number of FOs.

Overall, it appears the program did not invest sufficiently in understanding the past performance of individual associations, so that existing mistrust and leadership issues remained unchallenged. An institutional audit would have helped to uncover and help address inherent problems. Furthermore, the training approach the ToT model as a training approach is limited unless those trained are supported with resources go on and train others.

5.4 Conclusions on crosscutting issues

Farmer Organisation strengthening was a critical component for the overall success of SAIOMA and to the sustainability of program outcomes. As a cross-cutting intervention in the program, its importance was recognised in program design. However, this component received the smallest share of budgeting and resources and this limited the scope of its activities. The Capacity Performance Index tool used by the program was useful in identifying broad levels of FO capacity, but was not effective in identifying and addressing underlying management, governance and accountability issues. The modular approach taken to training FO leadership faced similar challenges. In some cases SAIOMA partners were able to provide backstopping to their FOs, but coaching and mentoring would ideally have been an ongoing principal activity.

Overall CPI scores for SAIOMA supported FOs increased slightly over the life of the programs, which is commendable, however there is a danger that this might not be sustainable with leadership turnover. Program targets on supporting women in FO leadership roles were met or exceeded.

5.5 Recommendations on crosscutting activities

1. Farmer Organisation strengthening needs to be placed at the centre of any future market strengthening program and provided with adequate resources and support
2. Assessment and interventions to support FO should be based on a wider measure than the CPI to capture dynamics of accountability and trust and encourage the participation of farmer members for sustainability and transparency.
3. Formal collaboration with local partner organisations including Ministries of Agriculture, Trade and Department of Cooperatives (such as through Memorandums of Understanding or Service Agreements) will enable follow-up and sustainability of FOs and aggregation centres beyond the program.

6. PROGRAM PERFORMANCE – IMPACTS AND OUTCOMES AT SMALLHOLDER FARMER LEVEL

The evaluation assessed performance of the program against key impact and outcome indicators (Table 1 above) and a number of other relevant indicators.

6.1. Program goal

Rural households living below the poverty line

The SAIOMA program goal is to promote inclusive agriculture sector growth for a sustainable increase in income and food security in selected East and Southern African countries by the end of September 2015 (revised to 2016). The program Impact indicators, to which the program is intended to contribute, is the percent of rural households living below the poverty line (\$1.25/day). UN Millennium Development Goals data show the percentage of rural households living below the poverty line in 2014 to be 49.1% in Kenya, 56.6% in Malawi and 77.9% in Zambia (Table 18) (Comparative historical data is not currently available). This equates to 91 % of SAIOMA Level of Achievement (LoA) target in Kenya, 57 % in Malawi, and 78 % in Zambia.

Percent change in Agricultural Gross Domestic Product

The highest level Outcome under the Improved Agricultural Product objective is Percent change in Agricultural Gross Domestic Product. This can also be viewed as an Impact indicator as the program can contribute to, but not directly affect, this indicator. Agricultural GDP increased across the 3 countries between 2013 and 2014: by 3.5% in Kenya, 6% in Malawi and 6.3% in Zambia (2015 data are not currently available). The program LOA target was 35 %, which was not achieved. However, the LOA is positive against the program baseline of 3 %.

Table 18 SAIOMA performance against impact indicators

Indicator	Kenya			Malawi			Zambia		
	2013	2014*	% change	2013	2014*	% change	2013	2014*	% change
Rural households living below the poverty line (%) ^a		49.1			56.6			77.9	
Agricultural gross domestic product (million USD constant prices) ^b	5587.3	5780.3	3.5	1728.8	1832.3	6.0	1188.9	1264.3	6.3

*2015 data not currently available

^a Population below national poverty line, rural. Source: UN Millennium Development Goals <http://unstats.un.org/unsd/mdg/Data.aspx>

^b Gross Value added by Agriculture, Forestry, Hunting and Fishing at 2005 constant USD prices. Source: data.un.org

6.2. Objective 1 Improved Agricultural Production

Increased smallholder farmer access to improved agricultural inputs

Average distances travelled by SAIOMA beneficiaries to access agro-inputs (improved seed) has improved over the program period (Table 6.2a). In Kenya, average distance was 3.9 km against a target of 3 km (77 % achieved); in Malawi it was 7.6 km against a 3 km target (39 % achieved); and in Zambia it was 10.4 km, close to the 10 km target (96 % LOA met).

A comparison was also made between program beneficiaries and non-beneficiaries, and statistical tests made to assess the significance of the differences between the two groups (Table 6.2b). Distances to agro-dealers in 2016 did not show statistically significant differences between SAIOMA and control farmers. In Kenya, average distances to input suppliers ranged from 3.9-4.8 km for program beneficiaries and 3.9-4.2 for the control farmers, down from 5.6km reported in baseline survey, indicating a decline in distance travelled. Similarly in Zambia, distance travelled by farmers to agro-input suppliers reduced from 20km at baseline to about 10-14 km for SAIOMA farmers to 9-11km for non-beneficiaries. However, for Malawi, distances between farmers and input suppliers did not change. At the end of program, the distances were 8-9 and 7-8 km for SAIOMA and control farmers respectively, compared to the baseline value of 6 km.

Looking farmer utilization of nearest input supply facilities, we found no significant differences between program beneficiaries and non-beneficiaries across the three countries, except for agrochemicals in Malawi and extension services in Kenya and Malawi. Malawi also reported the most utilization of input supply facilities. In Kenya, farmers utilized mostly agrochemical suppliers (92-93% of the sample) followed by seed sellers (85-88% of the sample) and fertilizer sellers (72-73% of the sample). In Malawi, utilization of nearest input supply facilities was highest for both seeds and fertilizers (99-100%) followed by agrochemical dealers (94-98%). Likewise for Zambia, farmers utilized more the nearest suppliers of seeds and fertilizers (83-85% of the sample) than of agrochemicals (68-73% of the sample). Access to extension services was highest in Malawi, where 98% of SAIOMA farmers and 94% of control farmers reported that they utilize extension services. Similarly in Kenya, more program beneficiaries (69%) than control farmers (57%) accessed extension services. Higher access to extension services among SAIOMA compared to control farmers may be explained by the involvement of public extension staff in the program.

Farmer access to inputs is shown in Table 19. Due to differences in sampling from the baseline data, SAIOMA impact cannot be directly inferred from this analysis. However, a comparison was made between program beneficiaries and non-beneficiaries, and statistical tests made to assess the significance of the differences between the two groups. Distances to agro-dealers in 2016 did not show statistically significant differences between SAIOMA and control farmers: this indicates that both communities are within the agrodealer catchment area. In Kenya, average distances to input suppliers ranged from 3.9-4.8 km for program beneficiaries and 3.9-4.2 for the control farmers, down from 5.6km reported in baseline survey, indicating a decline in distance travelled. Similarly in Zambia, distance travelled by farmers to agro-input suppliers reduced from 20km at baseline to about 10-14 km for SAIOMA farmers to 9-11km for non-beneficiaries. However, for Malawi, distances between farmers and input suppliers did not improve. At the end of program, the distances were 8-9 and 7-8 km for SAIOMA and control farmers respectively, compared to the baseline value of 6 km.

The target was to reduce distance travelled by program beneficiaries to input suppliers from 6km to 5km and 3km by the end of the program. The Year 2 target was achieved in Kenya; whilst in Zambia significant progress was made in reducing distances. Only in Malawi were distances not reduced.

Table 19 Distance to nearest input supplier against LOA target: SAIOMA beneficiaries (km)

Variable	Kenya			Malawi			Zambia		
	LOA target	LOA achieved	% LOA target met	LOA target	LOA achieved	% LOA target met	LOA target	LOA achieved	% LOA target met
Improved Seed	3	3.9	76.9	3	7.6	39.5	10	10.4	96.2%

Source: SAIOMA Evaluation household survey

Farmer awareness levels on promoted farm inputs in target areas

The outcome indicator: farmer awareness levels of improved farm inputs, compared SAIOMA beneficiaries and non-beneficiaries at the end of the program (Table 20). (Lack of baseline data constrained rigorous impact analysis, hence the results should be interpreted as contribution of SAIOMA assuming comparable levels of awareness between treatment and control groups at baseline). In Kenya, at the end of the program, knowledge of improved pigeonpea and cowpea varieties was 18.8% and 14% higher respectively by beneficiary than control farmers. However, awareness of improved varieties of sorghum and green grams was higher among the control group. For Malawi, there were large differences in awareness of improved varieties between SAIOMA and control farmers: more than twice the levels for cassava and groundnuts, and six times for soybeans. For maize, the proportion of beneficiary farmers aware of improved varieties was 13.9 % higher compared to non-beneficiaries. In Zambia, the proportion of SAIOMA beneficiaries aware of improved sunflower and groundnuts exceeded that of non-beneficiaries by around 50 % and 10 % respectively. For improved soya beans and maize there was little difference in awareness between SAIOMA beneficiaries and non-beneficiaries: levels of awareness of improved maize varieties were high for both groups.

Table 20 Awareness of improved crop varieties by smallholder farmers (%)

Country and crop	2015		% difference (SAIOMA beneficiaries vs. control)
	SAIOMA beneficiaries	Control group	
Kenya			
Improved sorghum	27.9	31.1	-10.3
Improved pigeonpea	15.8	13.3	18.8
Improved greengram	47.5	52.6	-9.7
Improved cowpeas	22.0	19.3	14.0
Malawi			
Improved Maize	87.7	77.0	13.9
Improved Cassava	12.5	5.6	123.2
Improved Soya Beans	27.1	4.0	502.5
Improved Groundnuts	47.9	17.5	173.7
Zambia			
Improved Maize	80.2	83.5	-4.2
Improved Sunflower	11.0	7.4	48.6
Improved Soya beans	7.8	7.8	0.0
Improved Groundnuts	14.4	13.0	10.8

Source: Evaluation household survey

These findings indicate that the program was successful in promoting awareness of improved agricultural technologies for increased crop productivity in Malawi and Zambia, whilst in Kenya, there were successes in pigeonpea and cowpea.

Improved agricultural production practices

SAIOMA's impact on adoption of improved agricultural production technologies was first compared to SAIOMA beneficiary LOA targets (Table 21), and then further analysed against baseline for beneficiaries and against the control group the difference-in-differences method (percentage change for beneficiaries compared to the control group) (Table 22). In Kenya, 44 % of SAIOMA beneficiary farmers were found to be using improved sorghum varieties, whilst 27 % were using fertiliser: 60 % and 37 % of LOA targets respectively. By contrast, in Malawi, 86 % were using improved maize seed and 90 % were using fertiliser: 118 % and 123 % of LOA targets. In Zambia, the levels of achievement was 79 and 95 % for improved maize seed and fertiliser respectively: 122 and 146 % of LOA targets.

SAIOMA beneficiary farmers showed increased use of improved agricultural production practices for different crops among the three countries during the program period. Particular improvements were seen in: Kenya in pigeonpea (54%), greengram (28%), fertilisers (30.6%) and agrochemicals (41.7%) during the program period; Malawi in maize (16%), cassava (18%) and soybean (20.5%); and Zambia in soybean (73%), groundnuts (14.6%) and agrochemicals (133%).

Using the difference in differences method, results imply that for Kenya, SAIOMA increased the adoption of improved pigeonpea and greengram and cowpea varieties by 7.2 and 11.7 percentage points respectively and agro-chemicals by 2.8 percentage points, by farmers targeted by the program compared to the control group. However, adoption of sorghum and fertilizers was higher for non-beneficiaries than for beneficiaries, indicating non-program factors at play. For Malawi, SAIOMA appears to have increased adoption of improved maize, cassava and soya bean varieties by 9.1, 15.7 and 143 percentage points respectively. However, the proportion of adopters of improved groundnut varieties, fertilizers and agrochemicals increased more for the control than SAIOMA farmers. Results for Zambia indicate that SAIOMA increased adoption of sunflower (2.6 percentage points) and soya beans (3.4 points) and agro-chemicals (6.2 percentage points).

Table 21 SAIOMA beneficiaries using improved technologies vs. targets (%)

Variable	Kenya			Malawi			Zambia		
	LOA target	LOA achieved	% LOA target met	LOA target	LOA achieved	% LOA target met	LOA target	LOA achieved	% LOA target met
Improved Seed ¹	73	44	60.3	73	86	117.8	65	80	121.5
Fertilisers	73	27	37.0	73	90	123.3	65	94	146.2

Source: SAIOMA Evaluation household survey

¹Improved seed for maize/sorghum

Table 22 Households using improved technologies (% growers)

Country and technology	2015		2013		% change 2013-15	% change 2013-15	Difference in differences
	SAIOMA	Control	SAIOMA	Control	SAIOMA	Control	
Kenya							
Improved sorghum	43.6	41.5	43.5	22.9	0.2%	81.2%	-18.5
Improved pigeonpea	21.9	11.6	14.2	11.1	54.2%	4.5%	7.2
Improved greengram	64.6	40.5	50.3	37.9	28.4%	6.9%	11.7
Improved cowpea	36.9	26.2	34.5	24.7	7.0%	6.1%	0.9
Fertilizers	27.3	28.9	20.9	20.0	30.6%	44.5%	-2.5
Agrochemicals	87.7	86.7	61.9	63.7	41.7%	36.1%	2.8
Malawi							
Improved Maize	85.9	76.4	73.9	73.5	16.2%	3.9%	9.1
Improved Cassava	72.7	50.0	61.5	54.5	18.2%	-8.3%	15.7
Improved Soyabean	83.9	-	69.6	-	20.5%	-	14.3
Improved Groundnut	65.8	75.0	66.7	70.6	-1.3%	6.2%	-5.3
Fertilizers	90.1	96.0	88.6	88.9	1.7%	8.0%	-5.6
Agrochemicals	53.0	54.8	49.1	44.4	7.9%	23.4%	-6.5
Zambia							
Improved Maize	80.2	85.2	80.2	75.1	0.0%	13.4%	-10.1
Improved Sunflower	20.2	13.5	19.2	15.1	5.2%	-10.6%	2.6
Improved Soya bean	14.2	13.9	8.2	11.3	73.2%	23.0%	3.4
Improved Groundnut	9.4	12.3	8.2	2.4	14.6%	412.5%	-8.7
Fertilizers	94.1	85.7	84.8	76.5	11.0%	12.0%	0.1
Agrochemicals	15.4	5.6	6.6	3.0	133.3%	86.7%	6.2

Crop production

Impacts of SAIOMA on production of target crops were analysed using the proportion of farmers growing the crops and area allocated to the crops as the key variables. The overall impacts are shown in the difference-in-differences column of Table 23.

The results suggest that in Kenya, SAIOMA increased the proportion of farmers growing pigeon peas (8.6 percentage points), cowpeas (2.4 percentage points) and green grams (0.8 percentage points) compared to control farmers. Further, program farmers increased their land allocation to sorghum by 0.22 ha, but for the other crops, area allocations showed slight decline. In Malawi, SAIOMA increased the proportion of soya bean and groundnut growers by 2.2 and 5.1 percentage points respectively, but the proportion of maize and cassava growers among SAIOMA beneficiaries declined. The crop area allocated to maize, soya beans and ground nuts increased by 0.06, 0.14 and 0.1 hectares respectively. However, the area allocated to cassava declined by 0.22 hectares. For Zambia, SAIOMA increased the proportion of growers for all crops by margins ranging from 0.1 percentage points for maize to 6.5 percentage points for soya beans. The program also increased area allocations to maize (0.09 ha) and soya beans (0.27ha), but reduced area allocated to sunflower and groundnuts.

Table 23 Farmers growing SAIOMA crops (%) and Area allocated to crop (Ha)

Country and crop	Crop growers (% sample)				Area allocated to crop (Ha)				Difference in differences	
	2015		2013		2013		2015		Growers	Area
	SAIOMA	Control	SAIOMA	Control	SAIOMA	Control	SAIOMA	Control		
Kenya										
Sorghum	29.4	39.3	22.8	25.9	0.42	0.55	0.47	0.82	-6.8	0.22
Pigeonpea	79.6	63.7	60.6	53.3	0.57	0.64	0.81	0.58	8.6	-0.30
Cowpeas	80.7	79.3	59.0	60.0	0.50	0.63	0.45	0.56	2.4	-0.02
Greengram	53.1	54.8	46.4	48.9	0.94	0.98	0.74	0.70	0.8	-0.08
Malawi										
Maize	98.5	97.6	95.8	92.9	0.71	0.48	0.67	0.50	-2	0.06
Cassava	3.3	9.5	3.9	8.7	0.35	0.31	0.58	0.32	-1.4	-0.22
Soya Bean	9.3	0.2	6.9	0.0	0.40	-	0.26	-	2.2	0.14
Groundnut	47.6	19.0	37.0	13.5	0.44	0.26	0.30	0.22	5.1	0.1
Zambia										
Maize	96.3	91.3	88.8	83.9	2.46	1.66	2.28	1.57	0.1	0.09
Sunflower	48.4	41.7	36.9	31.7	0.81	0.65	0.97	0.54	1.5	-0.27
Soya bean	34.5	31.3	23.7	27.0	1.47	0.82	1.20	0.82	6.5	0.27
Groundnut	62.6	46.1	47.7	36.7	0.94	0.81	1.39	0.72	5.5	-0.54

Source: SAIOMA Evaluation household survey

Crop productivity

Results for analysis of SAIOMA impact on productivity of target crops between 2013 and 2015 are presented in Table 24. The results show that SAIOMA farmers increased yields of all crops except groundnuts in Malawi. Sorghum recorded the largest gain in yields in Kenya (0.63 tons/ha), followed by cowpeas (0.19 tons/ha). The impact on green grams and pigeon peas yields was marginal at 0.07 tons/ha and 0.06 tons/ha respectively. In Malawi, the greatest yield impact was in cassava (0.29 tons/ha), while soya beans and maize recorded minimal impacts of 0.06 and 0.04 tons/ha respectively. For Zambia, SAIOMA impacts on yields was also small, ranging from 0.05 tons/ha for sunflower to 0.09 tons/ha for maize. Given that the period covered in the analysis was short (2 years), these results suggest that productivity enhancing interventions were mostly effective.

Table 24 Mean household yields of SAIOMA crops (MT/Ha)

Country and crop	2015		2013		Difference in differences
	SAIOMA	Control	SAIOMA	Control	
Kenya					
Sorghum	1.44	0.67	1.12	0.98	0.63
Pigeonpeas	0.55	0.30	0.56	0.37	0.06
Cowpeas	0.79	0.47	0.52	0.39	0.19
Greengrams	0.56	0.51	0.52	0.54	0.07
Malawi					
Maize	1.43	1.23	1.48	1.32	0.04
Cassava	2.17	1.41	1.07	0.60	0.29
Soya Beans	0.55	-	0.49	-	0.06
Groundnuts	1.22	0.86	1.40	0.43	-0.61
Zambia					
Maize	1.74	1.65	2.31	2.31	0.09
Sunflower	0.67	0.50	0.50	0.38	0.05
Soya beans	0.75	0.30	0.63	0.26	0.08
Groundnuts	1.00	0.65	0.87	0.59	0.07

6.3. Objective 2 Improved smallholder farmers' access to markets

Expenditures and income

SAIOMA program activities were expected to impact on household income through improved agricultural earnings. 2015/16 per capita expenditure of SAIOMA targeted smallholder households, used as a proxy for income, was compared to LOA targets and control households (Tables 25 and 26). This is an impact target to which the program would be expected to contribute, but not directly impact on. It is noted that semi-commercialising smallholders, such as the majority of SAIOMA beneficiaries, produce food for home consumption as well as for sale and so expenditure measures may significantly underestimate income estimates.

In Kenya and Malawi per capita non-food expenditure of program households was higher than control households by 5.7% and 14.6% respectively, whilst in Zambia it was lower by 10.6 %. Food expenditure (computed from weekly data) is higher slightly higher for SAIOMA households in Kenya and lower in Zambia, whilst in Malawi food expenditure is significantly lower SAIOMA households. Given the commercialization objectives of the household this could be considered positive. However, total per capital expenditure was found to be higher for SAIOMA than control households in Kenya and lower in Malawi and Zambia. Per capita income figures show a similar pattern: SAIOMA program households recorded higher income than control households in Kenya (23.6%), similar in Malawi (7.3% higher), whilst in Zambia they were slightly lower (by 3.6%). Income from crops was considerably higher among SAIOMA beneficiaries than control households in Malawi (86%, though levels were low), similar in Kenya (2.4% higher), and 15% lower in Zambia. Further investigation is needed before firm conclusions can be drawn.

Table 25 SAIOMA sampled beneficiary per capita expenditure versus targets (USD per day)

Variable	Kenya			Malawi			Zambia		
	LOA target	LOA achieved	% LOA target met	LOA target	LOA achieved	% LOA target met	LOA target	LOA achieved	% LOA target met
Per capita expenditure of targeted households	5	0.92	18.4	4	0.28	7.1	5	0.33	6.6

Source: SAIOMA Evaluation household survey

Table 26 Per capita income and expenditure of targeted program and control households

Indicator	Kenya USD		Malawi USD		Zambia USD		SAIOMA vs Control Difference (%)		
	SAIOMA	Control	SAIOMA	Control	SAIOMA	Control	Kenya	Malawi	Zambia
Per capita non-food expenditure ^a	229	217	41	36	82	92	5.7	14.6	-10.6
Per capita food-expenditure	107	105	63	92	38	36	2.0	-31.4	5.5
Per capita total expenditure	336	322	104	128	120	128	4.5	-18.6***	-6.1
Per capita income ^b	256	207	65	61	147	152	23.6	7.3	-3.6
Per capita crop income ^b	79	78	26	13	73	86	2.4	91.3	-15.3

Source: SAIOMA Evaluation survey ^a 2015/16 data. ^b 2015 data

Post-harvest losses

Promotion of improved post-harvest storage practices under SAIOMA has contributed to an increase in percentage of smallholder farmers adopting improved drying, storage and grading technologies and processes (Chapter 4). The impact on post-harvest grain losses at household level was also assessed using farmer assessment of losses during storage (Table 27).

In Kenya, mean storage losses of 6.6% were reported for pigeonpea, the most significantly stored crop, against a target of 11% (167% LOA vs. target). In Malawi, mean storage losses for maize were 13.4% compared to the 20% target (149% LOA vs. target). In Zambia, maize storage losses were 6.3% against the 20% target (317% LOA). This indicates low levels of grain storage losses for SAIOMA beneficiaries across the three countries. Percentage grain losses for the control groups were also relatively for the respective countries. The findings indicate that both SAIOMA beneficiaries and control farmers are successfully implementing post-harvest storage practices (the latter through other service providers). Another factor behind the relatively low levels of losses was the short period of grain storage: harvests were generally low and farmers sold part of their crop, reducing in-storage losses at household level. It should be noted that post-harvest losses are particularly difficult to measure at household level and so the results should be treated with caution.

Table 27 Mean post-harvest losses at household level for maize and pigeonpea, 2015 (%)

Variable	Kenya pigeonpea			Malawi maize			Zambia maize		
	LOA target	LOA achieved	% LOA target met	LOA target	LOA achieved	% LOA target met	LOA target	LOA achieved	% LOA target met
Post-harvest losses	11	6.6	167%	20	13.4	149%	20	6.3	317%

Source: SAIOMA evaluation household survey

6.4 Gender Disaggregated results

The evaluation also compared the effects of SAIOMA on adoption of improved technologies between male- and female-headed households, results of which are shown in Table 28 (agronomic practices) and Table 29 (post-harvest technologies). The results show that women-headed households who participated in SAIOMA had significantly higher adoption rates for improved pigeon peas (Kenya), improved maize varieties (Malawi) and chemical fertilizers (Zambia) compared to non-participants. Male-headed households showed differences in adoption of more technologies between project participants and non-participants, compared to women-headed households. In Kenya, men-headed households that participated in SAIOMA recorded higher adoption of improved varieties of pigeon peas, cowpeas and green grams than control households. For Malawi, participating men-headed households had higher adoption rates for improved varieties of maize, soya beans and groundnuts, while men-headed beneficiary households in Zambia adopted more improved varieties of sunflower, fertilizer and agrochemicals, compared to non-beneficiaries.

For postharvest technologies, beneficiary women-headed households adopted less pesticides than control households in Kenya. On the other hand, SAIOMA men-headed households showed more adoption of grain drying technologies in Kenya and storage pesticides in Malawi. These results imply

that SAIOMA created more impacts for men than women-headed households and agronomic than post-harvest technologies.

Table 28 Gender differences in adoption of improved technologies in 2015 (% respondents)

Country, technology	Women-headed households		Men-headed households	
	SAIOMA	Control	SAIOMA	Control
Kenya				
Improved sorghum varieties	13.5	12.1	12.7	17.3
Improved pigeonpea varieties	23.0**	9.1	16.4**	7.1
Improved cowpeas varieties	35.1	27.3	28.4**	19.4
Improved green gram varieties	29.7	33.3	35.3***	19.4
Fertilizer	24.3	15.2	28.1	33.7
Agrochemicals	85.1	81.8	88.0	87.8
Malawi				
Improved maize varieties	82.6**	65.2	86.2**	77.8
Improved soya bean varieties	8.1	0.0	7.3**	2.1
Improved ground nut varieties	32.6	21.7	32.6***	11.7
Fertilizer	90.7	95.7	91.0	96.8
Agrochemicals	44.1	43.5	55.8	54.3
Zambia: Maize				
Improved maize varieties	70.0	58.3	79.1	84.3
Improved soya bean varieties	2.5	3.3	5.2	4.8
Improved sunflower varieties	6.3	8.3	10.5**	4.8
Improved ground nut varieties	6.3	3.3	5.8	6.6
Fertilizer	91.3***	71.7	94.8**	90.4
Agrochemicals	6.3	1.7	17.5***	7.2

, * differences between SAIOMA and control households significant at 5% and 1% respectively.

Source: SAIOMA Evaluation household survey

Table 29 Gender differences in adoption of improved post-harvest technologies (% sample)

Country and technology	Women headed households		Men-headed households	
	SAIOMA	Control	SAIOMA	Control
Kenya				
Drying grain on plastic sheet/tarpaulin	63.5	57.6	64.3***	45.9
Raised store	4.1	3.0	7.2	6.1
Hermetic bags	2.7	6.0	6.5	6.1
Storage pesticide	64.9**	81.8	59.9	66.3
Use moisture meter/salt-in-bottle test	5.4	9.1	9.9	6.1
Improved grain store	17.6	9.1	13.7	10.2
Malawi				
Drying grain on plastic sheet/tarpaulin [†]	56.5	69.8	60.6	58.4
Storage pesticide	60.9	65.1	80.9**	70.4
Improved grain store	13.0	19.8	12.8	12.9
Zambia				
Drying grain on plastic sheet/tarpaulin [†]	32.5	26.7	32.3	29.5
Storage pesticide	52.5	56.7	68.6	63.9
Improved grain store	2.5	2.8	7.4	6.0

[†] For Malawi and Zambia, this includes "special stacks" such as Mandela cocks.

, * differences between SAIOMA and control households significant at 5% and 1% respectively.

Source: SAIOMA Evaluation Household survey

Differences in household incomes by sex of household head are shown in Table 30. The results show that across all countries, there were no significant differences in household incomes and expenditure between SAIOMA beneficiaries and non-beneficiaries, for women-headed households. However, for men-headed households in Kenya, SAIOMA beneficiaries earned significantly more crop income (Ksh 16,857) than their non-beneficiary counterparts (Ksh 8,916). Similarly for male-headed households in Malawi, SAIOMA beneficiaries earned significantly more income per capita (MK 25,221) than non-beneficiaries (MK 18,920), but spent less on food purchases. Although baseline data is unavailable, an assumption of comparable baseline incomes would imply that SAIOMA increased per capita crop incomes for male-headed households in Kenya by 89% and total incomes for male-headed households in Malawi by 33%.

Table 30 Gender differences in household incomes and expenditures (units in local currency)

Country, crop and stage	Women headed households		Men-headed households	
	SAIOMA	Control	SAIOMA	Control
Kenya (KSH)				
Per capita income	41551	36148	44075	40336
Per capita crop income	18236	9424	16857**	8916
Per capita non-food expenditure	25250	15229	27633	25229
Per capita food expenditure (7-day period)	216	185	193	211
Malawi (MKW)				
Per capita income	24920	25451	25221**	18920
Per capita crop income	9475	11665	7358	6384
Per capita non-food expenditure	16318	19642	23757	22751
Per capita food expenditure (7-day period)	712	959	809***	1139
Zambia: Maize (ZKW)				
Per capita income	1771	1766	1487	1522
Per capita crop income	798	837	760	903
Per capita non-food expenditure	923	1116	845	884
Per capita food expenditure (7-day period)	6.6	6.7	8.0	7.5

** , *** differences between SAIOMA and control households significant at 5% and 1% respectively.

Source: SAIOMA Evaluation household survey

6.6 Conclusions on SAIOMA beneficiary impact

This chapter has assessed the performance of the program against key SAIOMA program indicators using secondary data from World Bank/UN sources and primary data from the evaluation household survey: Table 31 summarises the findings.

Performance against program impact and high level outcome indicators – to which the program would be expected to contribute - is positive for change in agricultural GDP (indicator #3), although lagging behind the target rate of 35%. For percentage of rural households living below the poverty line, the target was 91% and 80% met in Kenya and Malawi respectively, with Zambia lagging at 58% (#1). Per capita household expenditure (#15) is well below the baseline level. Reasons for non-attainment of targets are a combination of external factors (agricultural sector performance) and high target levels.

On outcome targets, performance on distance travelled by smallholders to access agro inputs has improved over the program period, and is close to LOA targets in Zambia (96 %). Targets on use of improved input (#10) were exceeded in Malawi and Zambia (118% and 122% respectively for improved maize varieties). In Kenya targets were only 60% and 40% met: here local varieties are also in demand

(sorghum). Gender-disaggregated data shows that farmers in female-head households also exceeded the targets in Malawi and Kenya, but trailed in Kenya, though the difference between male- and female-headed households was not significant. Assessment of post-harvest storage losses at household level shows that targets were significantly exceeded for the three commodities assessed: pigeonpea in Kenya, maize in Malawi and maize in Zambia (#18). Finally, targets on SAIOMA beneficiary smallholder adoption of improved post-harvest storage were met in Zambia and Malawi (99%) whilst in Kenya adoption was 93% (for storage pesticides: adoption of other practices was lower) (#21).

Table 31 SAIOMA Key indicators: Targets and Level of achievement at end of program 2015/16

	Indicators	Kenya			Malawi			Zambia		
#		LOA target	LOA achieved	% LOA Targets met	LOA target	LOA achieved	% LOA Targets met	LOA target	LOA achieved	% LOA Targets met
1	Impact Indicator: Percent of rural households living below poverty line	45%	49%	91%	45%	57%	80%	50%	78%	64%
3	Outcome Indicator: Percent change in agricultural gross domestic product		3.5%			6%			6.3%	
4	Outcome Indicator: Average distance travelled by farmers to access agroinputs	3 km	3.9 km	77%	3 km	7.6 km	39%	10 km	10.4 km	96%
10	Outcome Indicator: Percent of targeted farmers using a. improved seeds b. fertilizers	73 73	44% 27%	60.3% 36.9%	73 73	86% 90%	117.8% 123.3%	65 65	79% 95%	121.5% 146.2%
15	Outcome Indicator: Per capita expenditures of targeted smallholder farmer households	\$5	\$0.92	18%	\$4	\$0.28	7%	\$5	\$0.33	7%
18	Outcome Indicator: Post-harvest losses (pigeonpea /maize) Percent	11%	6.6%	167%	20%	13.4	149%	20%	6.3%	317%
21	Outcome Indicator: Percent of smallholder farmers adopting improved post-harvest storage practices	65%	61%	93%	70%	69%	99%	60%	66%	109%

7. PROGRAM MANAGEMENT

7.1. SAIOMA consortium approach

SAIOMA was implemented through a consortium of partners, each taking responsibility for the different program components – agrodealership, farmer training, farmer organisation capacity, market development - with a lead partner in each country. This approach had the advantage of drawing on expertise and strengths of each partner to offer farmer organisations and their members a full package of services. Table 32 shows partners and responsibilities in each country.

Table 32. SAIOMA partners by country

Country	Partner	Responsibilities
Kenya	Agricultural Market Development Trust (AGMARK)	• Lead partner • Agro-dealer development • Oversight of work on gender mainstreaming
	Cereals Growers Association (CGA)	• Farmer organization mobilization and training • Implementation of the output markets component (including produce aggregation and market linkages)
	Cooperative Consultancy and Insurance Agency Ltd (CCIA)	• Capacity building for farmer organizations
Malawi	National Smallholder farmers' Association of Malawi (NASFAM)	• Lead partner • Responsible for coordination of the consortium, they work on the output market component with the Agricultural Commodity Exchange (ACE).
	The Rural Market development Trust (RUMARK)	• Executes the agro-dealer development work within the input markets component.
	Farmers Union of Malawi (FUM)	• Farmer Organization capacity strengthening component.
Zambia	Nutri-Aid Trust (NAT)	• Lead partner • Responsible for agro dealer development and consortium coordination.
	Frontier	• Implementing the output market component
	Farmer Organization Support Program (FOSUP)	• Implementing the Farmer Organization capacity strengthening component.

The consortia faced challenges at the beginning of the program, since most members had not previously worked in this mode together, initially working in silos with SAIOMA implementing staff reporting to their respective organisations. Another downside was that the organisations could potentially be competitors: for example, both NASFAM and FUM support farmer organisations in Malawi. Countries introduced different measures to improve consortium management. For example, to improve reporting, Zambia introduced training and joint reporting in 2015. The arrangement generally improved after the inception and partners were able to leverage each others' strengths.

Staffing and resources

Staff and resource allocations varied slightly between countries reflecting differences in their program proposals. On transport, for example, two SAIOMA vehicles were allocated to each country, although the consortia had 3-4 partner members and 4-6 districts/sub-counties to cover. The program was also able to leverage previous investments by partners (for example, vehicles under Swiss MFA) in SAIOMA implementation as part of the GDA.

Ideally partners could have harmonized activities such as fieldwork but this was not always possible especially once field activities were underway. Some partners hired vehicles and used motorbikes but transport was inadequate, especially for activities which required considerable travel and timely monitoring such as management of field trials.

Program staff were generally well qualified and experienced in the work of the program, a number of having worked on previous AGRA projects. However, staffing under SAIOMA was unbalanced and inadequate in some program areas. Consortium partners had 3 full-time staff whilst other partners such as FO capacity building partners had 0.5 persons. The consortium lead in Malawi had 1 field officer based on Zomba who was unable to cover all districts and tended to prioritise NASFAM's SAIOMA activities. Partners tried to overcome this by using non-SAIOMA field staff but inevitably they could not prioritise SAIOMA activities. In Zambia, Nutri-Aid had field officers in both provinces but the input supply specialist had to double up as M&E officer; WASSA and FOSUP had no officers in other districts. In some cases, partners had to rely on hired interns which compromised service delivery.

The overall observation is that the budget was not sufficient for all activities under the program. Some partners had limited budget lines for salaries, which affected the commitment and availability of partner staff.

The overall impact of the staffing and resource imbalance was that some key components, such as monitoring and backstopping of activities such as group farmer training by ToTs - essential for supporting activities and to scaling out and sustaining program results – were largely missing. More staff and better complementarity by Lead Partner with other consortium members' activities was needed to cover all activities and districts. The alternative would have been for Government extension workers to help with backstopping but this did not happen because extension workers did not continuously engaged in the program. The reasoning was that government extension workers are generally overburdened with activities, but in reality they are the coordinating stakeholder for activities at community level.

Program management capacity

It was also the first time that AGRA had received FTF funding and it took time to set up financial and reporting systems which delayed program start up. However, this may be considered an investment in AGRA's program management capacity. Country lead partners' financial management capacity was generally adequate and support was provided on USAID systems. Robust systems of accounting were introduced. However, changes in accounting systems after activities had already started caused confusion and delays. Together these factors effectively reduced the 3 year implementation period

from 3 to 2 years - 2 agricultural seasons, of which one was very poor and the other mixed – too short to embed activities, and impacting on progress towards targets and sustainability.

After a delayed start, funding was generally timing and sufficient until the last quarter of 2015 up to the end of the program when payments from AGRA were delayed. The 2015/16 delays occurred while waiting for donor approval of no-cost extension and related sub-award increases. There were instances when SAIOMA partners had to arrange for alternative temporary financing due to funding delays.

7.2. Program monitoring

Program monitoring and reporting was integrated into program design and implementation. Specialist M&E staff were appointed in each country (0.5 person Zambia) by the lead partner and were generally well supported in terms of timeliness of monitoring visits. Staff were familiar with SAIOMA targets and key indicators. Monitoring reports were used by program staff to track progress and adjustments made as necessary – particularly in activity targets.

Impact and outcome key indicators targets are useful in tracking SAIOMA progress. However, as discussed in Chapter 6, some baseline LOA and end of program targets look unrealistic, for example on increased crop yields and poverty levels.

7.3 SAIOMA partnerships and sustainability

SAIOMA investments were expected to make significant progress towards the program goal – to promote inclusive agriculture for a sustainable reduction of poverty and hunger in the target countries. However, as cited in the program Sustainability Plan (Program doc:24), achieving this long-term goal would involve further investments beyond SAIOMA's lifespan. The Sustainability plan envisaged a number of strategies and activities. These were expected to include: integration of activities into existing AGRA programs; linkages with existing or established government/public and private sector institutions; establishment and strengthening of the staple food value chain systems; capacity building of the value chain actors; continued resource mobilization from traditional and non-traditional sources; and working with partner governments to create an enabling environment for continued private sector investment in agriculture.

The sustainability plan outlined a wide-ranging set of activities and strategies to ensure sustainability. However, it did not provide details on how these activities and strategies were to be implemented. Additionally these activities/strategies do not appear to have been tracked in program reporting. The following are the observations of the evaluation team.

Integration with existing AGRA programs

The AGRA programs most closely linked with SAIOMA are: Market Access program (Markets), Program for Africa's Seed Systems (PASS), Farmer Organisation Support Centre in Africa (FOSCA) and the Agrodealer (sub) Program (ADP). Directors of these programs formed part of the program advisory committee and contributed to program management. Learning from these AGRA programs was incorporated into SAIOMA program design, notably capacity building for agrodealers and Farmer organisations and Implementing partners through learning tours, quarterly and annual program reviews at country and program levels respectively. Links with existing AGRA grantees and partners

helped inform identification of SAIOMA consortium members and partners and these linkages facilitated program take-off and implementation.

Whilst there were many positives in the linkages between SAIOMA and AGRA programs, more opportunities could have been leveraged. On seeds, for example, there was no linking of agrodealers to PASS-supported companies, despite the latter's focus on SAIOMA commodities (except cassava) which have traditionally been difficult to source, since large companies have not found them commercially viable without government subsidies. Varieties were not reported by the program but interviews with agrodealers and farmers show that seeds were mostly supplied by larger national companies and international companies. Lessons from reviews of AGRA programs do not seem to have been incorporated into the program, such as the need to build capacity of support systems for agrodealers, for example through agrodealer networks.

Linkages with other projects

SAIOMA has worked closely with other similar projects such as USAID supported PROFIT Plus, CRS-MAWA, Musika and as well as the USAID supported CIP Africa rising project. All these projects are likely to continue supporting agro dealer development programs, especially in the Eastern province. Nutri-aid has secured additional funds from other donors such as the Swedish International Development Agency (SIDA), the Department of Foreign International Development (DFID) and European Commission (EC) to continue capacity building efforts for agro dealers in Eastern, Central, North Western and Southern provinces of Zambia. SAIOMA has also partnered with the IFDC on a fertilizer quality study in shops across the entire agro dealer network developed by Nutri-aid and partners in Zambia.

Partnerships with national governments and public and private sector organisations

AGRA is expected to work with the Ministries of Agriculture and national and regional agricultural training and research institutions in the target countries. As these state institutions partner with AGRA on SAIOMA common agenda and interests, synergies and capacities were expected to be built to enhance their role in the agricultural sector and sustain performance (Program document).

SAIOMA engagement with public sector organisations has varied between countries and across the life of the program. In the first year meetings were held with leadership in program sites as part of the program inception. SAIOMA did not partner with state organisations directly. Grantees were non-governmental organisations and farmer membership bodies. Nevertheless the program contracted government extension staff at local level to carry out training and provide short-term services. This was ad hoc rather than mainstreamed within local government activities, limiting opportunities for support and supervision. Local governments in each country have structures and staff (e.g. County and District departments of Agriculture, Livestock and Cooperatives) who have responsibility for post-harvest and marketing activities in the district. Involving local managers in planning activities would have improved coordination and likelihood of sustainability of program activities. Local extension staff would have benefited from capacity building and refresher training to provide up to date information and services to farmers.

Policy environment

A number of key challenges in the policy environments in Kenya, Zambia and Malawi have impacted on SAIOMA program activities and outcomes. The program envisioned AGRA working with stakeholders to identify policies hindering agricultural growth and to facilitate discussions with policy makers. However, given the wide range of stakeholders, both local and regional/international, and competing interests, influencing policy is difficult. In input markets, one key policy challenge has been the restriction on agrodealers' participation in supplying inputs under the Farm Input Support Programs (FISP) in Zambia, which has limited their market opportunities. In output markets, a series of export bans have flattened markets for key commodities including maize and soya. A notable success by the program was the sorghum campaign in Kenya.

7.5 Recommendations

1. The consortium concept piloted under SAIOMA is innovative, combining strengthening of input markets, output markets and farmer organisations in one program. Initially partners implemented activities in silos, though cooperation has improved significantly over the course of the program with management support. For consortia to work successfully there is need for clear working modalities agreed at inception, including lines of reporting.
2. More equitable support for the different components is needed to ensure sustainability. Strengthening smallholder farmers to aggregate and enter formal markets requires more emphasis on the foundations of the pyramid: capacity building of Farmer Organisations. This was given the lowest priority in resource allocation of program investments. It is recommended that guidelines for partners on allocation by objectives are considered.
3. After initiation of program start-up activities the program effectively operated on the ground for only two seasons: too short to see a significant shift by risk-averse smallholder farmers to new marketing arrangements and to embed new processes in farmer organisations. Ideally, an input and output strengthening program would have an inception stage, minimum of 3 years full implementation, and an exit phase to ensure sustained impact.
4. Contextual factors, particularly the weather, had a major impact on harvests and thus program outcomes. Weather insurance schemes could be considered as part of future investments.

APPENDIX 1 Stakeholders consulted during the evaluation

Kenya

No.	Name	Organization/Business	Title
	Project implementers		
1.	James Mutonyi	Agricultural Market Development Trust (AGMARK)	Managing Director
2.	Steve Ngwalla	AGMARK	Director of training
3.	Wilfrida Onono	AGMARK	M&E Officer
	Collaborators/ Partners		
4.	Dionasia M'eruaki	Meru County	County Director of Agriculture
5.	JM Kariuki	Machakos County	County Director of Agriculture
6.	James Thuo	Kitui Sub County	Sub County Director of Agriculture
7.	Stephen Mworia	Tharaka Nithi Sub County	Sub County Director of Agriculture
8.	David Munyao Mulu	Mwala- Machakos	MoALF- Mbiuni
9.	Mugo	Gatunga- Tharaka	MoALF
10.	Ngila Kimotho	Dryland Seed Company	Proprietor
11.	Martin Mutisya	Agri SeedCo	Sales Rep
	Beneficiaries – Farmers		
12.	Isabella Kaweria	Thau Grain Aggregation Centre (GAC)	Secretary
13.	Joyce Karea	Thau GAC	Chairlady
14.	Stella Musa	Thau GAC	Member
15.	Catherine	Thau GAC	Member
16.	Janai Mukwati	Thau GAC	Member
17.	Festus Muthoka	Wamunyu GAC	Vice Chairman
18.	Peter Muindi	Wamunyu GAC	Chairman
19.	George Mutyanzui	Wamunyu GAC	Member
20.	Eunice Ndinda	Wamunyu GAC	Member
21.	Janet Muoka	Wamunyu GAC	Member
22.	Linah Nzambia	Kawongo GAC	Chairlady
23.	Nduku Muema	Kawongo GAC	Member
24.	Elizabeth Mbithe	Kawongo GAC	Member
25.	Jacinta Mutua	Kawongo GAC	Member

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26.	Jane Maingi	Kawongo GAC	Member
27.	Martha Kairu	Gatithini GAC	Member
28.	Jacob Muriungi	Gatithini GAC	Secretary
29.	Catherine Mukina	Gatithini GAC	Member
30.	George Kairanya	Gatithini GAC	Member
31.	David Iguna	Gatithini GAC	Member
32.	Jacob Muriungi	Tharaka Cereal Growers Association	Farmer
33.	Christine Kirimi		Farmer
34.	Benjamin Thumba		Farmer
Trainers			
35.	Fanuel Lihanda	Commercial Trainer	Agrodealer Trainer
36.	Pauline Kuria	Commercial Trainer	Farmers Trainer
Beneficiaries –Agrodealers			
37.	Beatrice Nkatha	Sorghum Pioneer Agency and Agrovat	Proprietor
38.	Allan Mutegi Kithome	Kipcona Farm care	Proprietor
39.	Isaiah Mutwiri	Farm Inn Agrochemical	Agrodealer
40.	Alice Marimba	Mkulima General store	Agrodealer
41.	Josphine Karimi	Farm Inn Agrochemical Kagaene	Agrodealer
42.	Onesmus Muguna	Mulika farmers center	Agrodealer
43.	Bernard Mongela	Miathene Medical center	Agrodealer
44.	Ngina Kimotho	Dryland Deed	Agrodealer
45.	Janet Kyalo	S&J Hardware&Agrovat	Agrodealer
46.	Lina Judy	Julinza Agrovat	Agrodealer
47.	Alfred Kikuyu	Solola Agrovat	Agrodealer
48.	David Mwiti	Davi's Enterprise	Agrodealer
49.	Esther Nabea	Esnick Agrochemical	Agrodealer
50.	Amos Thurania	Young farmers check point	Agrodealer
51.	Felix Muthamia	Farm Pro Agrovat	Agrodealer
52.	Edwin Kaberia	Huruma farmers choice	Agrodealer
53.	Pius Mwinde	Vet Centre Agrovat	Agrodealer
54.	Irene Mutuku	Umoja Agrovat	Agrodealer

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55.	Nguuti Ndambuki	Nthongoni Grain Aggregation Center	Agrodealer
56.	Catherine Paul	Kwa Kihui Agrovets	Agrodealer
57.	Charles Ngami	Sinai Serials	Agrodealer
58.	Felistus Kamama	Noilo Stores	Agrodealer
59.	Charity Thirindi	Kimachia Agrovets	Agrodealer
60.	Priscillah Nkirate	Kaboy Agrovets	Agrodealer

Malawi

	Key Informant	Organization/Business	Title
61	Mr Katunga	Ministry of Agriculture, Irrigation and Water Development	District Agricultural Development Officer
62	Mr Tongwe	Ministry of Agriculture, Irrigation and Water Development	Extension Methodology Officer
63	Mr Madalitso Mgombe	Ministry of Agriculture, Irrigation and Water Development	Agribusiness Officer
64	Ms. Brenda Magomba	Ministry of Agriculture, Irrigation and Water Development	Agribusiness Officer
65	Mr Palichi Munyenembe	Ministry of Agriculture, Irrigation and Water Development	District Agricultural Development Officer
66	Mr Changomba	Southern Region Agro-dealers Association	Chairperson
67	McPherry Masangano	Rural Market Development Trust (RUMARK)	Projects Coordinator
68	Fransisca Mabedi	Rural Market Development Trust (RUMARK)	Project Officer
69	Emmanuel Nasasala	National Association of Smallholder Farmers in Malawi	Project Manager
70	Betty Chinyamumunyamu	National Association of Smallholder Farmers in Malawi	Deputy Chief Executive Officer
71	Joshua Masangano	National Association of Smallholder Farmers in Malawi	Monitoring and Evaluation Officer
72	Modester Tembo	Farmers Union of Malawi	Institutional Development Coordinator
73	Alex Dingiza	Ministry of Agriculture, Irrigation and Water Development-Domasi Extension Planning Area	Agricultural Extension Development Coordinator
74	Jackson Juwawo	Ministry of Agriculture, Irrigation and Water Development-Ulongwe Extension Planning Area	Agricultural Extension Development Coordinator
75	Ignitus Chikaonda	Ministry of Agriculture, Irrigation and Water Development-Mbonechera Extension Planning Area	Agricultural Extension Development Coordinator
76	Frank Matita	Talandira Cooperative in Ulongwe Extension Planning Area	Chairperson and committee members
77	Dinala Moses	Jenala Cooperative	Chairperson and committee members

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78	Augustine Chapita	Domasi Water Users Association, Domasi Extension Planning Area	Chairperson and committee members
79	Nellie Chimanda	Likhomo Cooperative, Nanyumbu Extension Planning Area	Chairperson
80	Loveness Andiseni	Nsanama Cassava Cooperative, Mbonechera Extension Planning Area	Chairperson and committee members
81	Frank Zagwa	Namibawa Association in Bazale Extension Planning Area	Chairperson and committee members
82	Aubrey Kampake	Mbonechera Cotton Cooperative	Chairperson and committee member
83	Mr. Makawa	Nsanama Trading Centre - Machinga	Agrodealer
84	Mr. Ntiya	Nselema Trading Centre, Balaka	Agrodealer
85	Mr. Yakiti	Nselema Trading Centre, Machinga	Agrodealer
86	Mr. Richard naula	Liwonde Trading Centre, Machinga	Agrodealer
87	Mercy Chatepa	Liwonde Trading Centre, Machinga	Agrodealer
88	Mercy Mleme	Chikwewo Trading Centre, Machinga	Agrodealer
89	John Innocent	Ntaja Trading Centre, Machinga	Agrodealer
90	Yahaya Kawanga	Ntaja Trading Centre, Machinga	Agrodealer
91	Mr. Mbalika	Kupilira agro dealers, Chendausiku Trading Centre, Balaka	Agrodealer
92	Fraction Chiwaula	Mangochi Turn-Off, Balaka	Agrodealer
93	Edwin Matewera	Balaka Town	Agrodealer
94	Mr. Waterford Symon	Balaka Town	Agrodealer
95	Mrs. Mliya	Balaka Town	Agrodealer
96	Mr. D Funsani	Kankao Trading Centre, Balaka	Agrodealer
97	Charles Makanjira	Malosa Trading Centre, Zomba	Agrodealer
98	EM Katundu	Domasi Trading Centre, Zomba	Agrodealer
99	Peter Dimba	Chinamwali Trading Centre, Zomba	Agrodealer
100	Mr. Useni	Emanuel enterprises, Dzaone Trading centre, Zomba	Agrodealer
101	Starlon Banda	Green World Agrodealers, Nasawa Trading Centre, Zomba	Agrodealer
102	Dinala Moss	Jenala Trading Centre, Zomba	Agrodealer
103	Peter Mombanya	Mayaka Trading Centre, Zomba	Agrodealer
104	Keston Nzeka	Zomba Boma, Zomba	Agrodealer
105	Greevin Hamis	Sunuzi Trading Centre, Zomba	Agrodealer

Zambia

No.	Name	Name of Organization/Business	Title
Project implementers – KIIs			
1	Peter Manda	Nutri-Aid Trust	Managing Director & SAIOMA Zambia Chief of Party
2	Gulam Banda	Frontier Development Associates	Chairman & SAIOMA Zambia D/Chief of Party
3	Mukonde Sifunda	Nutri-Aid Trust	M&E Officer/Input Specialist (also in charge of SAIOMA Central Province office)
4	Nyambe Manyando	Nutri-Aid Trust	Agro dealer/input Market Specialist/Commercial Trainer (also in charge of SAIOMA Eastern Province office)
5	Billy Mozah Lungu	Nutri-Aid Trust	Finance Officer
6	Mike Muleba	FOSUP	Chief Executive Officer
7	Paul Chaaba	FOSUP	Program Coordinator
8	Emmanuel Mwale	Frontier Development Associates	Market Access Specialist
Collaborators/ Partners – KIIs			
1	Machona Alpha	SEEDCO	Agronomist
2	James Chilufya	MRI SEED	Technical Marketing Officer
3	Timothy Nguluka	MONSANTO	Market Development Officer
4	Etambuyu Ahamela	Ministry of Agriculture, Chibombo	District Agriculture Coordinator (DACO)
5	Borniface Chishimba	Ministry of Agriculture, Chibombo	District Marketing Development Officer
6	Evalyn Zulu	Ministry of Agriculture, Chipata (Chimtwamazi)	Camp Chairperson
7	Mainza Alex	Ministry of Agriculture, Chibombo (Shimukuni)	Camp Extension Officer
8	Ephiwell Choolwe Nyati	Ministry of Agriculture, Chibombo (Keembe Ranch)	Camp Agriculture Officer
9	Bufuku	Ministry of Agriculture, Lundazi	Camp Agriculture Officer
Beneficiaries (Farmers/FGDs)			
1	Markson Muloongo	Kuligwasha, Keembe Ranch Camp - Chibombo	V.Secretary
2	Mundongo Kenneth	Lusumpuko Multi-Purpose, Keembe Ranch Camp - Chibombo	Chairperson
3	Principal Malambo	Mayota Agric. Coop, Keembe Ranch Camp - Chibombo	Secretary
4	Godfrey Ngandu	Mayota Agric. Coop, Keembe Ranch Camp - Chibombo	Vice treasurer
5	Rose Muloongo	Tuchatane, Keembe Ranch Camp - Chibombo	Vice treasurer

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6	Christopher Chipikauka	Nchename Multi-Purpose Coop, Keembe Ranch Camp - Chibombo	Chairperson
7	Mutumbu Luckson	Mutachebuki, Keembe Ranch Camp - Chibombo	Vice chairperson
8	Felix Mwiimbi	Mayota Agric. Coop, Keembe Ranch Camp - Chibombo	Member
9	Ronah Kabumbwe	ChuumaKweseka, Keembe Ranch Camp - Chibombo	Vice chairperson
10	Charles Muloongo	Kuligwasha Agric. Coop, Keembe Ranch Camp - Chibombo	Secretary
11	Evans Nkata	Mutachebuki, Keembe Ranch Camp - Chibombo	Treasurer
12	Bridget Mphenza	Tusebense, Keembe Ranch Camp - Chibombo	Treasurer
13	Kay Hamaluba	Shabukalu, Keembe Ranch Camp - Chibombo	Chairperson
14	David Ngonga	Chumakweseka, Keembe Ranch Camp - Chibombo	Secretary
15	Evans Katongo	Lusumpuko, Keembe Ranch Camp - Chibombo	Vice Treasurer
16	Vainius Mubaiwa	Tulyetufube, Shimbilo Camp - Chibombo	Camp Zone Representative
17	Chilukutu		
18	Joyce Kaota	Shimbilo Shed Marketing committee - Chibombo	Chairperson
19	Steven Mwandila	“	Vice Chairperson
20	Simbarashe Tinago	“	Secretary
21	Chester Muriwa	“	Vice Secretary
22	Judy Masakala	“	Treasurer
23	Charles Mukuka	“	Vice treasurer
24	Finess Chinago	Mwanawalila, Chibombo	member
25	Violet Mulumbe	Seskseka, Chibombo	member
26	Sibanda Lameck	Njuni, Chibombo	member
27	Magret Chinyama	Mwanawalila, Chibombo	member
28	Chilukutu	Shimbilo Village, Chibombo	Senior headman Lyowa
29			
30	Spywaleshi Kapata	Funawalumamba, Shimukuni Camp - Chibombo	Chairperson
31	Lackson Mupese	Mukuni Utontola, Shimukuni Camp- Chibombo	Secretary
32	Clement Chiko	Chisanya, Shimukuni Camp- Chibombo	Chairperson
33	Kakompe Cassius	Sokacho, Shimukuni Camp- Chibombo	Chairperson
34	Clever Chiiko	Mubobo, Shimukuni Camp- Chibombo	Chairperson
35	Losa Mutupa	Kakoma Women’s coop, Shimukuni Camp- Chibombo	Chairperson
36	Prisca Sianjase	Twilimune, Shimukuni Camp- Chibombo	Chairperson
37	Omega Kapushaba	Twalubuka, Shimukuni Camp- Chibombo	Member

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38	Rona Chiko	Kanuka Women Coop, Shimukuni Camp- Chibombo	Chairperson
39	Honest Kalaya	Tusebense, Shimukuni Camp- Chibombo	Chairperson
40	Jim Musukwa	Kunkamulilo, Shimukuni Camp- Chibombo	Chairperson
41	Lita Nyoni	Adabwiseni, Chimtwamadzi AC, Chipata	Secretary
42	Voliet Shumba	Ayambe, Chimtwamadzi AC, Chipata	Treasurer
43	Edaward Chilinda	Twikatane, Chimtwamadzi AC, Chipata	Chairperson
44	Emusi Mwanza	Twikatane, Chimtwamadzi AC, Chipata	Treasurer
45	Fedson Shumba	Chimpunda, Chimtwamadzi AC, Chipata	Chairperson
46	Benson Shumba	Chimpunda, Chimtwamadzi AC, Chipata	Chairperson
47	Velentina Ngoma	Anasi, Chimtwamadzi AC, Chipata	Secretary
48	Lunza Nzima	Adambwiseni, Chimtwamadzi AC, Chipata	Secretary
49	Mabvuto Ziba	Adambwiseni, Chimtwamadzi AC, Chipata	Treasurer
50	Peter Zulu	Chimtwamazi, Chimtwamadzi AC, Chipata	Chairperson
51	Edward Phiri	Nkhanyu FO, Lundazi	Chairperson
52	Ackimimba	Nkhanyu FO, Lundazi	Vice Chair
53	Shadrech Zulu	Nkhanyu FO, Lundazi	Secretary
54	Lameck Banda	Nkhanyu FO, Lundazi	Vice Secretary
55	Majory Tembo	Nkhanyu FO, Lundazi	Treasurer
56	Amos Mumba	Lusuntha, Lundazi	Chairperson
57	Denis Nyirenda	Lusuntha, Lundazi	Vice Chairperson
58	Amon Nyirenda	Lusuntha, Lundazi	Secretary
59	Leonard Mtonga	Lusuntha, Lundazi	Vice Secretary
60	Benny Nkhata	Lusuntha, Lundazi	Committee member
61	Aaron Nkhoma	Lusuntha, Lundazi	Committee member
62	Agness Phiri	Lusuntha, Lundazi	Treasurer
63	Kelliness Nyirongo	Lusuntha, Lundazi	Committee member
64	Beauty Nyirenda	Lusuntha, Lundazi	Committee member
65	Febian Mtonga	Zumwanda, Lundazi	Chairperson
66	Moses Banda	Zumwanda, Lundazi	Vice Chair
67	James Mwale	Zumwanda, Lundazi	Secretary
68	Mwanida Chirwa	Zumwanda, Lundazi	Treasurer
69	Edward Manda	Zumwanda, Lundazi	Committee member
70	Agathar Banda	Zumwanda, Lundazi	Committee member
71	Brenda Banda	Kabulinde, Lundazi	Chairperson
72	Kelvin Nyirenda	Kabulinde, Lundazi	Vice Chair
73	Charles Zulu	Kabulinde, Lundazi	Secretary
74	Janet Mbewe	Kabulinde, Lundazi	Treasurer
75	Sarah Mkandawire	Kabulinde, Lundazi	Committee member
76	Lameck Banda	Kabulinde, Lundazi	Committee member

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77	Petros Nyirenda	Kabulinde, Lundazi	Committee member
Agro-Dealers			
1.	Maritina Hara	Mama Hara General Dealer	Agrodealer
2.	Grace Nyirongo Acson Zimba	Lundazi Agro Coop Ltd	Agrodealer
3.	Partson Sambo	Nthitimila Agro- Dealer	Agrodealer
4.	Rubir Maimba	Rubie Agro Suppliers	Agrodealer
5.	Banda Modester	Aunt Modester Agro Dealer	Agrodealer
6.	Salujinga Musumali Jackson	Salujinga General Dealer	Agrodealer
7.	Kelson Songe	Takusumbwa Trading	Agrodealer
8.	Hamainza Kelvin Gift	Mubimba Agi-Vision	Agrodealer
9.	Fredson Mumba	Shamwele Agro-Ent	Agrodealer
10.	Clement Chiko	Cc Enterprise	Agrodealer
11.	Wilfred D. Mwale	Dgm Agro-Chem	Agrodealer
12.	Timothy Mumba	Mumba	Agrodealer
13.	Esnala Tembo	Chosani Umphawi Agro Gen Dealer	Agrodealer
14.	Florence Jere	Majere Agro Services	Agrodealer
15.	Joseph Sakala	Iron Sharpens Iron Agro	Agrodealer
16.	Patrick Daka	Daka Farmers Home& General Dealers	Agrodealer
17.	Benadette Ngoma	Aunt Bena Agro	Agrodealer
18.	Njovu Edwin	Ulimi Niweka Agro/General Dealer	Agrodealer
19.	Lungu Godwin Alexander	Farmers And Gardeners Shop	Agrodealer
20.	Dorothy Chirwa	Doliha Agro&Gen Suppliers	Agrodealer
21.	Fidess Kasonde	Mama Kasonde	Agrodealer
22.	Lazarous Mwale	Daily Needs Agro Dealers	Agrodealer
23.	Phiri Davy	Bwenzi La Alimi	Agrodealer
24.	Jacob Banda	Jacob Zale	Agrodealer
25.	Prince Thole.B.	Kabilubilu Agros	Agrodealer
26.	Tembo Charles	Manjase Farms& Gen Dealers	Agrodealer
27.	Mabvuto Nkhoma	Amulauzi General Dealer	Agrodealer