SASAKAWA GLOBAL 2000-ETHIOPIA

SASAKAWA AFRICA ASSOCIATION

Final Evaluation

Strengthening Agricultural Extension Delivery in Ethiopia Project

Monitoring, Evaluation, Learning and Sharing Theme

Sasakawa Global 2000 – Ethiopia

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Table of Contents

List of Tables

List of Figures

Acronyms

BMGF	Bill and Melinda Gates Foundation
CA	Commodity Association
CBSMs	Community Based Seed Multipliers
CVPs	Community Variety Plots
CAs	Conversational Agriculture practices
CD	Country Director
DAs	Development Agents
FLPS	Farmer Learning Platforms
ha	Hectare
IFPRI	International Food Policy Research Institute
KII	Key informant interviews
LGF	Loan Guarantee Fund
MEL	Monitoring, Evaluations and Learning
MELS	Monitoring, Evaluations, Learning and Sharing
MFI	Micro Finance Institution
MoA	Ministry of Agriculture
MTE	Mid-Term Evaluations
OA	Oxfam America
PC	Project coordinator
PHAP	Postharvest and Agro-processing
PHELPs	Postharvest and Agro-processing Extension and Learning Platforms
PSC	Project Steering Committee
P/FTCs	Pastoralist/Farmer Training Centers
P/FTC-MC	Pastoralist/Farmer Training Centers-Management Committee
Qt	Quintal
RuSACCOs	Rural Saving and Credit Cooperatives
SAEDE	Strengthening Agricultural Extension Delivery in Ethiopia
SID	Stand for Integrated Development
SMS	Subject Matter Specialists
TE	Terminal Evaluation
TET	Terminal Evaluation Team
Top	Technology Option Plots
TOR	Terms of Reference
TOT	Training of the Trainers
WAD	Women Assisted Demonstrations
WERC	Woreda Extension Resource Centers

Executive Summary

Background: The project "Strengthening Agricultural Extension Delivery in Ethiopia (SAEDE)", funded by the Bill and Melinda Gates Foundation (BMGF), was implemented by Sasakawa Global 2000 Ethiopia (SG2000-Ethiopia) in collaboration with Oxfam America (OA) and Ministry of Agriculture (MoA). The project covered ten regions and twenty-two Woredas in the country, aiming to improve food security and income of 215,000 farmers. The main objective of the project was to improve the skills and ability of DAs and SMS' to deliver more diverse extension services to smallholder farmers, with special focus on marginalized groups such as women, agro-pastoralists, youth and very poor farmers. This evaluation intended to independently and objectively evaluate the project with respect to its relevance, efficiency, effectiveness and sustainability.

Methodology: The evaluation employed a combination of quantitative and qualitative methods: analysis of secondary data, review of documents, and primary data collection at different levels (households, different beneficiary groups, P/FTCs, Woreda Agricultural Offices, Regional Agricultural Bureaus and other government offices). Data were collected from 20 woredas and 52 Kebeles/FTCs. The household level survey covered 20 kebeles of 14 Woredas, and a sample of 700 (35 per Kebele) households were also interviewed using structured questionnaires. Similarly, data were collected from SMS', DAs, P/FTC Management Committees (P/FTC-MCs) and farmer groups using semi-structured questionnaires and checklists.

Key Results

Relevance: SAEDE project was highly relevant. Analysis of primary data and review of different documents confirmed that the project was in line with the country's agricultural development strategies and demand of smallholder farmers. The project was designed based on a diagnostic study on Ethiopia's extension system in 2011. Following that, detailed and structured needs assessments were conducted to prioritize needs of extension agents and farmers. Key informants also reported that the project has given due attention for prioritizing farmers' problems at early stage of project implementation. About 96% of kebele level respondents confirmed that promotion of technologies was based on farmers' needs. The SAEDE project has also met the needs of marginalized farmers, particularly women farmers through engaging them in shoat rearing, and landless youth groups in beekeeping practices. Full package trainings and on-site field demonstrations were instrumental for promoting improved agricultural practices. FTCs, which are central to the extension service, had been without adequate resources and capacity, but SAEDE project responded to such critical needs by facilitating the Loan Guarantee Fund (LGF) scheme that capacitated FTCs to run income generating enterprises that enabled them to provide better extension services to smallholder farmers.

Effectiveness

The SAEDE project met most of the target objectives, and achieved most of the target outcomes. Majority of both kebele and woreda level respondents rated the effectiveness of the project as high or very high. Need-based innovative agricultural technologies promoted, capacity of extension agents improved, crop productivity of major crops increased and modern postharvest handing practices introduced. Furthermore, the project gave good emphasis to

marginalized farmers such as women and youth who participated in crop production, agro-processing and shoat rearing. Project interventions in livestock production was found to show encouraging results particularly on the livelihood of poor women and youth groups. But the delayed start in group formation and provision of shoats could not allow this evaluation to measure complete impact of this intervention. On the other hand, outcomes of postharvest technologies were influenced by poor follow ups from machine owners, particularly the FTCs, as the machines required better maintenance services.

i) ***Crop productivity***: SAEDE project established Farmer Learning Platforms (FLPs) to improve crop productivity of smallholder farmers. By the end of 2014, a total of 1247 Technology Option Plots (TOPs), 3659 Women Assisted Demonstrations (WADs), 21,582 Production Test Plots (PTPs), 431 Community Variety Plots (CVPs), 307 seed priming practices and 18 Conservation Agriculture practicing plots were established. As the result of this and other integrated interventions, among others, average yield of major cereals increased on average by 27.1% from baseline level of 28 quintals per ha). Furthermore, Community Based Seed Multiplication (CBSM) groups working mainly on Potato and Teff seeds have enhanced crop productivity as well as seed availability.

ii) ***Underserved farmers in livestock production***: The project involved marginalized farmers such as women and youth in different project activities. Intervention in livestock production was one of the special aspects of SAEDE, responding to the real needs of farmers in which good results were achieved mainly among women and the youth. A total of 614 women organized in 44 groups were provided with a total of 2942 small ruminants from 2013 to 2015. Members of the women groups reported improvement in their livelihood, and were role models to other women in their communities. Beekeeping intervention was also promoted as a source of income for youth groups and helped to improve their livelihood. Furthermore, the beekeeping business has also raised interest of other farmers as a means to diversify their livelihoods in some areas, e.g., Dire Teyara Woreda of Harari region.

iii) ***Postharvest and Agro-processing technologies (PHAP)***: Accessibility and use of postharvest technologies improved in the project areas. After the SAEDE project, proportion of kebeles with improved PHAP technologies increased from 9.7% (in 2012) to 61.7% (in 2015). Knowledge and skills in postharvest handling has also improved with intensive training on the use of improved PHAP technologies. In 28 sampled kebeles, a total of 4,831 farmers used PHAP equipment and about 2,016 tons of cereals were processed in 2015. Considering 11 Kebeles with better use of the machines, about 5.0% of the total volume of cereals were threshed/shelled, which was closer to the potential, i.e., 6%. PHAP machines in these kebeles (11) utilized 73% of their capacity, with one machine threshed/shelled 1,350 quintals per annum.

    The benefits to smallholder farmers included reduction in postharvest losses, labor saving and better quality of products. Using traditional methods of postharvest handling, average crop loss was estimated to be 8.3%, while it was only 2.5% with improved methods. With this loss estimation, it was estimated that about 43.2 quintals of cereals was annually saved on average in a Kebele where improved PHAP equipment was used. For the top 40% Kebeles (in terms of better use of the PHAP equipment), 95.7 quintals saved in a kebele.

Considering the saved loss at the Kebele level alone, the value of the estimated saved crop in a single year can cover the investment cost of one improved PHAP machine. Furthermore, SAEDE project introduced agro-processing techniques to women farmers that helped organized groups producing and marketing value added food products.

The PHAP component, however, faced some challenges. Almost all the equipment was underutilized as compared to their capacity. Nearly 20% of the equipment in the sampled Kebeles were not functional. Even the functional equipment was operating at 36% of their potential. The major reasons were machine breakdown and delay in repair and maintenance services. In project sites in Tigray and Amhara region, uneven topography was indicated as major challenge transporting the equipment from one farm field to the other.

iv) ***Market and Credit Access:*** Farmers' access to market for major crops has improved in the past four years, with a need to scale it to a number of farmers. Three-fourth of interviewed farmers reported that market access for and marketability of their products has increased mainly in terms of better price, improvement in quality of marketable products, and better physical access. The Key Informant interviews also confirmed the improving trend. Teff, wheat, maize and potato were the major crops for which market access has significantly improved. Traders/merchants were ranked as major buyers of agricultural products by 66% of kebele respondents, followed by urban consumers. The project has organized Commodity Associations (CAs) and CBSMs for facilitating marketing, market linkages and access to input. This evaluation found that majority of CA and CBSM groups had reliable market linkages, which has helped to shorten market route from both demand and supply sides. But, still much efforts are required to sustain and extend benefits of marketing to many farmers.

Regarding credit access, in which less was achieved, only about 31% of the respondent households had credit in cash or in kind during the last 12 months. Relatively larger proportion of households reported that they had used credit for the purchase of farm inputs. SAEDE project facilitated loan for P/FTCs to run income generating enterprises (crop production, seed multiplication, oxen and shoat fattening).

v) ***FTCs' Cost Recovery Scheme***: Income generating activities of FTCs through a Loan Guarantee Fund (LGF) scheme was one of the major strategic interventions that contributed to improved extension delivery in the project sites. By the end of the project, FTCs, on average, generated annual revenue of Birr 22,550, which is much higher than the baseline (2011) when FTCs on average obtained less than Birr 1,000 revenue per year. The top 20% of the FTCs generated annual average revenue of Birr 40,000. Net profit also increased; by the end of the project, sampled FTCs generated annual average profit of Birr 8,055. The top 20% generated annual average profit of Birr 26,000.

Income of all project FTCs dramatically increased from the baseline, also regardless of their participation in LGF scheme. The mean income ratio of LGF participant to non-participant FTCs was very high. In 2015, LGF participant FTCs earned revenue that is 2.71 times that of non-participant FTCs. The gap during the early life of the project was larger, and then narrowed down partly due to the spillover effect and government efforts to scale up FTC

enterprise development. With cost recovery capacity and better demonstrations, FTCs' were able to deliver improved extension services to farmers.

vi) ***Strengthening the extension service delivery*****:** The outcomes mentioned above have been achieved largely because of improvements in the extension delivery by creating capacities at three major levels. Package of trainings have been provided to SMS', DAs, and farmers on crop and livestock production improvements, postharvest handling and marketing and business development and others. The trainings and experience sharing visits capacitated SMS' and DAs to conduct demonstrations of technologies, and to train and advise farmers and pastoralists. Farmers reported that the services they received from extension workers has improved both in frequency and in quality.

Efficiency: SAEDE project was efficient in achieving most of the outcomes with the specified budget and timely implementation of activities. However, delays in the start and progresses made in the implementation of some activities such as livestock, Loan Guarantee Fund (LGF) and Woreda Extension Resource Center (WERC) have affected efficiency of the project in some areas.

Sustainability: Sustainability of the project were manifested in the continued benefits of the project and capacity development of extension agents and FTCs. The project was effective in building the skills and knowledge of extension agents which is crucial for sustaining good practices. Similarly, FTCs' engagement in income generating activities facilitated establishment of better demonstrations and allowed them to deliver better extension services to farmers. Continued benefits of project components were also another factor for the sustainability of the project. Positive changes were observed among project participants in the first two years of intervention as compared to recent participants, indicating that benefits are increasing at Kebele level from time to time. SAEDE interventions such as improved seed varieties, line planting with proper spacing, compost applications, and shoat rearing as well as improved postharvest handling techniques have potential for sustainability. Moreover, Income generating activities of FTCs on crop production, seed multiplication, beekeeping, shoat and oxen fattening created interest in all project woredas and practiced by model farmers, and have also a potential for sustainability.

Scaling up of project's best practices by government and other development partners shows progress towards sustainability of project results. For instance, successful CBSMs have become part of the seed supply system; government has also recognized the FTCs' mandate to manage income generating enterprises; and others.

Key Lessons: Five important steps of SAEDE implementation are key lessons. First, SAEDE project started based on a diagnostic research that identified gaps in the country's extension service delivery. Second, the design of its strategies and targets was in line with government policies and strategies that facilitated mutual support from partners. Third, project interventions were based on structured needs assessments that helped to prioritize interventions, and ensured need-based technology demonstrations. Fourth, strong collaboration with the Ministry of Agriculture enabled the project to easily fit into the country's extension system and assisted easy handover and scale up of best practices and lessons. Fifth, the practical trainings with quality demonstrations and field days are critical lessons in ensuring

technical relevance and effectiveness of the interventions. The focus given to small ruminant rearing, though started late, has big contribution to household livelihoods, particularly to very poor and women farmers and youth.

1. Introduction

1.1. Purpose of the Evaluation

The evaluation was initiated and guided by SG-2000 MELS-Theme as the main internal monitoring and evaluation implementer for this project. According to the Terms of Reference (TOR) for the Terminal Evaluation (TE), the aim was to assess the achievement of the project results, and to draw lessons that can both improve the sustainability of benefits from the project. This evaluation also intended to promote accountability for the achievement of SG2000 objectives, including its contribution to the agriculture sector.

Objectives and Key Evaluation Questions

The general objective of the evaluation is to independently and objectively evaluate the four-year SAEDE project implementation with respect to its relevance, efficiency, effectiveness, impact and sustainability of the project.

Specific objectives of the evaluation are to:

1. assess the realization of key outcomes and impact of the project based on the respective set of indicators stated in the joint project MELS framework and the project document;
2. review key successes, best practices, lessons learned and challenges faced in the course of the project period; and
3. provide key recommendations for future programming as well as scale up lessons of the project.

Key Evaluation Questions

Key evaluation questions include the following but not limited to:

- Is the project relevant to the needs and priorities of target beneficiaries as well as to the government policies, strategies and priorities (including relevance and appropriateness of the strategies used for the interventions)?
- Was the project effective in meeting the intended objectives? What were the most significant results (outcomes) that the project has registered during the 4-year period?
- How efficient was the project in the course of its activities implementation (timing, resources utilization (human, material and financial resources), and implementation quality)?
- How successful was the project in impacting agricultural extension delivery in the country in general and in improving agricultural production and productivity of smallholder farmers/pastoralists, in particular?
- What role has the project played in serving the underserved groups (women, youth, agro-pastoralist, & landless) commonly by the existing agriculture extension system?

- What signals are there that the project's impact/outcomes will be sustainable, scalable and owned by government?
- What are the key project practices /evidences that can be an input for policy making in improving Ethiopia's Agricultural extension?
- How has partnership, a particular feature of this project, been working in implementing project interventions and what are the lessons we can learn from it?

1.2. Methodology of the Evaluation

The Terminal Evaluation (TE) has employed a combination of quantitative and qualitative methods. The TE has attempted to provide evidence-based information that is credible, reliable and useful. And hence, the evaluation process has attempted to: analyze primary and secondary data; review documents; and assess joint MELS log-frame.

1.2.1. Primary Data Collection

The final evaluation team followed a participatory and consultative approach, and used a variety of evaluation instruments. Quantitative primary data were gathered from farmers, DAs, DA supervisors, P/FTC Management Committees, Woreda SMSs, Zonal and Regional Agricultural Offices using survey questionnaires. Qualitative methods were used to triangulate quantitative methods and also to make deeper analysis of the areas where we cannot get quantitative information. Qualitative primary data were gathered from individual beneficiaries, DA supervisors, P/FTC Management Committees, Project focal persons, Woreda SMSs, Zonal and Regional Agricultural Offices using checklists, case story building interviews, observations and other related tools.

Document Review (primary and secondary): The evaluation team has reviewed documents including the project document, project baseline and mid-term evaluation reports (both internal and external), Monitoring, Evaluation, and Learning system plans, tracking logical frameworks prepared at project start, IFPRI diagnostic study document and other relevant documents.

Structured Questionnaires: The terminal evaluation has employed three sets of structured questionnaires at household, P/FTC and Woreda levels, separately- so as to gather the relevant information for project terminal evaluation.

Checklists Targeting Specific Key informants: The evaluation methodology included the development of checklists used as qualitative and quantitative data gathering instrument targeted at specific key informant groups including regional and woreda project focal persons, extension professionals and subject matter specialists, to compliment and triangulate evaluation data.

Interviews: In-person interviews were also conducted with non-project woreda experts. Moreover, Key informant interviews (KIIs) were administered to Woreda, Zone and Regional Office of Agriculture.

1.2.2. Sampling

Multistage sampling was followed to obtain optimum sample size for the required data at different levels. Out of the total 22 project Woredas, 20 were selected for the Woreda level qualitative and quantitative data. From these Woredas, 52 P/FTCs were purposively selected for the Kebele level data mainly based on two sets of criteria. The first criterion is distribution by intensity of intervention packages and year of project intervention. The second criterion is giving priority to those Kebeles covered in the baseline or needs assessment and mid-term evaluation surveys. In the next stage, the 20 representative sample Kebeles were purposively selected for the in-depth household with strict adherence to the criteria used for Kebele selection. Totally, 700 households (35 per each Kebele) were randomly selected. The Kebele household list was used as sampling frame from which target number of households were selected using systematic random sampling, while maintaining minimum of 40% respondents from those included in the previous surveys (baseline/needs assessment or midterm evaluation). The main purpose of maintaining fairly large number of previous respondents is to make reliable comparisons of end of project with baseline and midterm for selected indicators.

In each region one or more FTCs in adjacent Woredas were selected by the researchers to make comparison and also to identify spillover effects of project participant FTCs to non-participant FTCs in other woredas.

1.2.3. Data Analysis and Presentation

The quantitative data collected from different sources were coded and entered into CsPro and exported to SPSS. The data were checked for consistency and completeness and edited against the original questionnaire. Tables and figures are used to present the results. Analysis was made using simple descriptive statistics such as averages, percentages, standard deviation, etc. Quantitative data were further triangulated with the qualitative data text analysis. Simple descriptive analyses were made and results were presented using tables and figures. Disaggregated analyses were made by sex of respondent farmer, Kebele, Woreda, level of intensity of interventions, etc. Individual cases are also included in boxes to illustrate respective components of the project.

1.3. Evaluation Team composition

The Terminal Evaluation (TE) survey was undertaken with the guidance and leadership of the MELS Theme. The evaluation data collection team was comprised of five field teams, each consisting of one researcher, one assistant researcher and 3-4 enumerators along with three SG-2000 Ethiopia MELS professionals. All of the field team members had minimum of Bachelor's Degree in Economics, Agricultural economics, and other related disciplines. Each of the field team researchers has provided comprehensive field report. A zero draft TE report was developed by a senior consultant and assistant consultant with strong technical support from SG 2000 MELS Theme professionals. Finally, the MELS Theme of SG 2000 took over and finalized the report by making further analysis of the data and detailed review of the draft report.

2. Project Description

2.1. Project Background and Rationale

Ethiopia is the second most populous country in sub-Saharan Africa. Agriculture is the backbone of the Ethiopian economy. Majority (about 80%) of the country's people depend directly on agriculture for their livelihoods. And hence, Ethiopia's rural development policy and strategies prioritize the transformation of smallholder subsistence agriculture to market-orientated production. In addition, increasing agricultural productivity, production and incomes are among the highest priorities of the Ethiopian government. Agricultural extension services play an important role to increase agricultural production and productivity and thereby support the transformation. Accordingly, the Ethiopian government is investing in strengthening extension services to enhance use of improved and new varieties of crops, livestock, and natural resource management technologies. In the course of delivering agricultural extension services there were some achievements in rural development and extension systems.

Despite the achievements in extension service, agricultural productivity relative to potential yields remains low. Compounding this shortfall, inputs are scarce and expensive, as well as market and credit accesses are limited. In view of these constraints, the Bill & Melinda Gates Foundation (BMGF) responded to the request by the Government of the Federal Democratic Republic of Ethiopia (FDRE).

A project entitled "Strengthening Agricultural Extension Delivery in Ethiopia" SAEDE, funded by the Bill and Melinda Gates Foundation (BMGF) was conceived in 2010 and implemented beginning from 2011. The project was implemented by SG 2000 Ethiopia in collaboration with Oxfam America (OA) and Ministry of Agriculture (MoA) in ten regions and twenty-two Woredas in the country.

SAEDE project was formulated based on a diagnostic study conducted by International Food Policy Research Institute (IFPRI, 2009)[1] on Ethiopia's extension system, which mainly concluded with seven key recommendations grouped into three major categories: immediate opportunities, innovative experiments, and system transformation. These seven recommendations were to:

1. Strategically resource farmer training centers,
2. Improve DA skills, motivation and retention through incentives,
3. Strengthen the DA educational system (ATVETS),
4. Broaden the spectrum of extension services being offered,
5. Implement a real decentralized extension system that is accountable to farmers' needs,
6. Create a culture of transparency and performance orientation among all extension staff, and
7. Strengthen linkages within extension, and between extension and other key players, including research, markets and cooperatives.

[1] ***Review of Agricultural Extension in Ethiopia***: International Food Policy Research Institute (IFPRI). 2009.

As stated in the narrative project document, these recommendations were classified into two major components and then implemented by the two partners (SAA and OA) in collaboration with the MoA. SAA's component of the project focused on strengthening extension delivery by promoting innovative agricultural technologies including crop and livestock production, postharvest and agro-processing, technical training for extension agents and farmers, capacity building of P/FTC-Management Committees (P/FTC-MC), and promoting public private partnerships for market and credit access. On the other hand, OA's component of the project also focused on strengthening the extension system through resourcing P/FTCs with basic facilities, putting in place a community owned P/FTC management system, building capacity of development agents, improving the DA career path and strengthening the extension M&E system so that it promotes learning and future improvements to the extension sector.

SAEDE project aimed at contribution to improve income and food security of smallholder farmers and pastoralists in Ethiopia through more knowledge-based and farmer-driven P/FTCs. The project has applied farmer-centered approach to make the agriculture extension service delivery- farmers' need driven, and create a participatory decision-making process -that would be followed to determine priorities and activities. Further the SAEDE project made every effort to improve the ability of participating Ethiopian agricultural extension agents and create an innovative income of smallholder farmers living in target areas.

Pastoralists/Farmer Training Centers (P/FTCs) have been used as the entry point of the SAEDE project and directly or indirectly all interventions of the project were geared towards capacitating and strengthening P/FTCs' extension service delivery. P/FTCs have also served as a training and demonstration centers where improved agriculture technologies and practices were demonstrated, training and useful information provided to farm households.

Moreover, in the course of utilization of an "Innovation Fund", the project has attempted to introduce new agricultural enterprises through P/FTCs that would help farmers diversify farming operations in the project and nearby areas. These include: new cash crop opportunities, oxen and shoat fattening, poultry and vegetables, as well as post-harvest activities. The narrative project document states that the Innovation Fund as a set of resources allocated by SAA-Ethiopia to partner/implementers with existing Financial Service Providers (FSPs) mainly Micro-Finance Institutions (MFIs) in rural areas through providing the loan guarantees for existing providers to expand lending activities to P/FTCs, and consistent with a set of operating criteria. After using Innovation Fund resources as a learning platform, proceeds from such diversified activities on P/FTCs have been used as income generation for sustainability of extension service delivery at P/FTCs.

In the process of implementation, special emphasis has been given to group enterprise development for resource-poor farmers especially women farmers and the youth. Such innovative approach of extension service delivery has been expected to serve as a model for eventual scaling up to the rest of the country.

The project has also focused in increasing agricultural productivity, production and incomes, which are among the highest priorities of the Ethiopian government. Attainment of these has been depended on, among others, the effectiveness of extension service delivery, which largely depends on the availability of properly trained extension specialists, the allocation of

operational resources for extension work at the grassroots level, and targeting the right demonstration host and direct beneficiary farmers and the right agro-ecologies.

To sum up, SAEDE project has attempted to strengthen extension delivery by promoting need based innovative agricultural technologies such as crop and livestock, postharvest and agro-processing, technical training for extension agents and farmers, establishing and capacity strengthening of Pastoralist/Farmers Training Center-Management Committees (P/FTC-MC), facilitating access to market through partnership and establishing linkages with other development actors.

2.2. Objectives of the Project

The main objective of the project was "to strengthen the ability of DAs and SMS' of a selected number of MoA-FTCs to deliver a more diverse array of extension services to the smallholder farmers they serve, with special focus on marginalized groups such as women, agro-pastoralists, youth and very poor farmers". More specifically, the project aimed to accomplish the following four specific objectives along with the overall project management and support to SAA core activities in the country:

Objective 1: Identify and establish need based innovative approaches and technologies (crop, livestock, postharvest & agro-processing natural resource, etc), and strengthen Woreda Extension Resource Centers (WERC) through strategic investments that enable MoA-SMS' effectively backstop DAs for delivering a broader range of extension services to help farmers increase and diversify agricultural income streams and to enable FTCs and WERCs to generate income to support farmer-driven extension programs.

Objective 2: Strengthen and expand the technical capabilities of, and encourage positive attitudinal (mindset) changes in, 645 MoA-DAs and 180 SMS' participating in the Project by investing in appropriate training and knowledge-sharing activities, and by facilitating improvements in personnel systems meant to reward extension personnel for effective and efficient service delivery to farmers.

Objective 3: Improve extension management coordination at FTC and Woreda levels, facilitate partnerships with key agricultural organizations, link participating farmers to commercial market institutions, and diffuse Project best practices to MoA-FTCs in other Kebeles and Woredas.

Objective 4: Implement a monitoring, evaluation and learning program for the 215 model MoARD-FTCs and 18 WERCs in the 18 target Woredas to ensure that Project activities are effectively implemented and key lessons are documented and diffused to guide extension delivery investments and operations at a much larger scale.

2.3. Expected Results (including output, outcome indicators)

An overview of the project's expected results (including performance and result indicators) is provided in the table below, which is an extract of the Project's log-frame (included in its entirety in Annex). Analysis of the attainment of project outcomes and objectives is presented

in Sections 4.4 and 4.6 (Project Results and Impact), which compares, as much as possible, at project inception or when the baseline was developed at the time of the TE. The consultant's assessment of the strengths and weaknesses of the log-frame is included in Section 4.1.3 (Assessment of Project Logic, Strategic approach and scope).

Table 1. Expected Project Results

Project Performance/Output/ Indicators	Result/Outcome (short/ long term) Indicators
Objective 1: **Identify and establish need based innovative approaches and technologies, and strengthen Woreda Extension Resource Centers (WERC) through strategic investments that enable MoA-SMSs effectively backstop DAs for delivering a broader range of extension services to help farmers increase and diversify agricultural income streams and to enable FTCs and WERCs to generate income to support farmer-driven extension programs**	
1.1. Farmers' enterprise preferences and extension needs clearly identified and prioritized.	1.2. FTC and Woreda-level extension activities reflect actual farmer needs and priorities.
1.2.1. Innovative technologies of crops identified by agro-ecology and demonstrated to farmers 1.2.2. Innovative technologies of livestock identified by agro-ecology and demonstrated to farmers 1.2.3. Innovative technologies of PHAP identified and demonstrated to farmers particularly women and youth, 1.2.4. Innovative technologies of natural resources management practices identified by agro-ecology and demonstrated to farmers,	1.2.1. Crop technologies adopted by farmers and productivity and income of farmers increased 1.2.2. Livestock technologies adopted by farmers and productivity and income of farmers increased 1.2.3. PHAP technologies adopted by farmers and productivity and income of farmers including women and youth increased 1.2.4. Innovative natural resource management practices/technologies adopted by farmers and productivity and income of farmers including women and youth increased
1.3.1. WERC identified and established 1.3.2. Internet connectivity established at 13 WERCs 1.3.3. Website created and populated with relevant research, extension and market-related information to serve ATVETS' and WERCs.	1.3.1 SMS capacity for training and technical backstopping of DAs and farmers strengthened through access to current information sources 1.3.2 . ~215,000 farm households received higher caliber extension support, adopted new technologies, and developed their enterprise activities.
1.4.1. FTC and WERC operational budgets that have the potential to be locally financed developed for 215 FTCs and 13 WERCs. 1.4.2. Relevant and phased cost-recovery plans implemented at the FTC and WERC levels.	1.4. FTCs and WERCs moved towards financial sustainability, generating 15% of needed operational funds in second year of full operation; 30% in year 3; 60% in year 4; and 100% in year 5.
Objective 2: **Strengthen and expand the technical capabilities of, and encourage positive attitudinal (mindset) changes in, 645 MoA-DAs and 180 SMSs participating in the Project by investing in appropriate training and knowledge-sharing activities, and by facilitating improvements in personnel systems meant to**	

Project Performance/Output/ Indicators	Result/Outcome (short/ long term) Indicators
reward extension personnel for effective and efficient service delivery to farmers.	
2.1.1. DA and SMS training needs clearly identified. 2.1.2. Capacity building plans developed and implemented.	2.1.1. DA and SMS general capacity and technical skills upgraded. 2.1.2. Farmers in the participating FTC catchment areas receiving improved technical support.
2.2. Relevant training materials developed and/or adapted to support Project activities.	2.2. Lessons learned about the effectiveness of the training materials captured and used to modify them as needed for increased dissemination.
2.3. 645 DAs trained as needed in technical skills and knowledge about new enterprises and innovative activities established at FTCs, in farmers' fields, and at the household level.	2.3.1. DA proficiency achieved in activities and enterprises that are relevant to farmers and FTCs in the intervention areas. 2.3.2. Stronger support to farmers for diversifying enterprises.
2.4.1. 215 farmer learning platforms established in FTC catchment areas (Kebeles). 2.4.2. ~1,935 local field days sponsored at FTCs by DAs and attended by ~193,500 farmers. 2.4.2. ~168,000 mainstream farmers received direct training through FTC learning platforms. 2.4.2. ~20,700 previously underserved farmers (women, poor farmers, agro-pastoralists, youth) receive direct training through FTC learning platforms.	2.4.1. FTC work plans more closely aligned with farmers' needs. 2.4.2. Agricultural productivity of participating farmers increased by 35% 2.4.3. Post-production losses reduced by 35% and 15% price premiums attained in marketplace. 2.4.4. Mainstream farmer income improved by 25%. 2.4.5. Underserved farmer income increased by 50%.
2.5.1. Needs assessment/gap analysis completed for the four ATVETSs. 2.5.2. Thematic areas identified for short courses development and distance education. 2.5.3. Modules developed to promote agricultural diversification and innovation 2.5.4. In-service training (train the trainer) courses provided at ATVETSs for up to 72 SMSs and 180 lead DAs. 2.5.5. ATVETS staff and student study tours (12 in total) conducted to Project-sponsored WERCs and FTCs.	2.5.1. Institutional capacity of 4 ATVETSs strengthened to support continuing education in-service training needs of Woreda-based SMSs and select DAs. 2.5.2 Technical capacity of participating SMSs and lead DAs strengthened.
2.6. ~ 54 within-Woreda study tours conducted over years 2, 3, and 4 of the Project.	2.6. Peer-to-peer learning systems and knowledge/skills of DAs and SMSs strengthened.

Project Performance/Output/ Indicators	Result/Outcome (short/ long term) Indicators
2.7.1. Performance criteria established with FTC-MC and WEACs and shared with all participating DAs and SMSs. 2.7.2. Selection process for awards and recognition documented and shared with all FTC-MC and WEAC, and participating DAs and SMSs. 2.7.3. 10 SMSs and 54 DAs selected for BSc in extension training through distance education at Ethiopian universities.	2.7.1. DA and SMS performance and motivation improved. 2.7.2. ~20 SMSs, 75 DAs and 500 farmers formally recognized by the Ethiopian government for outstanding performance. 2.7.3. Extension system technical and management leadership strengthened by new BSc graduates.
Objective 3: **Improve extension management coordination at FTC and Woreda levels, facilitate partnerships with key agricultural organizations, link participating farmers to commercial market institutions, and diffuse Project best practices to FTCs in other Kebeles and Woredas**	
3.1. Investments and activities of 215 FTC-MCs and 13 WEACs modified as needed to align with explicit needs of farmers.	3.1. FTC-MCs and WEACs effectiveness in meeting farmer needs achieved.
3.2.1 A project launch workshop organized and steering committee composed of stakeholders formed 3.2.2 Two steering committee meetings/year organized	3.2.1. Ownership of the project by stakeholders realized and 3.2.2. Project successfully implemented
3.2 Annual Agricultural Partners Forums held in years 2, 3, and 4.	3.2. Ground-level realities of farmers and the DAs and SMSs who serve them reflected in higher-level extension policies and programs.
3.3. Participating FTC farmer linkages strengthened to seed producers, input dealers, P4P and other market-related programs established.	3.3. Participating farmers enjoy increased economic opportunities and improved livelihoods (especially previously underserved groups – women, youth, very poor farmers, and agro-pastoralists).
Objective 4: **Implement a monitoring, evaluation and learning program for the 215 model FTCs and 18 WERCs in 18 target Woredas to ensure that Project activities are effectively implemented and key lessons are documented and diffused to guide extension delivery investments and operations at a much larger scale.**	
4.1.1. Methodology and instruments developed and tested. 4.1.2. Survey teams trained.	4.1. ME&L methodology and instruments used more broadly within the Ethiopian extension system.
4.2. Baseline survey completed in 54 FTC catchment areas (3 representative Kebeles from each Woreda).	4.2. Baseline data contributed to *ex-ante* needs-assessment studies to guide project planning.

Project Performance/Output/ Indicators	Result/Outcome (short/ long term) Indicators
4.3. ME&L data on project activities and analyses of results compiled/documented (quarterly, bi-annual and annual reports).	4.3. ME&L results validate Project design and program interventions and/or provide basis for changes in priorities, activities and methodologies.
4.4.1 Cost effective number of FTCs per woreda and number of DAs per FTCs identified for efficient extension service Delivery 4.4.2. Field study tours and national policymaker forums held in years 3 and 4 for extension officials and policy makers	4.4.1 Financial and human resources efficiently utilized for sustainable extension service delivery 4.4.2. By year 5, all other FTCs in the 18 Project Woredas have adopted some of the key principles, design elements, and operational practices of the Project
4.5 1. Quarterly reviews held with project staff 4.5.2. Synthesis information presented at Annual Agricultural Partners Forums (See 3.3).	4.5. Progress/impact of project activities accurately measured and used to create awareness among stakeholders of alternative pathways for improving farmer livelihoods and the sustainability of FTCs.
4.6. Policy briefs produced in year 4 that cover key lessons learned from the project.	4.6. ME&L output provides key information for government policy and investment decisions related to national agricultural extension service delivery.

Source: Project Logical Framework (2011)

3. Description of the Project Areas and Beneficiaries

3.2. Overview of the Project Areas and Coverage

It is obvious that agriculture is the most important sector for the Ethiopian economy. About 80% of the country's people depend directly on agriculture for their income and livelihoods. And hence, increasing agricultural production, productivity and incomes are among the highest priorities of the country. In order to address agricultural extension issues, the government was striving to establish and strengthen P/FTCs at the Kebele level across the country. Consequently, the SAEDE project has been designed to strengthen the effective extension service delivery at Woreda and P/FTCs level, which was hindered by various constraints, including a lack of farmer learning platforms; insufficient operational funds; a lack of adequate classrooms and field plot sites; and limited office, teaching and field equipment. Based on the agricultural development and agro-ecological diversity of Ethiopia and in consultation with the MoA and Regional Agricultural and Rural Development Offices, SG- 2000 Ethiopia has identified priority project intervention areas by Region and Woreda, whereas the Kebeles were identified by the Woreda to implement the project.

The SAEDE project was planned to cover the nine Regions and the Dire Dawa City Administration, 18 woredas and 52 P/FTCs during the first year and it was expected to reach 215 P/FTC by the end of the project period. And hence, it has been implemented in ten Regions [including Dire Dawa City Council] and 24 Woredas in the country and reached 215 P/FTCs at the end of project period (Table 2).

Table 2. Number of participant P/FTCs and Woredas

Region	Number of P/FTCs by Year				Total number of woreda	Remark
	2011	2012	2013	Total		
Tigray	4	5	7	16	2	
Afar	2	5	-	7	3	
Amhara	12	16	22	50	4	
Oromia	16	22	31	69	4	
Somali	4	6	8	18	3	
Beni- Gumuz	1	3	-	4	1	
SNNPRS	10	13	19	42	2	
Gambella	1	2	-	3	1	
Harari	1	2	-	3	2	
Dire Dawa	1	2	-	3	2	
Total	52	76	87	215	24	

Source: SG-2000 Progress report.

3.3. Background Characteristics of Beneficiaries (Woreda, FTC & HHs)

3.3.1 Description of Project Woredas

A total of 20 woreda have been covered by the terminal evaluation survey to assess the overall SAEDE project effects in the project areas. Of these, the highest proportion of woredas was taken from the two largest regions, Oromia and Amhara while the least proportion was covered from Somali, Gambella and Beni-shangul-Gumuz. The rest have the same proportion of coverage.

Table 3. Distribution of Evaluation Survey Woredas by Region

W/R	Reigion								
	Oromia	Amhara	SNNPR	Tigray	Harari	Somali	B/GUMUZ	Diredewa	GAMBILA
Woreda	D/Libanos L/Dullecha Arsi Negelle Ada'a Berga	Debay Tilat Guagsa Yilmana Densa Chilga	Aleta Wendo Gumer	Hintalo Wajirat Medebay Zana	Dire Teyara Sofi	Shinille	DIBATI	Melikajebedo wahell	Dima
Total	4	4	2	2	2	1	1	2	1

Source: SG-2000 SAEDE Project Terminal evaluation survey

Terminal evaluation team has observed the shortcomings with background data documentation in the evaluation woredas. With this scarcity, the team has tried to gather the background information of the project woredas even though the source and years of data varies from woreda to woreda.

The overall mean of total population of the project woredas was about 117,129, whereas the overall average of total households was about 20,459. The background data collected from the project woredas revealed that on average there are about 1,996 landless households, most of whom are young households. On average there are about 21 rural Kebeles of which 17 do have FTCs. Out of the average 21 rural Kebeles, SAEDE project covered 10 Kebeles, constituting 48% of the total rural Kebeles of a Woreda on average. This implies that large enough critical number of Kebeles are targeted per Woreda to adequately pilot the interventios.

Table 4.: The mean distribution of background indicators of surveyed woredas

Background variable		Male	Female	Total
Total Woreda Population	Mean	62,306	61,613	117,129
	N	18	18	18
Total number of households	Mean	18,032	3,829	20,459
	N	15	16	17
Landless households	Mean			1,996
	N			7
Rural Kebeles in the woreda	Mean			21
	N			19
Total Number of SAEDE Kebeles	Mean			10
	N			19
Number of FTCs in the woreda	Mean			17

	N	19

Source: SG-2000 SAEDE Project Terminal evaluation survey

Table 5 depicts mean distribution of land use by the project Woredas. On average, total area of project woredas covered about 181,296 ha of land within their administration boundaries. Of these, on average 55,447ha, 29,730ha and 3,983ha of land was arable, cultivated and irrigated land, respectively. Only 13.4% of the cultivated land is reported to be irrigated, implying the common dominance of rain-fed agriculture.

Table 5. The Mean size of Land use in Project Woredas

Land use	Mean	N	Std. Deviation
Total area of the woreda	181,295	18	370,524
Arable land	55,447	17	132,084
Total cultivated land	29,731	19	32,003
Total irrigated land	3,983	19	4,665

Source: SG-2000 SAEDE Project Terminal evaluation survey

3.3.2 Overview of Sample Project Kebeles and P/FTCs

In this section, some major background indicators of the SAEDE project kebeles/ P/FTCs will be discussed. The P/FTCs evaluation data was collected through structured questionnaires from 52 P/FTC (kebeles) in the project area. The Table below presents the overall mean distribution of the project kebeles by land size for total area, cultivated, forest covered, grazing and irrigated land as well as land allocated for P/FTC and Demonstration. The mean total area of the project kebeles is about 2,966 ha of land. Of these, on average 1,466ha is cultivated, out of which 334ha (22%) is irrigated. The average land covered by forest at the project kebeles was about 368ha. On average about 423ha of land is used for grazing per Kebele. About 1.9ha of land is allocated to P/FTCs per project Kebele out of which about 0.95ha of land was used for demonstration purpose by the time of the TE survey.

Table 6. Land use of the project Kebeles

Land use type	Mean	N	Std. Deviation
Total area of the kebele	2,966	51	2,014
Total cultivated land	1,466	51	869
Total irrigated land	334	49	430
Total grazing land	430	51	1,024
Land covered by forest	368	51	634
Land allocated to P/FTCs	2	51	1

Source: SG-2000 SAEDE Project Terminal evaluation survey

Mainly attributed to the SAEDE project, majority of the FTCs (82.7%) are reported to be well furnished, as well as equipped with office furniture and had all structures in place. Only few, 3.8% and 13.5% of P/FTCs had no equipment and only tables and chairs, respectively (Table 3.2.2b). About 98% of respondents also confirmed that the Project P/FTCs had income generating activities/enterprises. Majority (83%) of P/FTCs respondents replied that they had undertaken financial recordkeeping to the required level. The remaining 17% of P/FTCs did not apply due to major reasons, such as DA turn-over, lack of knowledge and lack of follow-ups.

Table 7. Status of the SAEDE Project P/FTCs

Status		Frequency	Percent
FTC constructed but with no equipment		2	3.8
FTC has only tables and chairs		7	13.5
FTC has some more equipment than tables and chair		26	50.0
FTC has all structures in place		17	32.7
Total		**52**	**100.0**
Is there any income generation activity at the P/FTC?	No	1	2.0
	Yes	50	98.0
	Total	**51**	**100.0**
Did the P/FTC receive LGF loan?	No	14	27.5
	Yes	37	72.5
	Total	**51**	**100.0**
Is the P/FTC undertaking financial record keeping to the required level?	No	8	17.0
	Yes	39	83.0
	Total	**47**	**100.0**

Source: SG-2000 SAEDE Project Terminal evaluation survey

The P/FTC survey data has shown that the average number of DAs at the P/FTC was about 3.6. Staff turnover can be seen as a major problem within P/FTCs. On average, more than 4 DAs had left, and nearly 4 DAs had joined to the project P/FTCs in the past four years. Kebele respondents reported that the P/FTCs have been managed by P/FTC-MCs, on average consisting of more than 5 members.

Table 8. An Average Number of P/FTC Staff and P/FTC-MC Members

Indicators	Number of DAs at the P/FTC	Number of DAs left the P/FTC during the past four years	Number of DAs newly joined the P/FTC during the past four years	Total number of P/FTC-MC members
Mean	3.63	4.14	3.37	5.92
N	51	51	51	51
Std. Deviation	1.31	2.92	2.73	1.73

Source: SG-2000 SAEDE Project Terminal evaluation survey

3.3.3 Overview of Sample Project Households

Of the final evaluation survey household respondents, more than half (56%) had been covered by the baseline survey. The mean age of respondents is 45.5years. The majority (78%) of the heads of households are males. The average owned land size in hectare by respondent households is 1.48 hectare. [2]

2 The current sample mean is 1.48 ha per household while the baseline mean land size is 1.75 ha

Table 9. Characteristics of Sample Households

Averages of some household related characteristics	
Average age	45.54
Average Land Owned (in hectare)	1.48
Sex composition of heads of Households	
Female	22%
Male	78%

Source: SG-2000 SAEDE TE Household level data

In terms of educational status of the household respondents, about 45.6% (75.6% of female heads and 37.3% of male heads) cannot read and write.

Regarding the level of participation in the project, most of the respondents directly participated in the project. The single largest category is PTP (44% of respondents) followed by TOP (15%) and WAD (14%). On the other hand, about 24% of the respondents can be considered as indirect beneficiaries.

4. Major Findings of the Evaluation

4.1. Project Design and Formulation: Project logic and strategic approach

The project logic is aligned with the strategy of the organization while addressing the needs in a holistic way with ultimate goal to contribute to food security. Based on the adopted theory of change, it was planned to primarily strengthen the technical capacity of extension workers and FTCs who can best support farmers to increase their productivity and production, market access and ultimately livelihoods. It also focused on the implementation of agricultural technologies, creating an enabling working environment to ensure widespread adoption of innovative technologies.

An essential early step in defining a strategy that focused on strengthening agricultural extension service delivery project intervention is an in-depth analysis of gaps, root causes and critical barriers to agricultural extension service delivery. And hence, the SAEDE project was designed based on IFPRI study that has recommended crucial gaps and related issues, and subsequent specific needs assessments were also conducted by SG2000 to prioritize interventions.

SAEDE project followed a value chain approach by organizing its work under Crop and livestock enhancement (CPE), Postharvest and Agro-processing (PHAP), Public Private Partnership for market access (PPP & MA), human resource development and project monitoring and evaluation. Looking at the integration and intensity of the interventions, CPE interventions were universally implemented in all the project sites with varying intensities. The other components such as (i) PHELPs and APCs under PHAP and (ii) CA, CBSM and LGF under PPP & MA were implemented in selected Kebeles. WERCs were also established at the level of Woredas to mainly serve extension workers of respective Kebeles and Woreda SMS' for better extension service delivery. MELS was institutionalized to spearhead the implementation towards intended outcomes by continuously and regularly conducting monitoring, evaluation, learning and sharing.

The project covered large number of Kebeles (215), thus, the interventions were arranged in three batches. The first year intervention covered 52 Kebeles. Based on experiences gained from this first batch, project sites were rapidly increased in the second year (76 new Kebeles) and third year (87 new Kebeles). Totally, 215 P/FTCs became operational by the end of the project.

There were however, weaknesses in the project design in terms of the overambitious scope with too many target sites, activities, expected outputs and outcomes. In retrospect, the ambition diluted the close follow up and technical support by the project staff to some extent. Although it is important to analyze and describe all the outcomes that are necessary to achieve a certain objective, it is not necessary that a single project take on the task of attempting to achieve all those outcomes.

This evaluation also found that some of the performance and result indicators were broad, vague and not time specific in this project. Some indicators were not S.M.A.R.T. (Specific, Measurable, Achievable, Relevant, and/or Time bound). For instance, the indicator related to

Output 2.1.1, “DA and SMS training needs clearly identified” and, Outcome 2.1.1., “DA and SMS general capacity and technical skills upgraded” are indicating training needs and capacity building of DAs and SMS’. These indicators were not specific in defining the training needs and capacity, and were not time specific as stated. There was lack of specificity in the definition of some indicators. For example, Outcome 2.3.2, stated as, “Stronger support to farmers for diversifying enterprises”. Support, how strong is it? For how many farmers? was not specific. Therefore, the above-described illustrative weaknesses and shortcomings in the log-frame have affected the monitoring of the project, especially on these outcomes.

Another important step in defining a strategic project intervention is to define what other activities (outside of the project) must be undertaken in order for the project intervention to be successful, and who (other than the project) is best placed to undertake those activities. For instance, missing this strategic approach has led WERCs intervention not to be functional as initially designed in the project. Finally, sequencing of activities and interventions is also critical. Logical sequencing of all required interventions often requires a longer time period than what is permitted in a single project and this should have been borne in mind during the design of the project.

4.2. Project Implementation and Management

4.2.1. Partnership and Institutional Arrangements

The SAEDE Project was funded by the Bill and Melinda Gates Foundation (BMGF) and jointly implemented by three partner organizations; Sasakawa Africa Association (SAA), Oxfam America Horn of Africa Regional Office (OA-HARO) and the Ministry of Agriculture (MoA).

The SAEDE project design and implementation was based on a unique partnership arrangement that involved the major implementing partners and stakeholders. The main stakeholders of the SAEDE project were the targeted users and service providers of the agricultural extension service, and those whose livelihood depends on the agricultural activities in ten regions of the country. The key implementing partners included Ministry of Agriculture (MoA) with its Regional, Zonal, Woreda, and Kebele structures and Oxfarm America (OA). Moreover, project steering committee was formed and guided successful implementation of the project. Based on their perceived degree of influence on the project, the following were identified as the key project steering committees (stakeholders): SAA/SG2000, MoA, Donor (BMGF) representative, Oxfam America, Agricultural and Rural Development of project implementing Regional States, Ethiopian Institute of Agricultural Research, and Farmers’ Cooperative Unions.

The three major implementing partners (i.e., MoA, OA and SAA) had their respective responsibilities. The MoA oversaw implementation of the project while OA strengthened the infrastructure of Pastoralist/Farmers Training Centers (P/FTCs) and supports the mobility and communication skills, adult training methodology and techniques, Participatory Rural Appraisal (PRA), Data Management, etc. of the development agents (DAs) placed at the Centers to educate farmers on improved agricultural technologies. For its part, SAA has introduced diversified and innovative agricultural technologies and approaches to the P/FTCs, built up the DA capacity on technology options and introduced revenue generation activities through a loan guarantee fund scheme, so that P/FTCs sustainably cover their operational costs.

The partnership/institutional arrangements of the project were well thought out and successfully executed. SAA correctly understood that it does not have the institutional mandate or capacity to work directly with farmers except on a very limited basis, and gave room for an engagement of Woreda and Regional Agriculture professionals as Project Focal Persons, and performed closely with extension DAs in the field.

Although for the most part the right institutions were involved, it would have been beneficial to involve other partners for strengthening Market linkages and Credit access for farmers at early stage of project implementation.

4.2.2. Project Coordination and Operation

The overall responsibility for the implementation and management of SAA activities in the country resides with the Country Director (CD). The CD is supported by a Project Coordinator (PC) and a team of technical and administrative staff and backstopped as needed by the SAA Managing Director (MD). The CD has full responsibility, authority and accountability for the proposed Project –its management, coordination and the timely submission of technical and financial reports to relevant stakeholders.

SAA in collaboration with MoA and OA has attempted to designate a Project Steering Committee (PSC) made up of representatives of key stakeholders as indicated earlier under Section 4.1. The PSC has to meet twice a year, while meetings related to project implementation at the Kebele level would be held at least quarterly. The responsible group at kebele level is the P/FTC-MC, whose members include the lead DA at the P/FTC, commonly two additional DAs, and representative farmers.

The overall internal supervision, coordination and technical backstopping related to SAEDE project activities were guided and operated by five SG2000 Themes. Theme I focused on crop and livestock productivity enhancement, Theme II involved in post-harvest and agro-processing related activities, Theme III engaged in activities related to public-private partnership and market access (including a Loan Guarantee Fund (LGF) scheme). While Theme IV engaged in human resource development activities through establishing Woreda Extension Resources Center (WERC), Theme V focused on monitoring, evaluation, learning and sharing. The baseline surveys, quarterly outcome monitoring surveys, and mid-term and this final evaluation survey of the SAEDE project were undertaken with guidance and leadership of Theme V.

4.2.3. Project Timeframe and Work Plan

The project was originally designed to run for four years ending by December 2014. However, due to the intensity and breadth of the interventions as well as new approaches (such as LGF, small ruminant and Commodity Association components) that required more duration to ensure acceptance and sustainability, the implementation period was reasonably extended by nine months to end of September 2015. In retrospect, the flexibility in design period is found appreciable rather than judging as delays. Of course, the extension was on no-cost basis within the project budget.

Even taking into account the extended period, efforts in recent intervention sites may be shadowed as it takes time to adopt new technologies and strategies in the new product and

market development. This has resulted from the project plan but not failure of the implementation.

Even though the project work plan was generally sound and realistic, the planning for WERCs did not include risk factors from other stakeholders like Ethio-telecom shortcomings and other technical aspects.

4.2.4. Monitoring, Evaluation and Learning: Implementation of ME&L

Monitoring, Evaluation and Learning (ME&L) are integral tools for assessing the efficiency and effectiveness of project operations. Designing ME&L systems must start early in project preparation and be put into effect at the beginning of project implementation. Early definition of project objectives, identification of sound performance and result indicators, and clear reporting requirements are important for effective ME&L systems. This section deals with the design and implementation of the ME&L system.

The ME&L System: Monitoring (M) focused on tracking the use of inputs to produce intended outputs, and documenting the accomplishments of milestones. Evaluation (E) stands for assessing the efficiency and effectiveness with which inputs are used, as well as expected outputs and outcomes of project activities. The learning component (L) aims to ensure progressive improvement of project performance through timely feedback to project managers, and through networking and participatory knowledge-sharing arrangements. The overall SG-2000 MELS implementation system is presented in Figure 1 below.

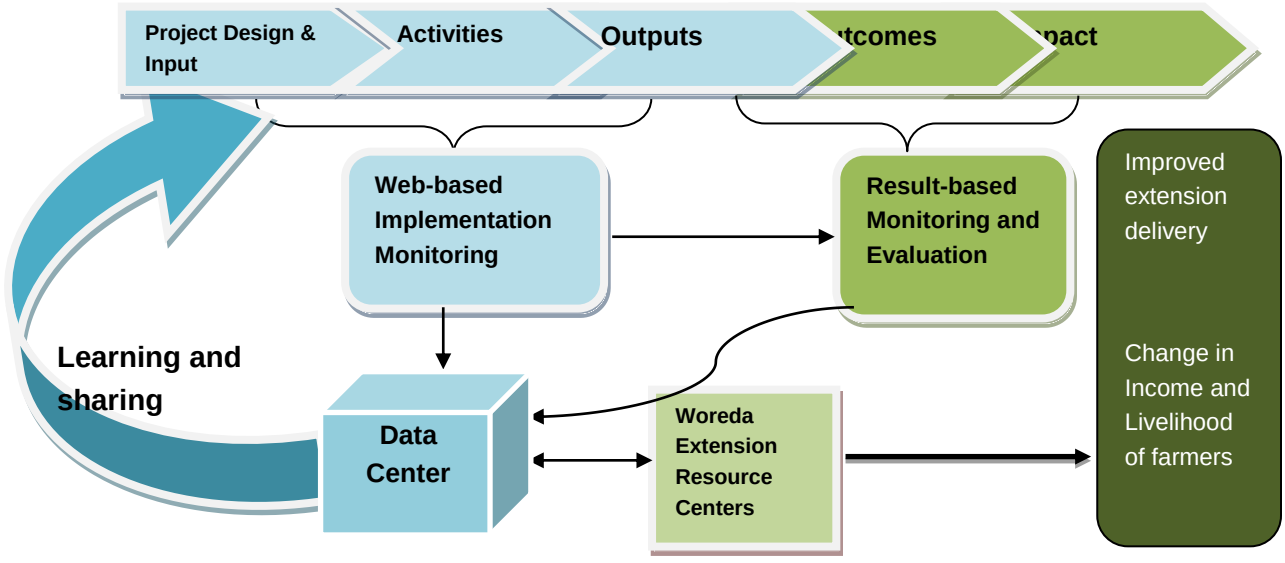

Figure 1. Monitoring, Evaluation and Learning System

Source: SG-2000 MELS Theme document

The SAA-Ethiopia ME&L system was designed to conduct need assessments, baseline studies, in-depth studies, midterm and final evaluation surveys and assess periodic monitoring and evaluation, the farmers' needs and priorities and, DA and SMS strengths and weaknesses, and identify (together with DAs, SMSs, and the P/FTC-MCs) the capacity needs of the target FTCs/WERCs. The system helped to monitor implementation of project activities, the use of inputs, and the achievement of milestones. The ME&L system attempted to provide internal

assessments and evaluations of project expected outputs and outcomes and helped to document and share the lessons learned during implementation. Based on the ME&L system, SG-2000 MELS Theme conducted the following assessments:

Need Assessments: The need assessments were conducted by covering representative FTC/kebeles in the SAEDE project. The need assessments data was collected by trained field supervisors and enumerators. DAs were also trained and participated in needs assessment surveys. Four summary and forty detailed reports were produced from SAEDE project.

Baseline Surveys: SAEDE project baseline survey was conducted by MELS Theme. The representative sampled households were involved in the baseline survey. The combined and merged baseline report of both partners (SAA and OA), which was synthesized and summarized by independent evaluator, was used for this evaluation. But, not all interviewed stakeholders or households and focused indicators were maintained for the TE survey.

Evaluation Surveys: Four evaluations of SAEDE project were conducted. These include: Evaluation SG-2000 Crop extension approach, two MTEs and a final evaluation. Evaluation of crop extension approach was conducted by covering 12 Woredas and 22 Kebeles from four regions. The two MTEs were conducted by independent evaluators internally as well as externally. The external MTE covered six of the ten regions involved in the project. The internal MTE and internal terminal evaluation assessments were conducted within the specified project period in accordance with SG-2000 MELS Theme guidance.

The Internal and external Mid-Term Evaluations were carried based on SAA's Monitoring, Evaluation and Learning (ME&L) framework. The internal MTE took place in 2013 after two years of implementation, while the external MTE that assessed both SAA and OA components of the project was conducted in 2014. The purpose of the MTEs was to examine the performance of all activities undertaken in the SAEDE project since the beginning of its implementation. The MTEs identified weaknesses and strengths of the project design and execution and made recommendations for any necessary changes in the overall design and implementation of the project. The internal as well as external MTEs made a series of recommendations of which the major ones include:

i) Input supply linkage was suggested, putting in place mechanism by which the farmers access the introduced new technologies. Linkages with seed suppliers (for farmers), research institutes (for FTCs), public and private sector which supply machineries (threshers, row makers, and row planters, etc) is necessary.
ii) Extension services on row planting which was aggressively undertaken by local governments, informed the SAEDE that its intervention should concentrate on filling other gaps in underserved areas, such as livestock production, which was the most neglected sub-sector by all actors. While the external evaluator recommended engagement of cooperatives or private sectors in feed marketing for solving livestock production constraints due to lack of access to concentrated animal feeds.
iii) Multi-Crop Threshers: being high fuel consumption and poor quality/breakability, such equipment need to be adequately tested and closely followed for maintenance for better dissemination and promotion.

iv) High storage loss of crops by rats, pests and insects was highly felt by majority of households interviewed. The severity of the problem was more felt by households producing perishable items such as potato. Therefore, SG 2000 should give due attention to identifying, testing and demonstrating improved storage methods for both perishable products and cereals.

v) Regarding LGF component, the internal evaluator suggested that MFIs were considered as exploitive by both farmers and some key informants since they were re-lending borrowers' savings but charging high interest rate. And it was recommended that SG2000 needed to make investment to create new ones or to build the capacity of existing RuSACCOs and Unions, or creating farmers' owned financial service providers. Further external evaluator recommended that the recognition of P/FTCs as institutional member of savings and credit Cooperative so that the amount of collateral would be used for purchasing shares in the cooperative, through which it can access credit.

vi) Related to market linkages, it was recommended that the remaining period should focus on establishing market linkages and strengthening marketing cooperatives.

vii) Strengthening a system of Training of the Trainers (TOT) to fill the capacity and skill gaps identified

viii) Crop technologies such varieties and practices (row planting) can be relatively easily scaled out, and recommended scaling up of technologies such as threshers should take the topography and maintenance service availability into account.

ix) Due to socio-economic, cultural and environmental factors, pastoralist communities are very different from highland communities and thus similar implementation modalities may not work in all areas. Therefore, special arrangements and technical support should be applied for pastoralist areas like Somali and Afar regions by working more closely to the communities/ beneficiaries.

x) DAs should also focus on extension service rather than managing P/FTCs, it is highly recommended to put in place a system of employing P/FTC manager who will be responsible for the routine farm management of the P/FTC and enhance the income generation functions.

4.3. Relevance of the SAEDE project

The project relevance was evaluated on the basis of how much it was in line with farmers' and other stakeholders' needs and the government policy priorities. Increasing agricultural productivity, production and incomes are among the highest priorities of the Ethiopian government. Accomplishing these depends on, among other things, the effectiveness of extension service delivery, which largely depends on the availability of properly trained extension agents (DAs), supervisors and subject matter specialists. To make the extension service delivery farmers' need driven, a participatory decision-making process has been followed to determine priorities and activities. The major intervention activities of the SAEDE project were in line with the government plans and strategies at federal, regional and local levels since the efforts have been used for strengthening the agricultural extension service deliveries to enhance growth and transformation.

The external MTE reported that most of the P/FTCs had not been practically operational and P/FTCs had not been considered as useful community resources before the SAEDE project; and lack of or poor P/FTCs' facilities and lack of ability to provide demand driven extension service had been major bottlenecks which were addressed by the project. The project has improved the performance of involved extension agents so as to create an innovative farmer driven extension service delivery and then to increase the agricultural productivity and incomes of smallholder farmers living in project areas.

Key informants of the TE reported that SAEDE project interventions were in line with beneficiaries' needs and priorities. Almost all P/FTC or Kebele level respondents agreed that the promotion of technologies was based on farmers' needs. This indicated that SAEDE project was strongly in line with farmers' needs. It was also rated to be moderately pro-poor.

Table 10. Rating of Project Relevance by Key Informants

Project Relevance and Effectiveness	Kebele Respondents Rating (%) (n=…)					Woreda Respondents Rating (%) (N=…)			
	Very high	High	Moderate	Low	Very low	Very high	High	Moderate	Low
Component of the project/intervention selection (n=50, N=19)	68.0	28.0	2.0	2.0		63.2	26.3	10.5	
Appropriateness of the Technologies (n=50, N=19)	66.0	22.0	10.0		2.0	52.6	42.1	5.3	
Reaching the poor (n=50, N=19)	20.0	16.0	32.0	18.0	14.0	47.4	26.3	15.8	10.5
Addressing women's needs (n=49, N=19)	30.6	34.7	20.4	12.2	2.0	31.6	42.1	15.8	10.5

Source: SAEDE TE kebele and Woreda Data

The other level respondents also confirmed the same opinion. The key informants particularly appreciated that the SAEDE project was implemented based on the participatory need assessment of the project woredas, and has given due attention for prioritizing farmers' needs. To sum up, the project was highly relevant within the farmers' needs and priorities and the broader national policies and strategies from its inception to its end.

4.4. Effectiveness of the SAEDE Project

4.4.1. Achievement of Outcomes

This evaluation has assessed the effectiveness of the project in terms of its contribution to the major project components and technologies implemented by the SAEDE. In this regard, SAEDE project has captured the salient levels of achievement in: promoting improved technologies, and improving agricultural productivity, building capacity of woreda SMS' and P/FTCs Extension agents for delivering better extension service. Besides, SAEDE were effective in changing skills and knowledge of DAs and farmers, improving the performance and status of the FTCs in creating income generating enterprises as well as addressing and reaching the poor women and youths.

A detailed analysis of the attainment of the overall project component is presented in this Section. The SAEDE project components are grouped into four major categories for the purpose of the evaluation. These are: (i) increasing the productivity and profitability of crop and livestock production, (ii) adoption of postharvest and agro-processing technologies, (iii) coordination and linkage of stakeholders for access to credit and market, and Public-Private Partnership, and (iv) strengthening extension and training service delivery. Findings of the TE results relative to the baseline status of performance and result indicators are presented in this section.

Component 1: Enhancing Productivity and profitability of Farmers and Pastoralists

This component of the project focused on improving farmers' and pastoralists' profitability by increasing crop and livestock productivity through improved access to and adoption of improved agricultural technologies.

In this regard, the project has shown encouraging results in increasing crop yields, and promoting productivity enhancing (crop and livestock) technologies to farmers, particularly to women and youth. This evaluation indicated that yield of major crops such as teff, maize, barely, and wheat, sorghum and potato has significantly improved. The use of appropriate agricultural technologies had contributed to the change in crop yields. Besides, provision of practical trainings at different seasons for extension agents and beneficiaries, use of field days and demonstration centers were instrumental factors for practical technology adoption to enhance crop productivity. Moreover, small ruminants have been provided to poor women groups and their profitability and performance indicated effectiveness of the project in this area. Shoat and oxen fattening activities run by P/FTCs were effective, and served as good learning platforms for communities in and outside of the project areas.

Crop productivity enhancement component of the project, which was implemented in all project Kebeles, is discussed below.

Crop Productivity Enhancement

SAEDE Project enhanced the crop productivity of smallholder farmers as well as the P/FTC income generating enterprises. Some of its interventions included: improved seed varieties, full and half rate fertilizer application, seed priming, line planting with proper spacing, compost

preparation, and crop management. To ensure technology adoption and improvement in crop productivity, SAEDE established a number of Farmer Learning Platforms (FLPs). Until 2014, a total of 1,247 Technology Option Plots (TOPs), 3,659 Women Assisted Demonstrations (WADs), 21,582 Production Test Plots (PTPs), 431 Community Variety Plots (CVPs), 307 seed priming and 18 Conversational Agriculture practices (CAs) were established (Table below). The major technologies demonstrated by FLPs were method and time of fertilizer and compost application, timely and proper land preparation, proper crop spacing and management and other agronomic practices that contributed to crop productivity enhancement.

Table 11. Number of FLPs Established between 2011 -2014

Year	Number of Farmer learning platforms established					
	TOP	WAD	PTP	CVP	Seed priming	CAs
2012	366	1034	5498	79	-	-
2013	617	1833	9224	173	152	-
2014	264	792	6860	176	155	18
2015						
Total	**1247**	**3659**	**21582**	**431**	**307**	**18**

Source: SG-2000 Annual Progress reports (2012, 2013, and 2014)

SG2000 intervention in crop technologies using the FLPs contributed to improved crop productivity. Crop yield of major crops were analyzed based on kebele level data comparing the baseline with the change during the mid-term and terminal evaluation period. Generally, average yield of major crops increased on average by 27.1% in 2015 compared to the level during the baseline. The table and figure below present average yield of improved varieties of teff, maize and wheat.

Table 12. Crop yield Trend and Percent Change in the Project Period

Crop name	BL*	MTE	TE	% change respect to BL*
Teff	16.6	24.4	24.73	49.0
Maize	40.9	45.0	45.4	11.0
Wheat	26.4	39.0	32.0	21.2
Average**	28.0	36.1	34.0	27.1

**BL= Baseline; MTE= Mid Term Evaluation; TE= Terminal Evaluation*
Source: SAEDE Baseline (second round), MTE and TE Kebele level Data*

Average yield of Teff has relatively showed higher increment, indicating that improved teff technologies and practices such as improved varieties and line planting practices were being adopted, and the rate of adoption was very fast, among other reasons. On the other hand, average yield of maize, wheat and barley (at the MTE) did not show significant change at the TE.

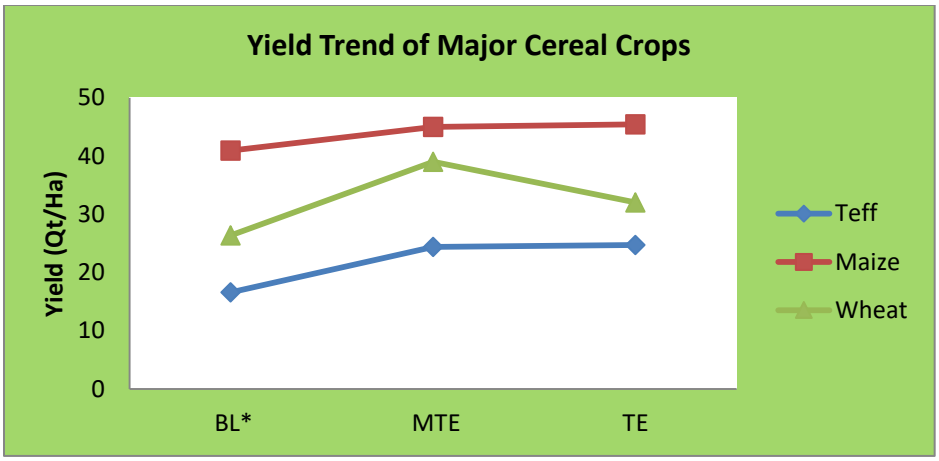

Figure 2. Trend of major improved crops yield

Data Source: SAEDE Baseline (second round), MTE and TE Kebele level Data*

Yield increment was also observed for local varieties, showing the spill-over effect of adoption of some of the improved agronomic practices promoted for improved varieties.

In addition to cereals, productivity of potato in SNNPR project Kebeles increased dramatically after SAEDE interventions.

Similarly, household level data also showed significant change in major cereal yield compared to the level during the baseline. However, yield of major crops calculated from the household level data were consistently smaller than the data from the kebeles**.** This could be due to underreporting from farmers' side, while DAs mostly prefer to exaggerate kebele level yield since it could also be linked to their performance.

Table 13. Crop yield differentials of the Baseline, MTE and TE

Crop Name	Variety	Yield in qt/ha Baseline	Yield in qt/ha MTE	Average Yield in qt/ha TE
Teff	Local	8.56	12.62	8.8
	Improved	11.04	11.72	18.5
Wheat	Local	9.82	18.49	14.7
	Improved	19.29	22.30	20.8
Maize	Local	8.43	6.89	17.1
	Improved	15.21	16.34	27.2
Barley	Local	7.15	9.31	15.1
	Improved	10.61	14.71	24.4
Sorghum	Local	12.93	11.65	9.55
	Improved	20.69	8.54	12.00
Faba bean	Local	6.91	6.45	9.00
	Improved	15.31	3.64	12.82

Source: SAEDE Baseline, MTE and TE Household level Data

With consideration of possible downward biases of household level data, separate estimations for the top five and three sample Kebeles (with high mean household yield) were made. As can be shown in the table below, the household level average yield gets closer to the overall Kebele level mean as we separately consider the top Kebeles.

Table 14. Mean Household and Kebele Yield for Major Cereal Crops

Level of Analysis	Teff	Maize	wheat	Barley
1. Mean Kebele level (all)	**28.5**	**45.5**	**32.0**	**36.0**
2. Mean Hh level				
2.1. Mean (All households)	18.5	27.2	20.8	24.4
2.2. Mean (in top 5 Kebeles*)	25.8	30.6	34.8	28.9
2.3. Mean (in top 3 Kebeles*)	30.4	32.5	39.3	33.6

**Top in terms of mean of household yield data by Kebele*

Productivity differentials among male and female headed households was analyzed**,** and crop productivity of male headed households exceeded the female counterparts in general.

The SAEDE project helped to improve farmers' crop yields through promoting improved technologies in the project areas. One of the major factors for the yield increment include: use of improved seed, line planting, use of fertilizers and other chemicals (for pest, disease) and crop management. Household level data showed that 73% of interviewed farmers are using improved varieties for one or more of the major cereal crops. This showed improvements as compared to the baseline and midterm levels. Accordingly, cultivated land size for major crops has shown an increment in some sites, indicating change in cropping pattern.

The use of improved varieties during the past production season was associated with relevant variables (such as intensity and year of intervention, wellbeing status, land size and other household characteristics). For instance, greater percentage (76%) of direct beneficiaries used improved varieties for one or more of the selected major cereals (compared to 63.6% for indirect beneficiaries). There is also slight difference between earlier (first two years) and recent project participants; 76% of earlier and 66% of recent project participants used improved varieties of major cereals. Similarly, those who reported using improved varieties do have greater land size on average and tend to be in higher wellbeing category in general. However, there is no clear difference between the proportion of literate and illiterate households in using these technologies.

From the foregoing analysis, it can be generalized that although there was inevitable variation, the SAEDE project was inclusive and pro-poor as the major technologies were used by all categories of households (sex, wealth status, literacy and other resources, etc.)

Table 15. Utilization of Improved Varieties among Households by Different Characteristics

Variables		**%**
Sex of Household Head	Female	67
	Male	75
Among Literate Household Heads	Female	65
	Male	76
	Total	75
Participant Type category	Indirect	64
	Direct	76
Year started participating in SAEDE	First two years	76
	Recent	68
Wealth Status	Rich	89
	Average	77

	Poor	56
	Destitute	58
Change in livelihood during the past four years	improved	76
	no change	53
	worsened	63
Total		**73**

Average cultivated land size of interviewed households has shown some changes from the baseline level for most of the major crops. For instance, large shift in the use of land from the local towards the improved varieties was seen for barley. Land used for improved variety of barley has increased from 0.22 hectare in the baseline (2011) to 0.35 in the midterm period and then to an average of 0.38ha per household at the final evaluation period (2015). Such shift in the use of land for improved type of crops has indicated better access to extension services and improved technologies**.**

Table 16. Average area size (ha) by crops and varieties

Crop Name	Variety	Baseline area (3)	MTE Area (4)	TE Area (5)	Percentage change 3&5	Percentage change 4&5
Teff	Local	0.49	0.37	0.36	-27%	-3%
	Improved	0.60	0.43	0.57	-6%	33%
Wheat	Local	0.47	0.35	0.51	9%	46%
	Improved	0.41	0.43	0.51	25%	19%
Maize	Local	0.43	0.54	0.23	-46%	-57%
	Improved	0.43	0.38	0.33	-23%	-13%
Barley	Local	0.86	0.49	0.36	-58%	-27%
	Improved	0.22	0.35	0.38	69%	9%
Sorghum	Local	0.35	0.34	0.44	25%	29%
	Improved	0.31	0.48	0.40	28%	-17%
Potato	Local	0.38	0.46	0.12	-68%	-74%
	Improved	0.29	0.53	0.24	-17%	-55%

Source: SAEDE Baseline, MTE and TE Household level data

Access to improved seed and market was also facilitated through the project. In addition to individual smallholder farmers, SAEDE promoted collective models such as Commodity Association and Community Based Seed Multiplication ideas, which were quite industrious and worthwhile for organized farmer groups that helped to enhance crop productivity, improve seed quality, and income. All SG2000 themes in general, and Crop Productivity Enhancement and PPP and MA themes, in particular, contributed to these components. Through interventions that strengthened P/FTCs, majority of P/FTCs have also started producing quality, and locally accepted and improved seed at their own demonstration centers as well as at voluntary famers' farm land to a larger extent (see Second part of Component 4 for more details of this sub component).

Livestock Production and Profitability

SAEDE project responded to the needs of underserved groups such as women and youth through diversifying its interventions to livestock production. The project has implemented shoat rearing, beekeeping, and poultry as well as oxen fattening at P/FTC and organized group levels, and has showed best practices in the project regions. The shoat rearing support provided

to poor women groups, among others, can be taken as a model for livestock productivity and a means to diversify household income.

SAEDE has provided support to poor women through small ruminant rearing with an aim to improve livelihood situations. Training was provided to all members of the groups in the area of improved feeds management, disease management, shed construction, sanitation and hygiene of the animals. The support that began in 2013 with distribution of 246 to 165 women in four groups increased from year to year. By the end of 2015 the direct beneficiary women reached 44 groups consisting of 614 women who were provided a total of 2,842 small ruminants.

The women group members have shown improvement in their livelihoods and played a role model to other women and the farming communities. Two case studies (from Dire Dawa and Tigray) are presented in the boxes below. The two cases constituted three of the forty-four groups totally established by the SAEDE project.

Box 1. Shoat Rearing by Women Group in the Wahil Cluster (Dire Dawa)

This group was established in 2012 and consists of 20 poor women organized into two groups: A and B groups with 10 female members each. The groups were organized by local arrangement with presence of local elders and leaders as committee. At the beginning, 33 small ruminants (22 goats and 11 sheep) were purchased and distributed for the first (A) group. In 2014 the second (B) group started to get ewes/rams from the 1st (A) group. For instance, ***Asiya Amie*** is one of the first (A) group members who started rearing with 3 female goats and transferred 3 female goats to B group member based on group organization bylaw. As of July 2015, *Asiya* has owned nine goats. She also reported that she had sold 4 more male goats for a lump sum of birr 7,000. She has started savings and working with petty (chat) trading and her capital has grown to birr 30,000 starting from zero. In addition to this, Asiya has expanded her house, and her family livelihood changed, "thanks to SAEDE project".

Debo Abduramen is from the second (B) group, who has received three-shoat (one female sheep and two female goats) from the first (A) group in 2013. At the time of field observation, she had five shoat and saved birr 3,200 by selling one goat and sheep. Debo has planned to work on petty trading by using seed money gained from shoat rearing. Religious and cultural beliefs on credit and women empowerment was one of the major challenges for the group. To sum up, shoat rearing groups like this one are some examples of success cases of the SAEDE project.

The above case study illustrates that the shoat component is pro-poor and women inclusive in its targeting; socially appropriate and acceptable in its transfer approach; sustainable in its expanding benefits to larger number of women. Unlike the kid transfer approach in the East, revolving fund is applied in most SAEDE sites. Towards this, the beneficiaries are expected to save from the income they get from the shoat management. The next box illustrates the savings, current balance of shoat and other elements of a group from Tiray region.

Box 2. Shoat Rearing in Tigray, Medebay Zana woreda, Ade-Kemalek kebele

This group started shoat rearing with a total of 10 rams and 46 ewes. As of July 2015, the group had a total shoat of 108, and obtained a profit by selling the shoat and saved Birr 24, 600. Nine women benefited from this business. The women have also benefited from the trainings on: construction of sheep barn, mixing of fodder, urea treatment, sanitation, feeding materials and accessed veterinary services. Following the training almost all women applied most of the training and realized the

benefits of the small ruminant management. As a result of these interventions, members of the Group obtained additional income which helped them to build their asset base. Some of the women have also diversified their business using the income from the sale of the sheep. Furthermore, these

Beneficiary	# Provided			# Sold			Balance			Money Saved
	Ram	Ewe	T	Ram	Ewe	T	Ram	Ewe	T	
Member 1.	2	5	7	8	3	11	3	12	15	12,000
Member 2.	1	5	6	4	2	6	3	14	17	3,500
Member 3.	1	5	6	4	2	6	3	15	18	4,500
Member 4.	1	9	10	2	1	3	2	8	10	-
Member 5.	1	5	6	-	-	-	2	8	10	1,500
Member 6.	1	5	6	1	-	1	3	8	11	1,000
Member 7.	1	4	5	1	-	1	2	7	9	900
Member 8.	1	4	5	-	-	-	2	7	9	-
Member 9.	1	4	5	-	-	-	2	7	9	1,200
Total	**10**	**46**	**56**	**20**	**8**	**28**	**22**	**86**	**108**	**24,600**

practices contributed to better awareness and initiation at community level regarding improved management of sheep. The small ruminants rearing intervention is pro-poor and enhance women economic empowerment, and given the ease of implementation, it can very easily be replicated.

Table 17. Status of Sheep Rearing Women Groups in Ade-Kemalk Kebele

Source: TE field assessment, reported by DA, July 2015

SAEDE has also identified beekeeping as a major activity that could help poor households to diversify their livelihoods. In this regard, in 2013 alone, improved beekeeping technologies were demonstrated in 9 project woredas and 32 Kebeles. A total of 197 beehives, of which 150 were modern, have been purchased and supplied to the FTCs along with 47 traditional beehives.

Improved beekeeping practice was found promising for women and youth groups. In this regard, 20 bee colonies were provided to one women group consisting of 10 members, at Aletawondo woreda. The project also established two other youth groups (at Dire Dawa and Harari), with total member of 22 members, and provided 13 bee colonies. In 2014, thirteen beekeeping youth groups consisting of 155 members were also established and provided with 194 beehives and 194 bee colonies (in thirteen kebeles of five project woredas).

For instance, the Dire Tiyara beekeeping group implemented beekeeping intervention and saved Birr 7,000 from one round production. This intervention has also created a high motive in the Harari region, where Bureau of Agriculture has started distributing about 500 modern beehives for organized youth groups in the region. TE has assessed that the other beekeeping groups (for example, in SNNPR) were not effective.

Box 3. Youth beekeeping in Dire Tiyara woreda (Herari Region):

This group was established in 2014 by ten landless and unemployed youths through the support from the project that encouraged the group and facilitated capacity building. The group started beekeeping with eight modern and three traditional beehives. Registration fee is birr 100/member), and the members also put a monthly saving of Birr 30. Number of members of the group increased to 11 (three of them are females). The group started producing honey in the FTC compound with modern beehives, but there were no bee colonies in the traditional beehives during this survey. From the business, the group managed to save Birr 7,000 per year. The Dire Tiyara Agriculture office has also facilitated land for the group at water shed and hilly side to be free from chemical effects for the coming production season. It was observed that the SAEDE's intervention in beekeeping initiated the region to engage more in such interventions. Harari Regional Agriculture Burearu provide about 500 modern beehives for unemployed youths and distributed 80 beehives for feasible rural kebeles.

Moreover, SAEDE P/FTCs have also shown effective livestock production and profitability through oxen and shoat fattening, and poultry interventions. This has also created strong public awareness for adoption of oxen and shoat fattening in the project area. For instance, Dire Tiyara's oxen fattening practice has served as a demonstration center in Harari regional state.

Component 2: Improving Postharvest Handling and Agro-processing

The SAEDE project improved postharvest handling practices in the project sites. Smallholder farmers accessed improved mechanical threshers, shellers and storage facilities, and realized the benefits of reduced postharvest losses and improved qualities. Although there were some constraints hindering full capacity utilization of the mechanical equipment, they have been effective in saving crop loss and labor resources with the current rate of capacity utilization of only 36%. Qualitative data on the benefit of the technologies also confirmed the significance of such benefits, among others. The benefits would have been many-folds if the machines were fully utilized.

With the current and potential benefits, the intervention on postharvest technologies was effective. High demand was created among farmers in the project woredas. Furthermore, postharvest equipment such as multi-crop threshers were used as income generating enterprises for P/FTCs and other individual owners providing services to farmers in their locality. The promotion of crop storage facilities (metal silo, improved bags and DLS) has also helped in solving farmers' crop storage problems.

To demonstrate and promote PHAP improved technologies the project established 60 Postharvest and Agro-Processing Extension and Learning Platforms (PHELPs) in selected Farmer Training Centers (FTCs). The PHELPs were equipped with technologies such as multi-crop thresher, maize sheller, grain cleaner, animal drawn carts, plastic mats and storage structures depending on the area of the project focus.

With PHELPs, accessibility of PHAP technologies at project Kebeles has increased since SAEDE implementation. Proportion of Kebeles with access to PHAP technologies was reported to be 9.7% during the baseline, and increased to 12.9% by the midterm, and then rose to 61.7% during the final evaluation in the surveyed sites.

In 28 of the sampled Kebeles where totally 30 functional threshing /shelling equipment were available and 4,831 farmers were served to thresh /shell about 2,016.3 tons of cereals per season in 2014/15.

The 30 functional machines were expected to thresh/shell 55,702 quintals per year at full potential (See the table below for calculation) while the actual amount was 20,163 quintals (672 quintals per functional thresher /sheller). With an average of 720 quintals processed per Kebele per year on average, this is equivalent to only 36% capacity utilization (compared to the potential of 1,857 quintals per thresher per year). The achievements could have been many-folds had it been with full capacity utilization.

Table 18. Use of Postharvest Equipment (in 2014/15)

Description	Kebele Level						Woreda Level (Selected Sample Woredas)	
	Top 40% Kebeles (in terms of Quantity)			All Sample Kebeles with equipment				
Actual	**Mean**	**N**	**Total**	**Mean**	**N**	**Total**	**Mean**	**N**
Number of Farmers used	133	11 (13)*	1,463	173	28 (30)	4,831	498	9 (29)
Quantity threshed /shelled using MCT/Sheller in sample Kebeles /Woredas (quintal)	1,595 (1,350)*	11 (13)	17,545	720 (672)	28 (30)	20,165	1,676 (520)	9 (29)
Estimated Loss Saved in sample Kebeles/Woredas	95.7	11 (13)	1,053	43.2	28	1,209.6	100.6	9 (29)
Potential								
Potential (adjusted with 75%, considering time for travel, repair and maintenance, etc) hrs per yr = (3.8months/yr*24.4days/month*8.9hr/day*0.75)*30functional equipments*3quint/hr]	1,857	(13)	24,137	1,857	30	55,702	1,857	(29)
Capacity Utilization ***(% of actual over potential)***	**73%**			**36%**			**28%**	

N=Number of Sample Kebeles ,Woredas, or functional machines

( )=In parentheses are mean threshed per functional machine or total number of functional machines in Sample Kebeles or Woredas*

Regarding the proportion of the total volume of relevant cereals produced in the kebeles, only 2.3% were threshed/shelled using these machines. This was very low as a machine was expected to thresh about 1,857 quintals per year at full potential, which could have been about 6% of average quantity of the relevant cereals harvested per Kebele per year.

Although there was low capacity utilization in general, there were Kebeles with acceptable level of capacity utilization. For the top 40% Kebeles (in terms of better utilization of the machines) on average 1,595 quintals per year was processed. This means about 5.0% of the total volume of cereals produced in the kebele were threshed/shelled by the machines in these Kebeles on average, which is closer to the full potential (6%). Therefore, the machines in the top 40% Kebeles utilized, on average, 73% their capacity, processing 1,350 quintals per equipment per year.

One of the benefits of using the equipment was reduction in harvest loss compared to the traditional method. With traditional postharvest method, average crop loss of 8.3% was estimated, while it was only 2.5% using improved postharvest equipment. Therefore, it was estimated that about 43.2 quintals of cereals was saved on average in a Kebele. For the top 40% Kebeles with high volume threshed with the equipment, average saved quantity estimated to reach 95.7 quintals per kebele in 2015. The estimated value of this saved amount is by and

large greater than the acquisition cost of a machine. It means that in Kebeles with better utilization, there was high community level return. Even by considering the Kebele level saved loss alone, the value of the estimated saved crop in a single year was greater than the payback amount. On top of that, there were other benefits such as saving of human and animal labor.

In some cases, the use of the postharvest machines was seen to be an important solution to untimely rain that could have damaged large volume of cereals if not quickly harvested. For instance, this was visible in Dire Teyara Woreda of Harari region in 2014. It was reported that had it not been for the project supported mechanical thresher, part of the wheat harvested from nearly 117 ha could have been at risk of untimely rain. Not mentioning the labor saved and other benefits, the volume of wheat saved from the damage made the benefit very visible.

According to the woreda level survey data, there were 67% (29 of 43) functional threshers and shellers in 9 Woredas selected for analysis. On average, about 498 farmers were served by the machines in a Woreda. An estimated 1,676 quintals per Woreda was reported to be threshed /shelled using the equipment in 2015. The average per functional equipment was 520 quintals, which was 28% of the potential (i.e., 1,857 quintals). About 100.6 quintals of cereals was saved from loss by threshing /shelling 1,676 quintals per Woreda in a single year.

In addition to reduction in postharvest loss (which is most commonly reported), there were other benefits of using the technologies. Majority (66.7%) of the woreda respondents reported that thresher has helped to save time, labor and cost during harvesting period. Moreover, multi-crop threshers were used as source of income for some project FTCs.

Household respondents were also asked about postharvest losses, and more than 70% of them reported reduction in postharvest loss during the last four years.

Table 19. Household Responses on the Change in postharvest Losses in the Last Four Years

Harvest loss in the last 4yrs	Percentage
Decreased	70.14
Remained the Same	24.14
Increased	5.71
Total	**100**

Source: SAEDE TE Household level data

Storage technologies such as DLS, improved bags and metal silos were other postharvest technologies promoted and used by farmers. The most widely used were improved bags (by 8,622 farmers for 40,346 quintals of crops in four Woredas during the last year of the project). DLS was used well in SNNPR, especially in Gumer Woreda where potato was one of the common crops. In two Woredas alone 151 DLS were used by 3,370 farmers for 15,100 quintals of Potato during the last year of the project.

Table 20. Average Distribution of Storage Equipment and Usage

Technology Type	Number of Functional Technologies equip/facilities	Estimated number of farmers benefited in 2006/07	Estimated amount of threshed/shelled using machine in 2006/07 (Qt)	Remark

Diffused Light Storage (DLS)	Mean	76	1785	7631	
	Sum	**152**	**3,570**	**15,265**	
	N of Woredas	2	2	2	
Improved Bag	Mean	10,088	2,156	10,087	
	Sum	**40,351**	**8,622**	**40,346**	
	N of Woredas	4	4	4	
Metal Silo	Mean	5.8	3.2	22	
	Sum	**29**	**16**	**88**	
	N of Woredas	5	5	4	

Source: SAEDE TE woreda level data

Despite some constraints with capacity utilization, the postharvest and storage technologies were farmer-friendly and have created high demands. They contributed to improved crop quality and management and storage of seeds for longer periods.

Women in Agro-Processing

SAEDE involved women farmers in agro-processing groups or cooperatives to improve their livelihood status. The project introduced agro-processing techniques to cooperatives and women farmers to produce and market value added food products by facilitating access to technologies. In this regard, five agro-processing cooperatives were established and provided with the necessary inputs and trainings. A three-year business plan was developed for 3 women Agro-processing cooperatives to support women processing groups in, SNNPR, Amhara, and Oromia Regions. The business plans included: Value addition of agricultural products (Baltena), Sheep Husbandry and Milk Processing. As a result, for instance, Wakene women group, at D/Libanos kebele in Oromia region, started milk processing and gained Birr 500 as annual dividend. Likewise, the Raey Meles Women group in Hintallo Wajirat Woreda, in Tigray, has also started providing grain mill service in the community even though the group lacked business skills and are faced with infrastructure (power) problem.

Box 4. Wakene Milk Processing and Selling Enterprise, Debre Libanos Woreda, Oromia Region

The group was formed with 25 female headed households and increased to 30 members. SAEDE project supported and followed the group and the milk processing enterprise starting from its inception stage. The enterprise started producing three main milk products: butter, cheese and yoghurt, and supply the products to markets in Addis Ababa and Bishoftu town. The enterprise collects milk from members and non- members on a daily basis. All suppliers benefited from the fair price for their raw milk. Members of the enterprise have been earning on average Birr 500 ETB as a dividend from the enterprise, annually.

This evaluation observed that the enterprise had potential considering the favorable climatic condition of the area for milk production and availability of basic infrastructure in the Woreda. Some of the challenges of the group included: quality of milk (some suppliers mix water, while others separate the cream before supplying to the group/enterprise), proper maintenance of the equipment of the enterprise, market and transport related problems (products being too small and hence too costly to transport). It was also difficult to secure regular buyers of the products on fair prices in Addis and Bishoftu). All these challenges were recurring and needed due attention from all stakeholders.

Constraints in Promoting PHAPs

As partly understood from low capacity utilization of the equipment, there were constraints due to which majority of the respondents have shown a very less familiarity with modern postharvest and storage technologies. For instance, nearly 70% of the households used traditional threshing tools. Half of household respondents used indoor bags/sacks or traditional granaries for storage. Majority of the households replied that they had not used the modern mechanism of shelling and threshing**.**

Key informants also reported the major constraints for not using mechanical threshers and shellers to the expected levels. These include: fuel consumption, difficulty in moving the machines (difficult topography and access to road), lack of skills for maintenance, shortage of spare parts, straw quality, and less motivation of DAs and FTC-MCs.

Component 3: Improving Access to Market and Credit

Market access is one of the major challenges of the agricultural sector in Ethiopia. SAEDE project responded to this priority needs and created better market access for smallholder farmers in general and for organized groups in particular. Although better market linkages have yet to be created effectively, there were certain interventions promoting public-private linkages in the project Woredas. Commodity Associations (CAs) were established in project woredas to facilitate market linkages with potential clients. Such linkages have shortened the market route to supply farmers' produce and ensured optimal sales revenue, nevertheless, the associations have to pass through certain challenges such as lack of full trust among members, shortage of proper warehouses, transport related problems, and lack of proper budget to run. Generally, there has been progress in market access and profitability of CAs towards the benefits of smallholder farmers.

Analysis of the qualitative household data confirmed improvement in market access. Three-fourth of sample households (74%) reported that their marketing and market access have shown improvement compared to four years ago.

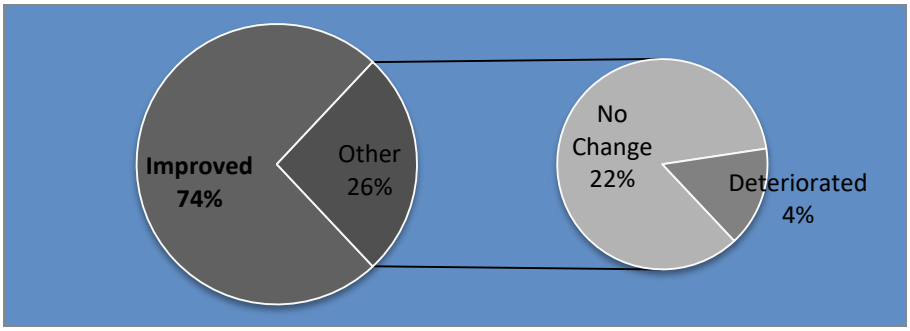

Figure 3. Change in Marketing in the Past Four Years

Source: Household Level Data

The market related changes were felt differently by households in different Woredas. Woredas with highest proportion of households reported improvement were Guagsa Shigdad (94%), Yilmana Densa (91%) and Medebay Zana (89%). On the other hand, only 11%, 47%, and 66% of sampled farmers, respectively, in Shinille, Leka Dulecha and Dire Teyara woredas reported improvement in marketing and market access.

There major factors mentioned for the positive changes in product market were increase in market price, improvement in quality of products, and better physical access. Other factors mentioned by smaller number of sampled farmers included availability of unions and increased number of traders. A few households also mentioned improvements in input access. On the other hand, 4% of sampled households who reported deterioration in marketing and market access mentioned price and physical access related reasons for their products.

In addition to spatial variations, there were many correlated variables across which improvement in market access vary. These included household wellbeing, years after intervention, participant category (in terms of intensity), and other household characteristics. As depicted in the figure below, improvement in market access was strongly associated with better wellbeing status, positive changes in livelihoods, longer period after project

participation, and intensity of project intervention. Furthermore, male headed households tended to realize better improvement than female headed households.

Among the correlated variables, intensity of intervention was the most strongly associated with improvement in market access as 83% of households participating in multiple project related activities reported that their market access has improved.

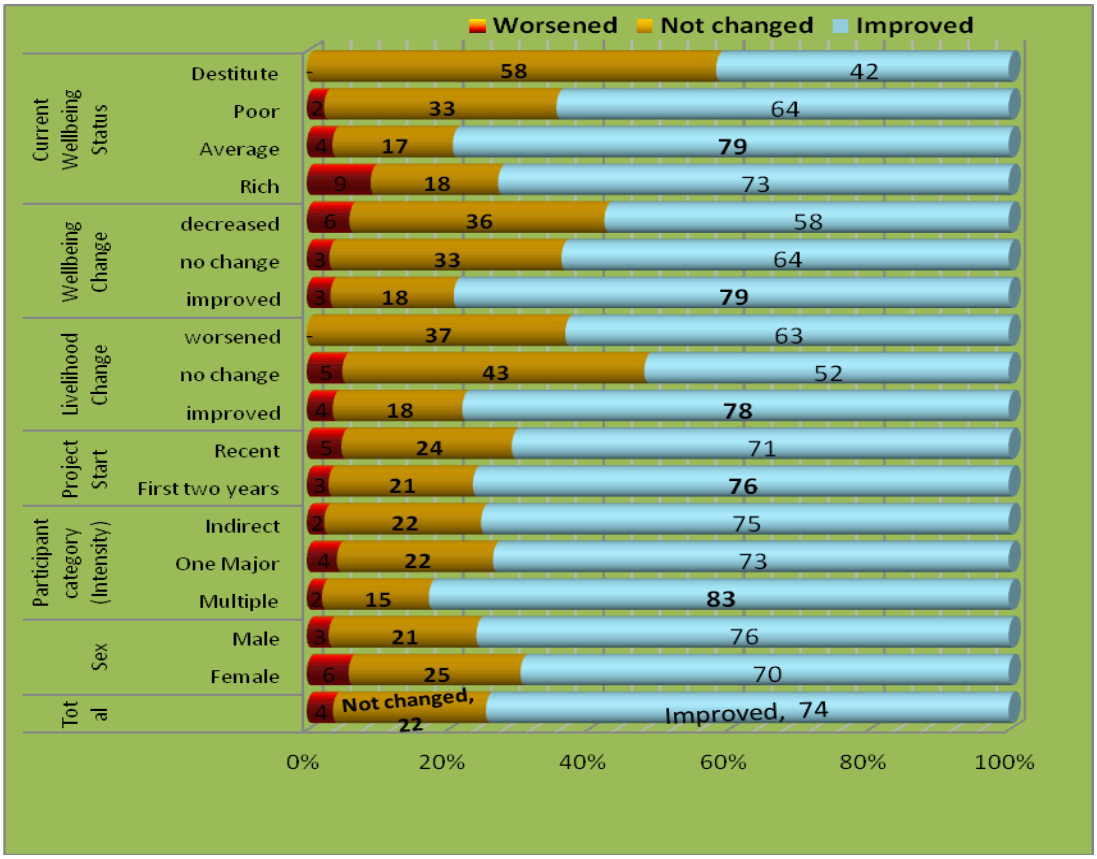

Figure 4. Change in Marketing and Market Access by Correlate Variables

Source: Household Level Data

In addition to household level data, qualitative responses of different levels of respondents were analyzed. Accordingly, market access was improved for major crops such as teff, wheat and maize and potato in the past four years. Most Woreda level key informants believed that the SAEDE project has contributed to this positive change in market access.

Farmers' access to market for crop products was assessed comparing the baseline, the midterm and final evaluations of SAEDE project. It was shown that the relative importance of city/big town market and cooperatives have improved.

The extent of sale of products just after harvesting was an indicator of multiple dimensions including market and market information access[3]. Using four weeks after harvest as reference period, a household on average sold 7.03 quintals in this early period. Comparison across baseline, midterm and final evaluation exhibit differences in this sold amount. Households reported the reasons for selling within four weeks after the time of harvest. The household

[3] Other dimensions are about postharvest handling and storage facilities.

events were the major reasons followed by other reasons such as perishables, purchase of agricultural inputs and labor, and to a lesser extent for market related benefits. On the other hand, paying back loan, that was one of the major reasons during the baseline and midterm periods, has not been major reason by the end of the project. From the mixed results it is inconclusive whether the ability, awareness and decision making of households in determining the right time of sale are improving.

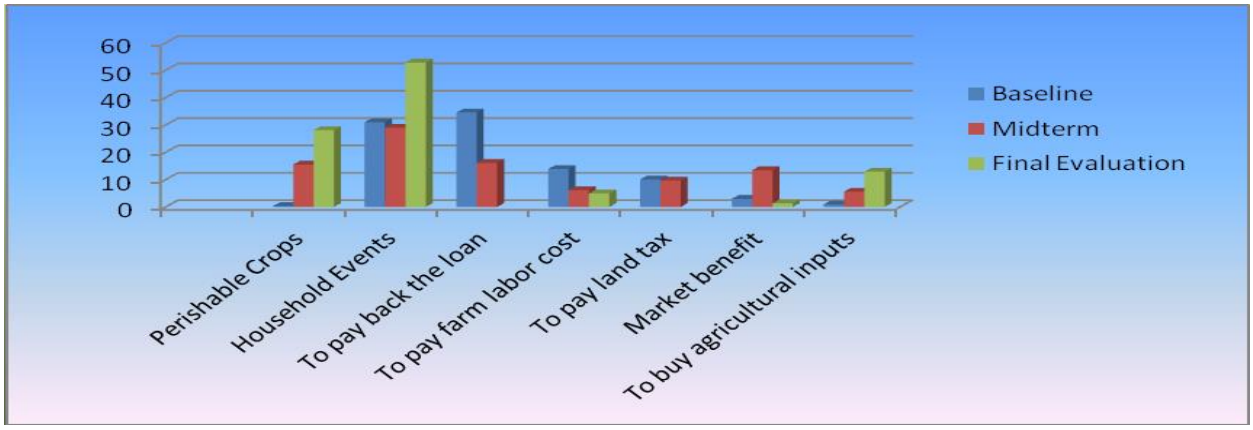

Figure 5. Reasons for selling within four weeks after harvest

Source: SAEDE Baseline, MTE and TE household level data

Means of transport for agricultural products from the farm gate or the house of the household to the market centers is one of the factors determining physical access. In this regard, 65%, 33% and 43.4 % of households reported that the pack animals have been used as means of transportation during the baseline, midterm and end of project periods, respectively. Human power as means of transport has continued to be one of the main transport means even showing increasing trend over the years. Animal-drawn cart, although reported by only about 10% of households, is the fastest growing means of transportation during the past four years.

With regard to the market decision making at household level, in all the three survey periods [baseline, midterm and final evaluations], the household head has played great role of making decisions about sales followed by joint decision by husband and wife. Analysis of the qualitative response showed that women's involvement in marketing decision making has shown relative improvement over the baseline and mid-term periods.

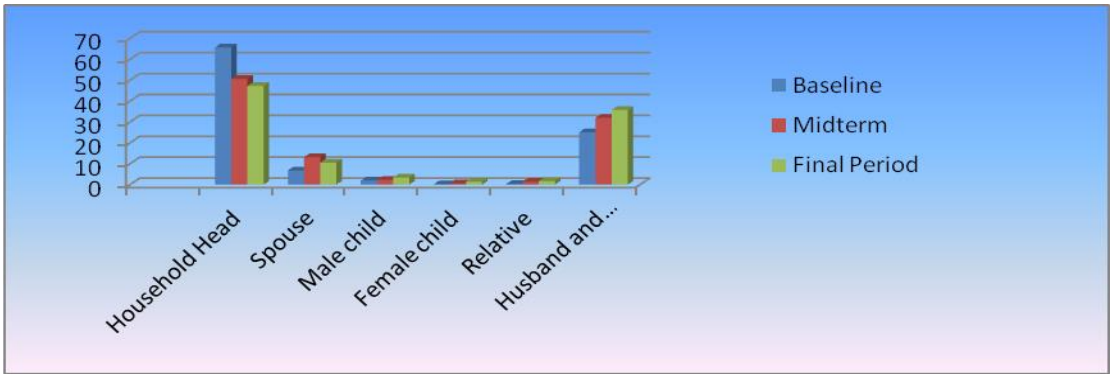

Figure 6. Marketing Decision Makers over the three periods

Source: SAEDE Baseline, MTE and TE household level data

While traders were ranked as the first most common buyer of the agricultural products, cooperatives were found to be the major sources of inputs. The relative importance of cooperatives in supplying inputs for the households has steadily increased from the baseline to the final evaluation period as reported by 42%, 59% and 62% of households of baseline, midterm and final evaluation survey, respectively. The local agricultural offices also have significant contribution in the provision of inputs for sale followed by local private shops.

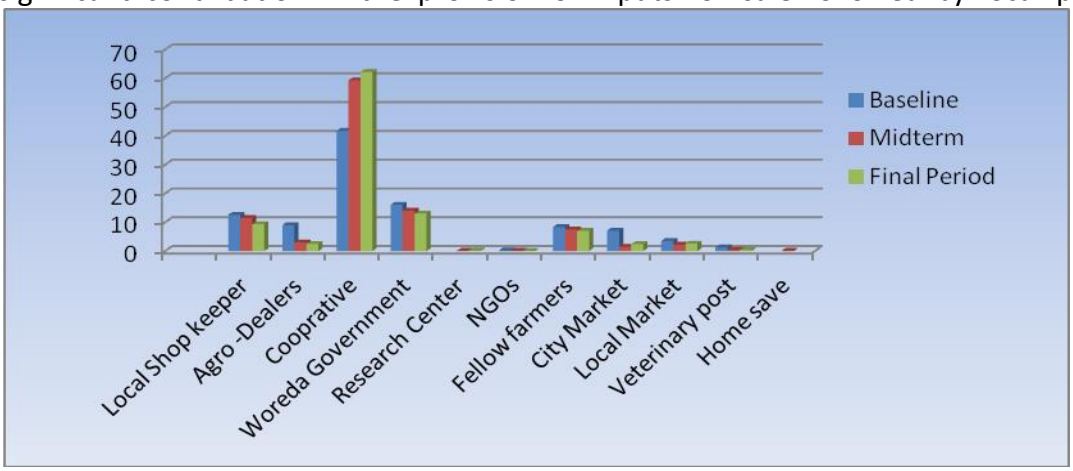

Figure 7. Sources of Inputs

Source: SAEDE Baseline, MTE and TE household level data

Commodity Associations and Community Based Seed Multiplication Groups

To address market related problems and create market linkages, SAEDE project has organized Commodity Associations (CAs) and CBSM groups. SAEDE interventions in Commodity Association and Community Based Seed Multiplication are quite industrious and worthwhile for organized farmer groups that helped to enhance crop productivity, improve seed quality, and market access of smallholder farmers. The CBSM groups have started working on Seed Multiplication to supplement and increase crop productivity. The organized groups' crop productivity and profitability has increased.

As of 2014, a total of 7274 farmers (6150 males and 1124 females) were trained and organized into different commodity association groups. Subsequently, 48 market oriented commodity associations (CAs) in Amhara, SNNPR, and Oromia regions focused on 8 commodities [namely: Wheat, Barley Teff, Maize, Faba Bean, Potato, Spices, and honey] strengthened to contribute for enhancing crop production and market linkage. Of these, eight CAs have been linked to 6 market points [Wheat to Ham Innovative Technology and Merkeb Wheat flour Factory; Teff to Addis Ababa (AA) Consumer Cooperatives and Nekemte consumer Cooperatives; Potato to different NGOs and neighboring woredas for seed purpose].

Kebele level data revealed that majority of CA and CBSM groups organized by SAEDE project had market linkages with their corresponding clients. According to the key informants, the market linkage created for these groups has helped to shorten the market route from both demand and supply sides. For instance, the table below presents the status of some CAs and CBSM groups organized in SNNPR (two woredas), and their market linkage with potential clients.

Table 21. Status and Market Linkage of Sample CAs and CBSMs

Name	Type	Woreda	Kebele	Legality	Members			Production in 2006/7 in Qt	Revenue 2006/7 in birr	Market linkage	Major customers
					M	F	T				
Welema Tomato Association	CA	Aleta	Wicho	yes	135	15	150	15,400	6,930,000	Yes, have	Hotels
Gerbicho kila potato seed multipliers	CBSM	Aleta	Gerbicho kila	no	18	2	20	229	47,060	Yes, have	FTCs, farmers
Ediget besira-Potato CA	CA	Gumer	Burda. Denber	yes	100	20	120	2500	900,000	Yes, have	World vision
Nefeso barley seed multipliers	CBCM	Gumer	Aselecha	no	9	2	11	150	123,750	Yes, have	SNNPR seed enterprise

Source: TE field assessment data, July, 2015

Majority of the CAs and CBSM groups have been performing well and were profitable, according to regional and Woreda level key informants. For instance, in SNNPR, Welema Tomato Commodity Association (CA) organized in Aleta Wondo at Wicho kebele produced 15,400 quintal of tomato and obtained a revenue of Birr 6,930,000 in 2014. Likewise, in Gumer woreda a CA called "Ediget Besira" produced quality potato and sold 2,500 quintals, from which earned Birr 900,000 in 2014. Similarly, Fre-Meles CBSM group, which was established under the SAEDE project in Tigray region at Ade Kemalek Kebele of Medebay Zana Woreda, produced 100 quintal of teff seed on 4.25ha of land and gained a total amount of Birr 180,000 in 2014/15 production season. This group obtained a better profit as a result of the project. The other seed multipliers group in Aleta Wondo woreda Gerbicho kila kebele started producing about 229 quintals of potato and sold 181 quintals for Birr 47,060 in the same production season.

Two case studies (one each from CA and CBSMs) are presented in the boxes below to illustrate the nature and benefit of the collective models.

Commodity Association (CA)

Box 5. Qeraru Commodity Association (CA) in Arsi Negelle (Oromia Region)

The Qeraru CA was formed by 120 maize producers in March 2013. Like other CAs, it was supported by a Commodity Association Trainer (CAT) who received technical backstopping from SG2000.

The CA members contributed some amount of money and borrowed the remaining amount of money from Yekkaa Lelisa primary cooperative to run the enterprise. They collected 1800qt of maize from member farmers at 350 Birr per quintal and sold it to Uta-Wayu union at 450 Birr per quintal in 2013. This enabled the CA to make a profit of Birr 180,000 Birr, and increased its working capital. This CA has also enabled the maize producing farmers in the Kebele to access improved extension services on improved maize varieties, proper use of organic and inorganic maize fertilizers and use of modern postharvest equipment (mechanical sheller). This helped farmers to be productive and supply quality maize to the

market. Using this CA, farmers were able to sell their produce at their farm gate, which reduced market transaction costs like transport and related expenses. Though this CA was successful, it has also faced certain challenges. These included lack of warehouses to store produce, lack of trust among member farmers, lack of budget while starting the CA, lack of access to good road to transport their produce. Although the aforementioned problems were partially solved the intended warehouse is not yet secured. Many other CAs shared similar problems which responsible local partners need to respond to for sustainability of CAs.

Community Based Seed Multiplication (CBSM)

Box 6. Fre-Meles Community Based Seed Multiplication (Tigray Region)

A Community Based Seed Multiplication (CBSM) group named Fre-Meles was established in Ade Kemalek Kebele of Medebay Zana Woreda under the SAEDE project three years ago. It has 17 members who voluntarily consolidated their adjacent lands for the production of Teff seeds. In 2014 production season, it produced 100qt of teff from 4.25 ha of land (excluding the boundaries) and obtained a total of Birr 180,000. This implies that due to such approach, not only has better yield (about 23.5) gained, but better price was also received. The group also accessed trainings, input and follow up from pertinent offices.

The CBSM group encountered liquidity constraint. For instance, in 2015, the CBSM was forced to sell its product to its second best customer (a Cooperative Union) with low price. Due to shortage of capital and urgent credit repayment, the CBSM could not wait for the delayed release of payment from its first best customer, the Seed Enterprise, which pays better price (about 5.5% higher). Discussion with higher officials indicated that the relative delayed release by the Seed Enterprise was inevitable due to the inherent nature of the process of seed purchase. Therefore, the strategic area of change will be more of the alternative credit access and self-sufficiency areas rather than a promise in immediate release of payment from seed enterprise. At the community level, since the cooperative union is also owned by same member farmers, the overall benefit of CBSM is unambiguously high whether the seeds are sold to cooperatives or directly to the seed enterprises. Indeed, the cooperative union gains profit by purchasing seed from the CBSM (with immediate payment release) and selling to the Seed Enterprise.

Farmers are showing interest to join the group. For instance, the CBSM has currently planned to increase the number of its members to 25 by adding eight voluntary farmers who have land adjacent to the already consolidated land. The group has also requested land for the construction of warehouse. Discussion with officials of the Woreda Agricultural and Cooperative Offices also reinforced the possible realization of such infrastructure as they have the intension to facilitate warehouse construction. Moreover, the initiatives play the roles of facilitating mechanization and transformation through such voluntary land consolidation.

SAEDE interventions in CBSM contributed to strengthening the extension system through its role to the seed supply system. The CBSM has also met multiple objectives: sustainable collective actions, market-led extension, farmer-to-farmer demonstrations and ultimately

better income to members. The prospect of the CBSM is promising due to many reasons: the demand for seeds is growing; the government is giving attention to such groups to meet the growing demand; some of the farmers are positively influenced by the growing benefits of the CBSM members and are showing interest to join them by contributing their adjacent lands. Replicability of the CBSM is high for many reasons: favorable social capital base and local resources (i.e., voluntary contribution of own land), market access for any scale of production, enabling environment of input supply and technical supports, and well adopted line planting and other improved agronomic practices.

In general, collective models such as CAs and CBSMs has contributed to improved access to market and inputs during the past four years. The reported major reasons for this improvement include: access to market information and linkage, physical access, crop quality improvement, and other collective actions. Although market linkages were generally improved, the market linkage and partnership gaps existed at FTC levels. For instance, many FTCs reported that they could not benefit well from the LGF scheme due to feeble partnership with local micro finance institution (MFI) and relatively weak market linkage for the fattening businesses.

Access to Credit

This evaluation looked at access to credit of smallholder farmers, but with little evidence on project effectiveness. The sampled households were asked if any of their members had received credit either in cash or in kind in the past 12 months. Accordingly, about 31% of them indicated that their household members had received credit in cash or in kind during the reference period. The average amount of credit the households received was 5,137 birr with a maximum of 20,000birr.

Regarding the purpose of credit, 35.35%, 26.05% and 16.74% of households reported that they had used it for the purchase of farm inputs, farm operations and purchase of food in time of insufficient production, respectively. In 2011/12 (baseline) about 52%, 32% and 6% of farmers used the credit money for the purpose of purchasing farm inputs, farm operations and purchase of food, respectively. However, this evaluation could not find strong evidence whether access to and use of credit has improved.

Component 4: Income Generating Enterprises of FTCs

As part of promoting sustainable extension delivery, the SAEDE project has strategically strengthened the P/FTCs through income generating enterprises by using a Loan Guarantee Fund (LGF) scheme. FTCs have started the path of financial self-sustainability through the Loan Guarantee Fund (LGF) scheme.

FTCs' Enterprise Management Practice

It is of recent experience for FTCs to manage income generating enterprises in an organized and formal manner. Most FTCs even had not had Management Committees (MCs), let alone business management skills before. The SAEDE project introduced an innovative LGF scheme that facilitated access to credit for P/FTCs through a link with Micro-finance institutions, followed by package of trainings in financial record keeping, business management and business planning. The LGF scheme has created almost a new path and practices in this regard. Most importantly, the spill-over effect is significant in that even the FTCs that were not LGF participants have learnt from the participant FTCs.

The types of enterprises established by P/FTCs for generating revenue have increased over the years. There were only three major types of enterprises practiced by the P/FTCs in 2012. However, in 2014 the type has increased and reached six. With fish and seedling enterprises, there were more than 8 different enterprises by the end of the project. Cattle fattening and crop production (depending on the major staple crop specific to each Woreda) have been the most dominant types of enterprises.

There were also some other enterprises established by a few selected FTCs. For instance, seed production was practiced by FTCs in Tulu Guled Woreda, Somali Region, Leka Dulecha Woreda in Oromia Region, Gumer Woreda in SNNPR region, and Dibatie Woreda in Benishangul Gumuz Region. The major seeds included, wheat, ground nuts and potato.

Income Generation and Asset Building

Project FTCs, particularly those covered by the LGF scheme have generated good revenue and covered their operational costs. By the end of the project, the sampled FTCs generated annual average revenue of Birr 22,550, which was much higher compared to the baseline when almost each FTC generated less than Birr 1,000 per year. The top 20% generated annual average revenue of Birr 40,000. By the end of the project, FTCs with very high annual revenues included Wakene FTC (Birr 111,000) in Oromia, Burqa FTC (Birr 98,580) in Harari, and Legebuna FTC (Birr 79,875) in Benishangul Gumuz region.

Net profit has also improved. By the end of the project, the sample FTCs generated annual average profit of Birr 8,055. The top 20% generated annual average profit of Birr 26,000. The average profit is equivalent to the average annual amount regional governments are planning to budget for each FTC. For instance, the largest annual government grant per FTC is Birr 20,000 implemented in Amhara Region.

Table 22. Income and Profit of LGF Participant FTCs during 2015

Items	LGF Participation Status			Ratio of Participant to Non-Participant
	Both	Participant	Non-Participant	
Mean Revenue	22,550	25,224	9,319	2.71
Mean Expense*	14,495	16,190	5,054	3.20
Mean Profit	8,055	9,034	4,265	2.12
Profit/Expense Ratio	0.56	0.56	0.84	

**The expenses rarely include the investment aspects such as construction of infrastructure as they were mostly undertaken with the support of the partner NGO, Oxfam America.*

Regardless of the participation in LGF component, income of all project FTCs dramatically increased from the baseline. But the mean income ratio of LGF participant to non-participant FTCs was very high. During the final year of the project, LGF participant FTCs earned 2.71 and 2.12 times of revenue and profit, respectively, compared to non-participant FTCs. The gap during the early life of the project was even larger and narrowed down through time partly due to the spillover effect and government efforts to scale up FTC enterprise development.

However, LGF participant FTCs have not performed better in terms of the rate of return as measured by profit-expense ratio. The relatively lower average rate of return of participant FTCs is explained by the following factors:

- FTCs were still under the learning process and facing certain risks to their relatively larger investments
- Some FTCs used the loan for investment in infrastructure (particularly in Chilga Woreda) but underutilizing them during the survey period
- Over reporting of expenses among LGF participant FTCs
- At lower level of production, revenue of non-participants consists of relatively large proportion of income from sale of grass and other products that do not involve high expense

Trends in Profit

Profits of enterprises have increased from time to time. At baseline even the mean revenue was about Birr 1,000 per FTC and the profit was only some proportion of this meager revenue amount. By 2014, three years later, 22% of the FTCs generated profit amount greater than Birr 9,000. By the end of the project, 38% of the LGF participant FTCs generated greater than Birr 9,000 profit per year. However, proportion of FTCs generating profit amount between Birr 5,000 and 9,000 has declined by the end of the project as compared to the proportion in 2014.

Table 23. Profit Range of LGF-FTCs

Profit Range in ET Birr	End of 2014		End of Project	
	% of FTCs	Cumulative %	% of FTCs	Cumulative %
>9,000	22	22	38	38
5,000 to 9,000	26	48	13	51
1,000 to 5,000	44	92	23	74
< 1,000	8	100	26	100

Beyond Income: FTCs Serving as Learning Centers

The main purpose of FTCs engaging in income generating enterprises is to sustainably serve as learning centers covering their operations with owned income. As envisaged the income generating activities created financial self-sustainability that improved FTCs' capacity to sustainably serve the surrounding farmers with improved extension delivery.

The implementation of LGF scheme improved capacity and autonomous status of FTCs which is the widely recommended strategy as part of decentralized public sector intervention. FTCs covered their operational costs mainly related to technology demonstrations, which is one of the major roles of the FTCs. As a result, FTCs played very important role by providing the required and demand-based knowledge and skills to local farmers in a participatory manner.

The LGF component of SAEDE was the single most important component that differentiates the project woredas from comparable non-project woredas. It was observed that even when they do have other external support, non-SAEDE FTCs performed less in many elements such as financial record keeping practices which are, indeed, very important in sustainable management of profitable FTC enterprises.

In general, SAEDE project has created better agricultural extension service delivery system at P/FTC level as compared to non-SAEDE project woreda P/FTCs. For instance, SAEDE Project FTCs had better access to demonstration land and established better performing income generating enterprises than non-SAEDE P/FTCs. Moreover, SAEDE project has addressed the skills and knowledge gaps of the extension agents through providing package of trainings and related support activities. As a result of this, better implementation and use of improved agricultural technologies was observed in project FTCs, which in turn led to improved productivity of crops. Therefore, SAEDE project achieved its objective on 'strengthening the P/FTCs' performance successfully.

Box 7. A Quick Comparison of Project Woredas with Nearby Non-Project Woredas

The evaluation team has made a quick field assessment of SAEDE project Woredas and some nearby non-project Woredas to assess and compare differences and spill-over effects between the project Woredas and non-project Woredas. Selection of the adjacent Woredas was made on the basis of similarities between the respective project Woredas and non- project Woredas in socio-economy, infrastructure, climatic conditions, and agro-ecological environments with special focus on accessibility. The field observation was substantiated with interviews and informal discussions with extension agents including Woreda Agriculture Office Heads and Extension Service Process Owners of the non-project Woredas. Totally, five adjacent SAEDE Woredas were compared with their SAEDE counterparts.

Overall, assessment focusing on FTCs revealed that SAEDE Project Woreda P/FTCs had better access and capacity in delivering agricultural extension services as compared to non-project Woreda P/FTCs. Majority of Project P/FTCs had well-furnished office furniture, trained and sufficient number of staff (DAs), adequate demonstration land size and participated in LGF scheme for income generating activities. Table below presents the comparison between the SAEDE Project Woreda P/FTCs and non-project Woreda P/FTCs.

It was observed that even when they do have other external supports, non-SAEDE FTCs perform less

in many elements such as financial record keeping practices which are, indeed, very important in sustainable management of profitable FTC enterprises. (More details of the comparison are annexed).

Table 24. Summary of comparison points of SAEDE and non-SAEDE project P/FTCs

S. No	Comparison Points	SAEDE Project Woreda P/FTCs	Non-Project Woreda P/FTCs
1	Demonstration land size	Majority have satisfactory size	Only few have limited size
2	Office furniture	Majority have well furnished	Few equipped with chairs and tables
3	Number of staff/DAs	Have at least 2-3 DAs	Have at least 1-2 DAs
4	Skill and knowledge of DAs on extension service delivery	Skill and knowledge improved as result of SAEDE	Yet, have skill and knowledge gap on service delivery
6	Income generation	All have started with better income from crop, dairy, fattening, beekeeping, etc.	Only few have started with lower income from crop, dairy, and beekeeping
7	FTC-MC	Majority have active MCs	Only few have inefficient/medium MCs

Source: SG2000-Ethiopia SAEDE Project Field Assessment, July 2015

Major Challenges in Implementing LGF

Scope of the project was one major challenge as too many FTCs were targeted and required close follow-ups from implementers starting from training in business management to developing business models and implementing and following enterprise performances. In all the target FTCs developing business models were very new and on top of that the FTC Management Committees had not had enough experiences and incentives to quickly and properly translate the models into viable business enterprises.

There was also problem of delayed loan repayments that resulted from many factors - the two major ones are - awareness among MC members and low profitability. As the scheme was new, it was not uncommon for MC members to still consider the loan as grant that could be kept without repaying back. By the middle of the project life, large number FTCs were observed to unwisely put their money in their savings account while incurring interest expense on the unpaid loan. In some cases, embezzlement by MC members happened. Legal measures were taken on some of the cases. This problem was gradually addressed, but it caused irreversible problems by affecting the repayment reputation of FTCs and delayed release of loan to subsequent FTCs (and consequently late start up).

There were management problems and inefficiencies, hence, some FTCs encountered low profitability and consequently repayment difficulties. A few FTCs used the loan for unplanned investment activities such as construction and faced liquidity constraints.

Delayed start-ups have led to inefficiency through forgone production cycles or seasons. Almost all the FTC enterprises are seasonally sensitive and any delay leads to months of delay in practice. This is common not only for rain-fed crop production, but even fattening enterprises follow the same pattern due to combination of feed availability, proper purchase and sale times, which are intermittent or seasonal.

The partnership between P/FTCs and local MFIs was another major challenge both from the FTCs as well as from the MFIs side. The partnership was not effectively practiced to the expected level and could not manage to establish trust between them. Despite the challenges, some model FTCs were created to demonstrate financial self-sufficiency and could serve as learning grounds towards sustainable extension service delivery.

Component 5: Woreda Extension Resource Center (WERC)

This component was the least effective of all project interventions. The WERC component aimed to improve the skills and capacity of Subject Matter Specialists (SMS'), who were supposed to backstop the DAs working in their Woredas and facilitate their links to the agricultural research and development communities. Woreda Extension Resource Centers (WERCs) were supposed to be instrumental in providing up-to-date information to extension agents and, thus, to farmers. Some encouraging results achieved among some of the WERCs, however, almost all WERCs have not been used to help to improve skills and knowledge of extension agents.

Under SAEDE project, 22 Woreda Extension Resource Center (WERCs) were established to enable SMS' access to knowledge base. The centers were equipped with computers along with internet connections to provide vital information related to improved agricultural practices. Out of the total 22 WERCs 16 were operating by the end of the project. The other 6 WERCs were not functional due to some reasons as shown in the table below.

Table 25. Reasons for WERCs Non-Functionality

Name of WERC	Reason for not operating
Arsi Negelle	Budget discontinued / No payment for Service
Chilga	Service payment has not been made
Hintalo Wajirat	Service payment has not been made
Medebay Zana	Budget discontinued / No payment for Service /Lack of maintenance
Dima	Power problem, lack of training, lack of commitment, lack of maintenance
Shinile	Service payment has not been made

Use of the WERCs in most project woredas could not grow to the level that was expected from the project. Extension agents were expected to access information related to improved agricultural practices beyond using the computers and internet services for their day to day activities. The computers and internet services of the WERCs contributed to improved skills of SMS' in information management and data organization. For instance, some WERCs in Oromia region has created good opportunity for experts of the agriculture office and even other sectors' experts to make use of the internet and printing services of the WERCs. However, in Tigray and Eastern Regions, it has been underutilized. There were complaints that the project delayed in settling the monthly bill and supporting maintenance and failures in connectivity, among other issues.

Except WERCs in Oromia regional state, almost all were not functional at least for internet use at the time of field assessment. For instance, WERCs at Shinille and Diredawa were not

functional mostly, and very limited number of SMS' and DAs visited these WERCs during the project period. Relatively, WERC at Dire Tiyara woreda, which was located at the Dire Tiyara FTC compound, was used for record keeping and reporting purposes.

Project exit strategy of WERC intervention was also not clear and it confused project partners. Some Woreda key informants were not aware of any requirement as well as possibility of budget allocation by the government after the project phased out. The WERCs got internet service with prior agreement with respective branch offices of the Ethiopian Telecom. Based on the agreement, the payment has been made by SG2000 to date. However, as the SAEDE project phased out prior notice was made to the respective Woredas to transfer the responsibility to themselves and enter agreement with Ethiopian Telecom and plan budget for the subsequent payments.

Component 6: Strengthening the Extension Service Delivery

The project contributed to improved extension service delivery through capacity building trainings to extension workers and revenue generating enterprises of FTCs. Positive change was observed in major indicators such as number of farmers receiving better extension services, competency of extension workers, improved practices and profitability of FTCs, and contribution to other outcomes (productivity enhancement, market access, income and livelihoods).

In all project P/FTCs, capacity building activities have been implemented, including provision of basic materials, trainings of extension agents and follow-ups. Furthermore, through a Loan Guarantee Fund (LGF) scheme, P/FTCs were capacitated to establish income generating enterprises and undertake technology demonstrations in their compounds. The project also promoted utilization of Woreda Extension Centers (WERCs) for improved access to extension information.

Extension agents were provided with theoretical trainings and they were also exposed to practical demonstrations and practical application of new technologies. Extension agents were trained in line with their capacity gaps and farmers' needs for improved agricultural productivity and production. The trainings helped extension agents to provide better extension advice to farmers with improved follow-ups. Working relationships between the DAs and farmers were enhanced and better extension service delivery platforms developed.

Improved competency of extension workers was one of the strong evidences for improved capacity of extension agents. It has been reported by the Woredas during various forums with stakeholdeers that those from project Woredas have generally scored higher results than non-project Woreda counterparts in the Standard Competency Assessments conducted by the government.

The SAEDE project has also innovatively capacitated project P/FTCs with practical trainings on business development service, organizing and strengthening P/FTC management committees, establishing income generating enterprises, and facilitating Loan Guarantee Funds to improve performance of the P/FTCs. As a result, majority of project P/FTCs have started generating their own income. Moreover, the project has helped the FTC-MCs to develop their attitude and

efficiency towards FTC management. In this regard, P/FTCs have shown an improvement in their performance since four years ago. Demonstration fields at the FTCs have also created a multiplier effect by attracting the surrounding farmers who showed interest in replicating some of the improved practices.

Overall, the analysis revealed that effectiveness in this component has been central to the effectiveness in the other outcomes discussed in this report.

Extension Agents capacitated through Training and Technical Backstopping

Knowledge gaps of extension agents were identified based on needs assessments and participatory planning carried out jointly with implementing partners. The training materials were collected from research institutes and were further adapted and modified in relation to project interventions. SG2000 staff in collaboration with resource persons selected from research centers and senior experts from regional agricultural offices provided the TOTs. Modified copies of the manuals were duplicated and distributed to extension service providers (woreda SMS', DAs and DA supervisors).

Intensive trainings were provided to DAs and SMS' on crop and livestock production improvements, improved post-harvest and agro-processing techniques, marketing and business management skills. In general, SAEDE project has trained 84,221 trainees, of these 520 Woreda SMS' and 2017 DAs (including DA Supervisors). Theoretical and practical application of trainings contributed to positive change in the skills and knowledge of extension agents and farmers. Key informants reported that package of training particularly on livestock fattening created awareness to DAs as well as farmers on how to feed and manage shoat and oxen during fattening period.

Table 26. Number of trainees (2012-2014)

Year	Number of trainees				
	SMS	DA and SV	officials	farmers	Total
2012	231	449	58	10913	12103
2013	289	1568	200	46654	48711
2014	-	-	-	21349	23407
Total	**520**	**2017**	**258**	**78916**	**84221**

Source: SG-2000 Annual progress reports (2012-14)

Modular trainings provided to extension agents have created active working environment for better performance at P/FTCs level and enabled them to provide better extension service. As a result of this, frequency of SMS' and DA supervisors' visit to P/FTCs has increased in the past four years. About 74% of P/FTC respondents confirmed that the frequency of visits of woreda SMS' and DA supervisors increased during the past four project years. The SMS' or Supervisors have gained better skills to provide extension support to DAs at P/FTC level. More than 90% of the P/FTC respondents rated the support provided by SMS' or Supervisors as good or higher.

The SAEDE project has equipped extension agents and strengthened the extension services provision system. Greater proportion of P/FTCs reported that they provided better extension services in 2014/15 as compared to the baseline information. Moreover, the Kebele respondents confirmed that SAEDE project has added values for extension services with

improved knowledge and skills of extension agents and with practical use of improved technologies.

Table 27. Distribution (%) of P/FTCs by types of extension services to the farmers

Type of service	Before SAEDE project (n=…)	In 2014/15 N=50
Crop related extension (n=49)	71.4	98.0
Livestock related extension(n=49)	65.3	88.0
Crop technology demonstration(n=49)	40.8	98.0
Post-harvest technology demonstration(n=45)	22.2	56.0
Input provision (n=47)	57.4	88.0
Post-harvest Services (n=45)	13.3	46.0
Agro-processing (n=40)	2.5	10.0
Market information and linkage (n=44)	22.7	56.0

Source: SAEDE TE kebele Data

The extent of improvement in major means of extension service provision [for instance, availability of training manuals, skills and knowledge, motivation of farmers, technologies and equipment, provision of improved seeds/breeds, etc,..] has been ranked by P/FTC level respondents. More than half of respondents gave the first rank for improvement in skills and knowledge.

Table 28. Extent of improvement in extension service as result of SAEDE

Improvements in	Extent of improvement (Rank the top five)				
	1st	2nd	3rd	4th	5th
Availability of training manuals (n=31)	25.8	12.9	22.6	12.9	25.8
Skills and knowledge (n=47)	55.3	23.4		10.6	10.6
Motivation of farmers (n=30)	10.0	23.3	36.7	3.3	26.7
Incentives for DAs(n=39)	12.8	15.4	30.8	23.1	17.9
Technologies and equipment (n=30)	6.7	20.0	23.3	33.3	16.7
Fertilizers provision (n=18)	5.6	16.7	33.3	27.8	16.7
Provision/promotion of improved seeds (n=33)	12.1	18.2	12.1	30.3	27.3
Provision/promotion of improved breeds (n=3)	33.3	33.3	33.3		
Promotion of other improved technologies (chemicals…)(n=6)		50.0		50.0	
Adequacy of technical backstop from woreda (n=5)			40.0		60.0
Budget for activities (n=11)	9.1	36.4		9.1	45.5
Stationeries (n=6)		33.3			66.7

Source: SAEDE TE kebele Data

Moreover, extension agents, with support from the project, have organized field days to promote new and improved agricultural technologies to many farmers. Farmers' field days were organized at national, regional, woreda and FTC levels. Up to 2014, more than 108,600 people (19.8% women) attended the field days. Participants of the field days included regional, zonal and woreda officials as well as agricultural staffs and farmers.

Table 29. Number of field days and participants

Year	Number of field days	Number of participants		
		Male	Female	Total
2012*	136	35634	8435	41045
2013^	200	45856	10407	56263
2014¥	-	8763	2617	11380
Total	**336**	**90253**	**21459**	**108688**

**indicates all level, ^indicates woreda and FTc level, ¥ Regional and woreda level*
Source: SG-2000 Annual Progress reports (2012-14)

Extension agents' support to farmers

Majority of sampled households reported that they have received better agricultural extension service which includes advices, trainings or application of technologies at least once during the past four years. Average number of visiting days of DAs to households, and farmers' visiting days to FTCs have shown increment. The increment was greater for farmers' visits to DAs or FTCs, implying that households' information and support seeking behavior have improved after the project. The other possible explanation is the improvement in FTCs' capacity to demonstrate good practices.

With regards specific extension services, 98%, 86% and 59% of the households reported that they had access of the extension services related to technologies of improved variety of seeds, row planting and chemical fertilizers, respectively, at least once during the last four years.

The proportion of households who applied the extension service/technologies of improved variety of seeds has increased. For instance, 95.5% of households reported that they had used or applied extension services/technologies at least once during the last four years as compared to the baseline figure of 49%.

4.4.2. Progress towards Impact

The project aimed to contribute to change in income and food security of smallholders by enhancing productivity, access to technologies and market. This section intends to highlight progress towards desired outcomes and impacts like increased income and improved livelihoods.

Livelihood and Wellbeing Status

The intended ultimate objective of the project was to improve livelihoods and wellbeing of smallholder farmers. Majority of households including underserved groups (poor women and youth) benefited from SAEDE project. Organized group members realized significant changes in their assets. Shoat rearing and revolving funds were designed and provided for poor women farmers. These interventions have contributed to increased income and improved livelihoods for poor women farmers. In addition, an effort has been made to organize unemployed and landless youths on beekeeping practices. In few project woredas, VSLAs (Village Saving and Lending Associations) have also been implemented by the SAEDE project.

In addition to the objective measures discussed in the previous sections (such as yield, household assets, market access, etc,) the sampled households were asked whether their livelihoods have improved over the past four years. Accordingly, about 86% of households reported that their livelihood status has improved. Most of the sampled households whose livelihoods have shown some improvement assured that the SAEDE project contributed to the change.

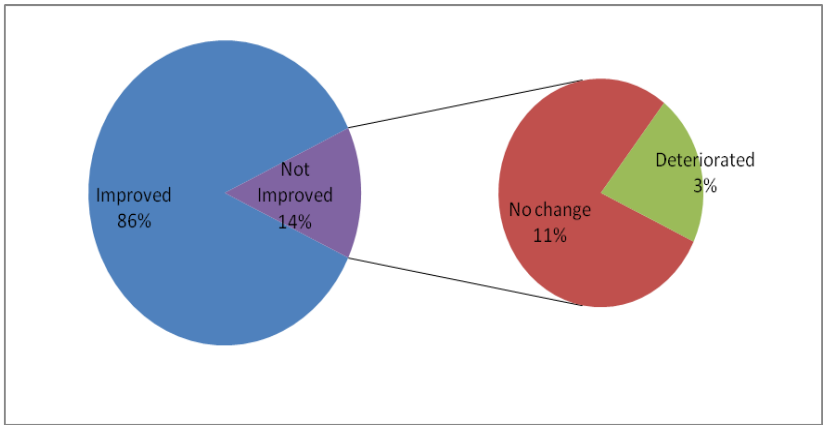

Figure 8. Relative Change in Livelihoods of households in the last four years

Source: SAEDE TE Household level Data

The households reported that better access to improved technology (70%), extension service (23%), inputs (4%) and marketing (3%) contributed to the change in their livelihoods. Improved technology was widely accessed by more than 71 and 68 percent of sampled female headed and male headed households, respectively.

In terms of wealth status, two-thirds of the respondent households grouped themselves as average by their wellbeing status as compared to other households in their respective Kebeles.

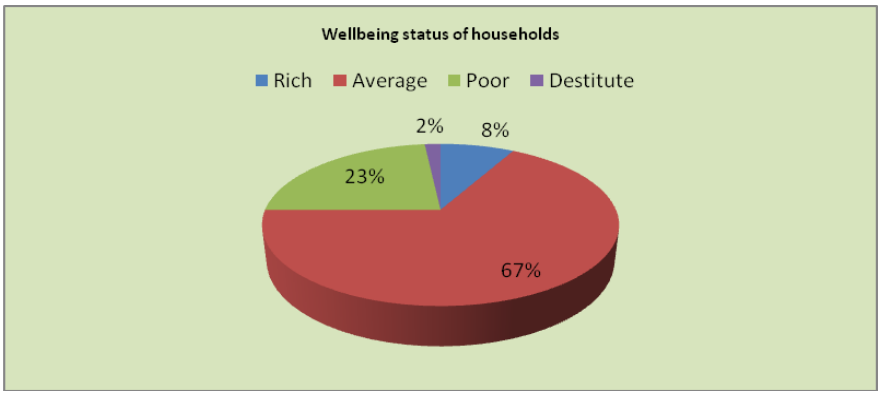

Figure 9. Relative Wellbeing status of households

Source: SAEDE TE household level data

Regardless of their current status, majority [76% (79% male and 62% female headed)] of households confirmed that their wellbeing has relatively improved since the last four years.

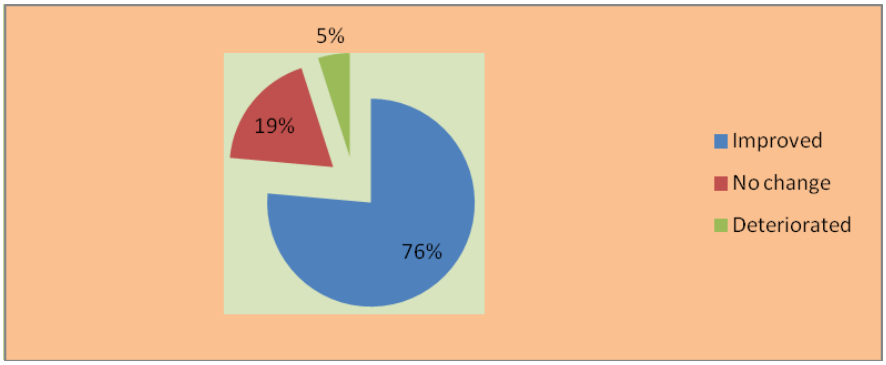

Figure 10. Change in Wellbeing status of households in the last four years

Source: SAEDE TE Household level Data

Overall Progress towards Achieving Desired Impact

According to the adopted theory of change, directing more extension resources towards serving underserved smallholder farmers who have low technical efficiency has the potential to achieve significant production and welfare improvements. To describe the progress that expected project outcomes were on track to be translated into intended impacts, this evaluation attempted to group ultimate outcomes into four major ones. The overall progress towards achievement of the impact is presented in the table below.

Table 30. Review of Project Outcomes and Impact

Outcomes	Major Findings showing progresses towards impact
Outcome 1: Productivity and profitability of Farmers and Pastoralists is increased	The yield of improved varieties of major crops has shown great increment since project implementation. For instance, the average yield of major cereals has changed by 27.1% on average from baseline level. Provision of small ruminants to marginalized women groups has improved profitability and helped them to change their livelihoods. Beekeeping interventions were also promoted to youth groups. Some of the beneficiaries started harvesting honey and gained income.

Outcome 2: Post-harvesting and Agro-processing Technologies are adopted	SAEDE project has established PHELPs to enhance PHAP adoption. The accessibility of PHAP technologies at kebele level has been increasing since the SAEDE project. Despite low average capacity utilization (36%), threshers and shellers were contributing to the benefits of high reduction in postharvest loss, labor saving and quality grains. These benefits were felt by farmers and other stakeholders as a result of which high demand was created. Improved storage technologies have also helped to reduce crop loss during storage, as reported by almost all respondents. Five agro-processing cooperatives were established and provided with the necessary inputs and trainings.
Outcome 3: Linkages Created to Credit and Market Access	Market access was improved in general. Different levels of data confirmed that the SAEDE project has contributed to this improvement. Farmers were trained and organized into different groups like CAs, CBSM and VSLA groups. With varying degrees, members of the CA and CBSM groups were benefiting in terms of improved quality and productivity, better market access and income. However, the market linkage and partnership gaps persisted at P/FTC level. There were weak partnerships between P/FTCs and local micro finance institutions (MFIs). There was no strong evidence for improvement in credit access for smallholder farmers too.
Outcome 4: Capacity of SMS' and DAs strengthened to provide the extension and training Service to farmers	A total of 84,221 Extension agents and farmers were trained on agricultural extension related areas. Of these, 78,916, 2017 and 520 were farmers, DAs and woreda SMS', respectively. As a result, the DAs-farmers (forward and backward) visits and the working relationship between the DAs and farmers got strengthened, and better extension service delivery platforms developed. Skills and knowledge of extension agents improved and that enabled them to provide better extension services to farmers. This, in turn, contributed to increased productivity of crop and livestock and, hence farmers' incomes and livelihoods have changed. The SAEDE project has laid down a milestone for Project P/FTCs in providing training on business development services, organizing P/FTC management committees, generating income, and providing Loan Guarantee Funds so as to improve the performance and status of the P/FTCs. Hence, majority of project P/FTCs have started generating their own income. P/FTCs started to run income generating enterprises [crop production, seed multiplication, oxen and shoat fattening]. Beyond profitable businesses, FTCs have started the path to sustainably deliver improved extension services.

4.5. Efficiency

SAEDE project was efficient with timely implementation of most components. However, areas such as LGF utilization, WERCs functionality, livestock intervention and capacity utilization of threshing /shelling machines generally exhibit low efficiency, with some variations across project sites.

It is worth analyzing the extension of project life with the criteria of efficiency. As stated under the section on design, due to the intensity and breadth of the interventions as well as entirely new approaches (such as LGF and small ruminant components, and CAs), it was learnt in the process that it required additional duration to ensure acceptance and sustainability of the interventions. The implementation period was reasonably extended on no-cost basis by totally nine months. While it is appreciable from the view point of the learning process and flexibility in design, yet there are roots of inefficiencies to which the delays can be partly attributed. The delays in the LGF components are partly attributed to the inevitable new nature of the scheme particularly among the Financial Service Providers (FSPs) and FTC-MCs whose awareness, commitments as well as capacity were vital.

Underutilization of the Loan Guarantee Fund (LGF), low functionality of Woreda Extension Resource Centers (WERCs) and underutilization of threshing and shelling machines were project components with less efficiency. The underutilization in LGF component was due to the fact that most FTCs started businesses very late missing one or more production seasons. The problem was largely attributed to the resistance of FSPs to release loans on time as they put the condition that earlier FTCs had to completely repay before disbursing to subsequent batch of FTCs. Delayed repayment itself had been partly due to inefficient management of enterprises that resulted in low profitability. Worst even, there were FTCs that did not receive the transferred loan from MFIs by the time of the evaluation survey. WERCs were often disconnected from internet access mostly due to delay in bill settlement and weak management. The project made weak engagements, follow-ups and motivation in utilizing the WERC among the target users. The underutilization (less than 36% capacity) of the available threshing and shelling machines was due to low motivation of FTCs to provide services and lack of immediate repair and maintenance, among others.

Most of the low efficiency areas were largely due to less awareness and commitment of partners and stakeholders over which the lead implementing organization did have partial influence through the partnership arrangement in place.

4.6. Sustainability

This evaluation revealed that majority of SAEDE project interventions and outcomes have potential for sustainability through the continued benefits of the project and the capacity development of extension agents and FTCs.

Government offices at different levels confirmed the sustainability of SAEDE. There is momentum of scaling up/out of best practices by the government and other development partners. For instance, successful CBSMs have become part of the seed supply system; government has also recognized the FTCs' mandate to manage income generating enterprises in parallel with extension services; and others. These are good signs of project sustainability.

Capacity development of extension agents through various theoretical and practical trainings plays crucial role for sustaining good practices and interventions of the project. Similarly, FTCs' engagement in income generating activities facilitated establishment of better demonstrations and allowed them to deliver better extension services to farmers.

Continued benefit of project components is also a major factor for the sustainability of the project. Positive changes were observed among project participants in the first two years of intervention as compared to recent participants, indicating benefits and adoptions are increasing at Kebele level from time to time. SAEDE interventions such as improved seed varieties, line planting with proper spacing, compost applications, and shoat rearing as well as improved post-harvest handling techniques have potential for sustainability. Interventions on promoting improved varieties initiated demand of farmers and contributed to increased yields, which also encouraged FTCs and individuals to engage in community based seed multiplication. Similarly line planting with proper spacing and compost application have increased interest of farmers and enhanced crop productivity.

Beekeeping interventions practiced by landless and unemployed youth convinced local partners (example, Harari Agriculture Bureau) that such practices can really change livelihoods. Learning from the intervention, the region created favorable conditions for such groups and scaled up the practice to other Woredas by providing modern beehives.

Moreover, Income generating activities of FTCs on crop production, seed multiplication, beekeeping, shoat and oxen fattening created interest in all project woredas and practiced by model farmers, showing good potential for sustainability. Project regions have also appreciated this component and started to adopt it in their respective FTCs allocating grant for each FTC. However, income generating activities at FTC level have serious challenge due to poor management systems including poor recordkeeping, documentation and auditing systems. Furthermore, lack of incentive mechanisms for MC members to well-manage the enterprises and lack of interests of FSPs to provide financial and non-financial business development services will seriously affect the sustainability of this component.

Shoat rearing which has helped poor women in generating income and changing livelihoods of their families, has potential for sustainability if strong follow-up continues for shoat management within members of groups and for effective revolving /transfer to additional beneficiaries.

Implementation of Commodity Associations was appreciated by stakeholders and was successful in some project Woredas. SAEDE has enabled the CAs to make good profit and increase their working capital. Member farmers supplied quality commodities to the market and enjoyed some dividends from the profit. Practice of successful CAs will have potential for sustainability if further support is provided by local partners.

An interesting identification of impact and sustainability was made by analyzing the change in capacity and outcomes by disaggregating by duration of intervention. Accordingly, it was observed that outcomes (positive effects) were with greater magnitudes in areas of early interventions. Specifically, better changes were observed among participants in the first two years of intervention as compared to recent participants.

Project Exit Strategy: SAEDE project did not have clear exist strategy, and this has affected sustainability of the project. It is obvious that effective exit strategy can significantly enhance sustainability of project results indicating what needs to be done to ensure continuity of desired project impacts. The strategy also identifies and prioritize needed follow-up actions, and develop a plan for pursuing those actions. Exit strategy should also place special attention on identifying the project outcomes in risk of *not* being sustainable and propose actions accordingly.

4.7. Major Challenges and Lessons Learnt

4.7.1. Gaps and Challenges

- Linkage between technology promotion, adoption and input system was not firmly established. Lack of row planter (despite high demand for row planting), difficulty to transport threshers in hilly areas, difficulties of maintenance of metallic equipment and machines (welding skill and electricity) were reported. These limitations should motivate responsible partners to do further training on machine maintenance and operation to build local capacity.
- High turnover of trained and experienced DAs in the P/FTCs and work overload of Woreda level Focal persons.
- Infrastructure, for instance electricity connection, has made delay in Mill service provision as planned by women agro-processing groups especially in Hintallo Wajirat.
- There was weak partnership of P/FTCs with local micro finance institutions (MFIs) for implementing LGFs. There was also problem of delayed loan repayment that resulted from lack of awareness among MC members, poor management and low profitability of enterprises.
- WERCs were not functioning up to the expected level due to poor connectivity and delay in bill settlements. The project made weak engagements, follow-ups and motivation in utilizing the WERCs among the target users.
- Limited follow-ups particularly as the focal persons do have multiple roles.
- Land and other resource limitationss at the level of non-SAEDE FTCs deterred potential spillover of FTC income generating enterprises.

4.7.2. Lessons Learnt

The following lessons could be drawn from the course of designing, planning, implementation and evaluation of the project:

1. The key informants underscored that the SAEDE project has given them the opportunity to take lessons from three important actions implemented by SAEDE Project. First, it started by identifying gaps in technology use among the farming community and skill and knowledge gaps among the Kebele and Woreda level agriculture experts in conducting extension services. Second, it designed its strategies and targets in line with government policies and strategies so that mutual support can easily be achieved. Third, combined effects through unique partnerships, i.e., SG 2000 in collaboration with MOA and OA took the partnership role in implementing the project.
2. Inclusion of focal persons and extension agents as facilitating agents of the project at different levels enhanced participation and contribution of beneficiaries and stakeholders; and contributed to effective implementation of project and sustainability.
3. Close cooperation with Regional Bureaus of Agriculture contributed to efficiency through joint action plans and implementations. The Project office used to optimize its

follow up activities by considering all the activities in the SAEDE as well as the suggested joint priorities by Bureaus of Agriculture.

4. Projects designed within the government strategic direction are successful. Adoption can be enhanced through proper planning for timely and adequate supply of inputs to match the created demand.
5. The project experience has shown that government extension service delivery could not be effective in the absence of collaboration with different NGOs and private sectors so as to provide effective support in terms of capacity building, inputs and access to credit and market. However, while the private sector is likely to play a stronger role in commodity oriented extension services in the future, extension services delivery for smallholder and resource poor farmers would have to remain mainly a function of the government, with other providers supplementing such efforts.
6. It was learnt that focusing on small ruminants not only contributed to household livelihoods but it was also both pro-poor and gender responsive way of women's economic empowerment.
7. The practical training with implementation as well as use of demonstration centers and field days was critical element in ensuring the continued technical relevance and effectiveness of the interventions, maintaining farmers demand and its technical sustainability.
8. Experience of the project indicated that practical application of follow up and monitoring system of the project contributed to effective implementation of project.

5. Conclusions and Recommendations

5.1. Conclusions

The overall project performance was high in terms of the three evaluation criteria, namely: relevance, effectiveness and sustainability. The project was designed within the framework of the country's growth transformation plan, and addressed farmers needs and was aligned to National Agricultural extension policy and strategy. The project achieved its basic objectives and implemented effective agricultural technologies. There was also institutional development, for instance, at FTC level where a foundation has been laid for improved extension service delivery while generating income. At regional level, experiences and lessons of the SAEDE project have contributed and initiated government commitment to strengthen extension service coordination and management.

SAEDE through practical trainings and technology demonstrations transferred improved agricultural knowledge and skills to extension agents and many farmers. The method of training of trainers was a cost effective means for reaching large number of farmers. SAEDE project major outcomes on adoption of agricultural technologies were a result of the underlying skills and knowledge that were transferred through practical training and demonstrations. Improved agricultural technologies such as seed varieties, agronomic practices like line planting and other improved post-harvest technologies were demonstrated and made available based on local conditions which facilitated use of the technologies by FTCs as well as farmers.

The overall coordination and implementation of the project proved effectiveness of SAEDE in promoting understanding, adoption and internalization of improved technologies by beneficiaries.

5.2. Recommendations

The recommendations given below are intended to be helpful both to ensure continuation of project benefits and serve for future designing of similar projects.

1. Trained extension agents relied on their judgment to determine what lessons should be taught to farmers. However, under extension as a learning paradigm, extension agents should have to learn from farmers being served, in setting extension priorities. Therefore, to sustain this learning paradigm shift, farmers and extension agents should work together in setting priorities so that their annual work programs directly address farmer needs.
2. Livestock (particularly fattening at FTCs), is constrained by lack of access to concentrated animal feeds. FTCs have to be linked with a sustainable system for feed supply with reasonable costs.
3. Consultations should be undertaken with local Microfinance Institutions (MFIs) and with other locally active cooperatives with experience in providing credit to come up with a viable solution to the credit problem faced by farmers and P/FTCs. The same is recommended for market linkage creation.

4. Consultations need to be undertaken with CAs and CBSMs to discuss on creating and sustaining market linkages as well as specific ways in which low volume/high value national niche markets might be pursued.
5. SG2000 and other development partners have to replicate the best practices observed in SAEDE in other parts of the country. Some of the models such as CA, CBSM, and LGF have to be further promoted by learning from the successes and failures indicated in this evaluation. SG2000 too has to consider LGF approach in other components of its projects or other levels of its value chain interventions.
6. The regional agricultural bureaus have to assess and identify other potential FSPs along the value chain. These potentially include PCs, Unions, Rural assemblies, Agro-processors, VSLAs. The respective government bodies and the FSPs have to undergo the analysis of credits at risk and take bold measures – write-off or refinancing. Otherwise, MFIs will keep reporting "contaminated loans" which may mask the actual progresses. Particularly, if the FSPs are to be changed or diversified, the actual level of revolving fund has to be clearly known.
7. MFIs have to be further engaged to understand the nature of FTCs and their businesses so that they customize their financial and non-financial business services while managing LGF in the respective Woredas. They have to increase awareness of their staff on the models of guarantee funds.
8. WERCs need attention of the government in order to maintain their functionality by planning necessary budget and human resources. Furthermore, there has to be an engaging performance evaluation of SMS' and other extension workers that motivate them to use existing WERCs. The existing facilities have to be considered as great opportunity on the path to more modernized extension system.
9. Future project designs have to include exit actions as actual expected outputs in their log-frames to enhance handing over and sustainability of project interventions and results.

ANNEX

ANNEX1. Quick Comparison of Project and Non-Project Woredas

The terminal evaluation team has made a quick field assessment of SAEDE project woredas and some nearby non-project woredas to assess the end result of the project and observe any differences and spill-over effects between the project woredas and non-project Woredas particularly by focusing on comparable FTCs with good practices. Selection of the adjacent Woredas was made on the basis of similarities between the respective project Woredas and non- project Woredas in socio-economy, infrastructure, climatic conditions, and agro-ecological environments with special focus on accessibility. The field observation was substantiated with short interviews and informal discussions with Woreda P/FTC supervisors and the extension agents at the non- project Woredas. Besides, short discussions were also conducted with the woreda agriculture office heads and extension service process owners of the non-project Woredas. Totally five adjacent SAEDE woredas were compared with their SAEDE counterparts.

A. Arsi Negelle vs. Shashamene (Oromia region)

They are located in the West Arsi Zone of Oromia, where modern agricultural technologies are greatly practiced. They are relatively similar in agro-ecological setup. The improved seed, inorganic fertilizers and the post- harvest equipment, such as threshers and shellers were commonly used in both Woredas. They have access to basic infrastructure, and have huge potential demand for farmers' products. The two Woredas are highly productive in Maize and Wheat. They are also good at producing vegetables although Arsi Negelle exceeds scale of irrigation practice. It is also more efficient in utilizing its water resources than the non-project Woreda, Shashamene. There is also large scale vegetable production and milk production in Arsi Negelle than in Shashamene. Based on field team observation, the similarities and differences between P/FTCs in these Woredas is presented below.

Comparison between Project and Non-project FTCs (Arsi Negelle vs. Shashamene)

Criteria /Elements of Comparison	SAEDE participant FTC Name: Qeraru	Adjacent Woreda FTC Name: Butte Filicha
FTC land size in ha	3	1.25
Enterprises Activities	Cattle fattening, improved Seed, Crop, Vegetables Production	Fertilizer application, improved seed, crop and vegetables Production
Water availability at FTC	Yes, used for irrigation (water harvesting)	No
Enterprise annual income in Birr	35,000	4000
No. of active DAs	3	1
Availability of PHAP Equipment	Yes, Sheller	No
Participation of FTC-MC	Active (more effective)	Inefficient
Priority for women/poor	Yes, small ruminants given to female household heads	No trainings are offered for all household heads together

Source: SG2000-Ethiopia SAEDE Project Field Assessment, July 2015

TE field team has assessed that the SAEDE project has passed its efforts and shown visible effect to agricultural practices of the farmers in Shashamene Woreda. For instance, the agricultural extension service process owner of Shashamene Woreda has informed that the agricultural experts at Woreda and Kebele level and model farmers have been participated at field demonstration days held in Arsi Negelle and learnt best lessons. Modern farm practices

such as drip irrigation and line planting were visited at Qeraru FTC and practiced by the model farmers in Shashamene afterwards. Modern seeds of onion were also made available at the same FTC, which the model farmers took advantage of it. Besides, farmers in the two Woredas share post- harvest equipment, such as threshers and shellers, made accessible by SG- 2000, through renting practices. Morover, the extension agents are working on expanding line planting practices and the use of the new onion seeds.

B. Leka Dulecha vs. Arjo Awuraja (Ormia Region)

These are also two neighboring Woredas in east Wellega Zone of Oromiya regional state. Leka Dulecha is a SAEDE project Woreda, where Arjo Awuraja is non-project woreda (has support from the SLM project). They have similarities in local agro-ecology, and more or less produce similar kinds of crops, such as Maize, Sorghum, Wheat, and Teff. Milk products -butter and cheese- are also produced significantly in both Woredas. They have reasonable potential demand for their farm products from the nearby town, Nekemte.

Based on field observation and discussion with the Woreda level extension service process owners, FTC-MCs were not effective in running FTC level enterprises in both woredas for the following reasons: lack of sense of ownership and commitment towards the FTCs; lack of incentives to the committee members; and lack of meaningful business skill and management trainings for the members. The summarized similarities/ differences between the statuses of two representative FTCs in these two Woredas is given below.

Comparison between Project and Non-project FTCs (Leka Dulecha vs Arjo Awuraja)

Criteria /Elements of Comparison	SAEDE participant FTC Name: Bandira	Adjacent Woreda FTC Name: Haraa Gabaato
FTC land size in ha	3	1.25
Enterprises at demo. site	Apiculture, Crop and Vegetables production	Crop and seed production (Eg. coffee & teff)
Water availability at FTC	No	Yes, used for Seed Prod. (Borehole)
Enterprise annual income in Birr	27,000	3,800
No. of active DAs	2	2
Availability of Modern Equipment	Yes, Honey Harvester	No
Participation of FTC-MC	Inefficient	Inefficient
Priority for women/poor	Yes, women and the poor are given priority in trainings.	No.

Source: SG2000-Ethiopia SAEDE Project Field Assessment, July 2015

FTC in the SAEDE project (Bandira) has run income generating activities and earned better amount of income as compared to non-project one. TET has observed that the extension agents (DAs) at Bandira were engaged in three main work fields (animal science, plant science, and natural resource management) without demarcation, whereas the extension agents in Haraa Gabaato were focused only on their field specialization and have partitioned their demonstration sites accordingly. This showed that the training offered by SAEDE project has equipped the extension service delivery system at the project FTC.

C. Debay Tilatgin vs Ennemay (Amhara Region)

Debay Tilatgin is a SAEDE project woreda whereas Enmay is non-SAEDE project woreda. Based on field observations and discussion with woreda extension process owners as well as DAs, TET has found that the adjacent non-SAEDE project woreda has been benefited from nearby project woreda through field day demonstration and joint woreda meetings. The non-project woreda has also learned and adopted: use of improved varieties of seed; teff row/line planting; conservational agriculture technologies; use of new post-harvest technology (crop thresher); seed rating or proper line planting along with useful technical trainings. A shallow comparison of project and non-project FTCs is presented as follows.

Comparison between Project and Non-project FTCs (Kuy Zuria vs Yelimet)

Criteria /Elements of Comparison	**SAEDE participant FTC Name**: **FTC** in Debay Tilatgin Woreda	**FTC in adjacent Woreda Name: FTC in Enemay Woreda**
Office equipment	Available	No
Demonstration site	Have, enough	Very less
Application of modern post-harvest technologies	Yes, applied	No
Farmers participated in farmers field days in many times	Yes, majority	Yes, some
IGAs	Majority started	Only very few started
Participation of FTC-MC members	Yes, very high	Yes, but very low

Source: SG2000-Ethiopia SAEDE Project Field Assessment, July 2015

In Amhara region, TET has observed that the availability of difference with project FTC and non-project FTC within the project woreda. In this regard, SEADE participant FTCs had trained DAs. DAs have better awareness of new improved technology applications and skills to provide appropriate training as well as extension service for farmers as compared to non-project FTCs within project woreda.

D. Aleta Wondo Vs Dale Woreda (SNNPR region)

Non-project woredas-Dale was selected based on its similarity in agro-ecology, socio-economic and cultural status, and crop production with nearby project woreda. The evaluation field team has tried to assess differences and similarities of the two woredas for applying agricultural technologies, engagement in income generating activities, and involvement of FTC-MCs. Based on field assessment, both woredas-FTCs have applied agricultural technologies [line planting, fertilizer application, improved seeds], had FTC-MCs and started generating incomes. The non-project woreda had neither LGF nor organized groups in CA, CBSM or Beekeeping activities.

Dale woreda had supportive access from other NGOs such as: SOS Sahel, Ethiopia Goal Ethiopia and SNV Ediget along with Hawasa University. SOS Sahel Ethiopia works on provision of sheep and goat for poor farmers, provision of chickens for women and transitional hives. Goal Ethiopia provides orange flesh and sweet potato for female farmers. SNV Ediget also works on dairy cow, AI service, synchronization and improved bulls. On the other hand, Hawwasa University works on provision of transitional and modern hives, Bonga sheep and one day chicken, Soya bean, and Kuncho variety teff as well as practical row planting of teff. In general, the project woreda FTC had better performance as compared to non-SAEDE project woreda FTCs.

E. Dire Tiyara Vs Arer (Hereri Region)

Arer woreda was the only woreda that was not embraced by SAEDE project in the Hereri regional state. And hence, it was taken as a comparison woreda for the project evaluation. Arer woreda has three FTCs. Of these, one is new which established in 2007EC while other two were established ten years ago. For the sake of time, the nearest FTC to Arer woreda agricultural office - Arer woldia FTC was selected purposively for comparison.

Quick field assessment and short key informants discussion provided that Arer woreda has similarity with Dire Tiyara woreda for adopting improved seed varieties of vegetables and maize with proper line planting, seed multiplication and use of post harvesting equipment. The other point of similarity was practice of poultry, and beekeeping. Arer woreda is highly potential woreda for crop and livestock production as compared to Dire Tiyara. Arer woreda also has access for irrigation while Dire Tiyara has water shortage and implemented drip irrigation.

In Arer woreda, modern irrigation canals were constructed by Cooperation Ethiopia-Korea project. Korea project has also implemented seed multiplication for tomato and onion at 1.5ha of land. Likewise, Stand for Integrated Development (SID) project has also promoted different improved seed varieties for cabbage, tomato and onion in this woreda. Similarly, Israel citizens also promoted their own improved seed varieties of onion, tomato and pepper during irrigation season and have created free access to introduce improved vegetable seeds in this potential woreda. Additionally, SID has attempted to empower poor women by organizing two groups consisting of 25-30 members for poultry production and providing more than 50 chickens with support for treatment, feeding and housing facilities. Moreover, Arer woreda has regionally known seed multiplication center for permanent crops. Key informants reported that Rural Capacity Building Project (RCBP) has been implemented for five years till 2011 and worked on FTC capacity building by providing motor bikes and water pumps as well as empowerment of poor women. Furthermore, by the help of Haramaya University Research center and Regional Bureau of Agriculture, Arer woreda has adopted seed multiplication of maize-melkasa 6 and BH 660 at farmers land. It is observed that Arer woreda has practiced modern maize sheller by renting from Hereri Poly TVET College.

From field observation it can be concluded that almost all arable land of Arer woreda has been covered by permanent crops and vegetables. Every corner of hill sides of land were rehabilitated and managed by natural resource plantation. It seems for this reason that Productive Safety net project has implemented beekeeping intervention for Household Asset Building (HAB) at hill sides. Training on apiculture production was given by Dire Tiyara extension agents who gained training of trainers by SAEDE project at Hawassa.

Arer Woreda Agriculture office head informed that three P/FTCs heads along with him have visited the SAEDE project woreda for experience sharing on oxen fattening. However, due to financial constraint shared experience and planned activities on oxen fattening had not implemented yet in the woreda.

Comparison between Project and Non-project FTCs (Dire Tiyara vs Arer woldia)

Criteria /Elements of Comparison	**SAEDE participant FTC Name Dire Tiyara**	**Comparison FTC in adjacent Woreda Name Arer Wodia**
Office furniture	Fully furnished	No office furniture
FTC-MC	Organized and active	No FTC-MC at all
IGAs	Started and run two round	No

	oxen fattening (by LGF)	
Demonstration center land size in hectare	2.5	0.25
Skill and knowledge of DAs on extension service delivery	Skill and knowledge improved as result of SAEDE	There is skill and knowledge gap as compared to SAEDE DAs

Source: SG2000-Ethiopia SAEDE Project Field Assessment, July 2015

F. Hintalo Wajirat Vs Seharti-Samre Woreda (Tigray Region)

Seharti-Samre Woreda (non project) is selected as a comparison adjacent woreda to Hintalo Wajirat (project Woreda). The two Woredas are similar in agro-ecology, major crops and all relevant variables. Amdi Woyane FTC in the project area is a beneficiary of loan guarantee fund under the SAEDE project. The quick observation to two comparable FTCs was made to get insights into the similarities and differences between project and non project FTCs in a project Woreda and an adjacent woreda. The comparison FTCs, Amdi Woyane-1 (in Hintalo Wajirat) and Amdi Woyane-2 (in Seharti Samre) are in neighboring Kebeles.

Comparison of Project and Non-project FTCs (Amdi Woyane 1 vs Amdi Woyane 2)

Criteria /Elements of Comparison	**SAEDE participant FTC Name Amdi Woyane1 (in Hintalo Wajirat)**	**Comparison FTC in adjacent Woreda Name Amdi Woyane2 (in Seharti Samre)**
Project support	SAEDE	REST
Demonstration land	1.25 ha	1.5ha
Structures	Well established	Just equipped with chairs and tables
FTC MC	Strong	Medium
Income Generation	**More Diversified with high income from c**rop, dairy, fattening, beekeeping, irrigation land	**Less Diversified with lower income from c**rop, dairy, beekeeping
Financial Record keeping	undertaken	undertaken
Major Technologies (Line planting and proper spacing)	Well demonstrated	Demonstrated, partly spill over

Source: SG2000-Ethiopia SAEDE Project Field Assessment, July 2015

ANNEX 2. Summary Tables

Table 31. Rating of Project Relevance and Efficiency

Project Relevance and Effectiveness	Kebele Respondents Rating (%) (n=…)					Woreda Respondents Rating (%) (N=…)			
	Very high	High	Moderate	Low	Very low	Very high	High	Moderate	Low
Component of the project/intervention selection (n=50, N=19)	68.0	28.0	2.0	2.0		63.2	26.3	10.5	
Appropriateness of the Technologies (n=50, N=19)	66.0	22.0	10.0		2.0	52.6	42.1	5.3	
Adequacy of coverage (n=50, N=19)	12.0	12.0	38.0	30.0	8.0	5.3	15.8	57.9	21.1
Timeliness of implementation (n=50, N=19)	44.0	28.0	22.0	6.0		31.6	42.1	15.8	10.5
Reaching the poor (n=50, N=19)	20.0	16.0	32.0	18.0	14.0	47.4	26.3	15.8	10.5
Addressing women's needs (n=49, N=19)	30.6	34.7	20.4	12.2	2.0	31.6	42.1	15.8	10.5

Source: SAEDE TE kebele and Woreda Data

Table 32. Background Characteristics of Surveyed Woredas

Woreda	Background variables					
	Total Woreda Population	Total number of households	Landless households	Rural Kebeles in the woreda	Total Number of SAEDE Kebeles	Number of FTCs in the woreda
D/Libanos	57892	-	-	10	10	10
L/Dullecha	73841	11268	-	21	21	21
Arsi Negelle	326432	26591	-	43	19	28
Ada'a Berga	137601	17529	804	34	19	32
Debay Tilat	150098	20709	6722	20	12	19
Guagsa	99139	20059	0	13	11	13
Yilmana Densa	217356	41769	5637	33	12	17
Chilga	246027	32496	560	44	15	44
Aleta Wendo	229471	26280	0	29	24	29
Gumer	80163	14323	-	18	18	18
Hintalo Wajirat	174852	43794	-	23	8	21
Medebay Zana	13654	28251	-	18	8	18
Dire Teyara	33558	8605	-	6	2	3
Shinille	75574	15114	-	12	4	7
DIBATI	82920	16393	-	29	4	18
Melikajebedo	24506	5499	-	9	1	2
wahell	45298	8873	-	9	1	5
Sofi	39939	10248	250	7	1	4
Dima	-	-	-	21	3	6
Total	18	17	7	19	19	19

Source: SAEDE TE Woredal data

Table 33. Final Year's Average land holdings, products and costs by Gender

Description	Male	Female
Area Harvested in Hectare	0.53	0.59
Quantity Harvested in qt	6.12	6.18
Quantity consumed in qt	2.77	3.28
Quantity sold in qt	2.03	1.31
Quantity stored in qt	1.12	1.06
Quantity retained for seed in qt	0.58	0.73
Quantity sold within 4 weeks after harvest in qt	1.17	0.5
Total cost incurred in mkting in birr	15.71	14.76

Source: SAEDE TE Household level data

Table 34. Status of CA and CBSM (mean distribution)

Type	Commodity (crop)	No. of male members	No. of female members	Total sale in 2006/7 in Qt	Total Revenue in 2006/7 in Birr	Were there reliable market linkage?	
						No	Yes
CA	Maize	145.00	5.00	3212.00	19272.00		√
	Wheat	147.50	5.50	.00	.00	√	
	Field pea	.00	20.00				√
	Teff	129.00	4.00	2525.00	75750.00	√	√
	Total	**90.00**	**6.25**	**1188.86**	**27453.14**		
CBSM	Potato	98.00	12.00	20000.00	760000.00		√
	Teff	194.50	11.50	2525.00	47253.75		√
	Total	**162.33**	**11.67**	**8350.00**	**284835.83**		

Source: SAEDE TE Kebele data

Table 35. Status of CAs and CBSMs

Type	Commodity (crop)		No. of members M	No. of members F	Total sale in 2006/7 in qt	Total Revenue in 2006/7
CA	Potato	Mean	73.50	17.00	1411.25	393,549
		N	4	3	4	4
	barely	Mean	117.50		8385.00	17,250
		N	2		2	2
	Faba been	Mean	163.00	3.00	-	-
		N	1	1	-	-
	Wheat	Mean	127.50	12.50	1000.00	15,000
		N	2	2	2	2
	Tomato	Mean	142.50	15.00	7700.00	3,465,000
		N	2	1	2	2
	Teff	Mean	97.17	4.17	2559.33	926,700
		N	6	6	3	3
	Total	**Mean**	**106.76**	**9.15**	**3653.31**	**872,984**
		N	**17**	**13**	**13**	**13**
CBSM	Potato	Mean	20.00	.00	.00	-
		N	1	1	1	1
	Barely	Mean	10.33	3.50	115.00	97,875

	N	3	2	2	2
Wheat	Mean	40.00	15.00	-	-
	N	2	2	-	-
Tomato	Mean	6.00	.00	92.50	74,000
	N	1	1	1	1
Teff	Mean	14.00	7.00	100.00	180,000
	N	1	1	1	1
Total	**Mean**	**18.88**	**6.29**	**84.50**	**89,950**
	N	**8**	**7**	**5**	**5**

Source: SAEDE TE woreda level data

Table 36. How do you evaluate the support you receive from your supervisor or SMS?

Rate	Frequency	Percent
Low	2	3.8
Some problems exist	3	5.8
Good	26	50.0
Very good	18	34.6
Excellent	3	5.8
Total	**52**	**100.0**

Source: SAEDE TE Kebele data

Table 37. Average number of days and farmers trained by main area of training (BL)

Main area of training	Number of days of training	Total number of male farmers trained	Total number of female farmers trained
Livestock production	5.5	286	25
Animal fattening	4.4	426	45
Dairy farming	9.0	424	23
Forage development	5.0	134	8
Soil and water conservation	9.6	280	19
Forestry and seedling	4.5	123	10
Crop production and protection	12.1	360	24
Input use and application	5.0	189	11
Irrigation	2.8	336	51
Compost preparation	8.0	25	4
Postharvest practice	6.0	228	7
Improved beekeeping	2.5	498	25
Improved equipment (BBM)	1.0	425	25
Poultry shed preparation	10.0	56	9
NRM	5.0	56	9

Source: SAEDE Baseline survey FTC level data

Table 38. Average number of days and farmers trained by main area of training (MTE)

Main areas of training	Training days	Number of male farmers trained	Number of female farmers trained
New technologies related to crop production	18.6	501.9	165.2
New technologies related to livestock production	18.1	307.0	92.7
NRM related	20.1	555.5	119.7
Access to market related	13.2	251.8	87.8
Access to finance related	18.9	314.2	84.2

Source: SAEDE MTE FTC level data

Table 39. Average number of days and farmers trained by main area of training (TE)

Main areas of training	Number of days of training	Total number of farmers trained Male	Total number of farmers trained Female

Business plan	2.3	411.3	92.3
Pre/post harvesting	1.8	227.2	44.1
Compost	2.9	319.5	65.5
Beehive	1.6	94.9	18.0
Conservation agriculture	3.2	523.3	225.7
Sheller/thresher/...etc	1.0	216.0	15.6
Fattening ,live stock management	2.2	251.3	59.0
Land preparation	3.7	336.8	90.6
Fertilizer application	3.1	456.4	71.1
Raw planting	4.2	487.5	72.1
Crop production	4.0	302.0	39.5
Agronomic practice	3.0	434.0	130.0
Weed control	2.3	313.1	75.0
Improved variety	3.0	472.4	73.3
Paste and disease	2.0	348.7	39.3
Auditing	16.0	55.0	5.0
TOP/WAD/PTP/CVP	1.5	68.7	10.0
Animal food	1.3	224.7	31.7
Poultry	6.0	49.0	11.0
Adult training	1.0	182.0	36.0
Crop demonstration	1.0	50.0	10.0
tracing/irrigation	2.0	387.5	100.0
BBM	2.7	250.2	43.0
Modern storage	1.0	243.0	1.0

Source: SAEDE Final evaluation FTC level data

Table 40. Distribution of P/FTCs by value added to extension service after SAEDE Project

Types of services	What has changed after the SAEDE project if it was provided before project implementation?										Total
	No change	Practically utilized	Productivity increased	Lobar force Saved	Increase knowledge and skill	Increase improved seed	Increase input supply	Market access	Line planting	Income increased	Breed improved	
Crop related extension (n=38)		34.2	26.3		26.3	10.5			2.6			100.0
Livestock related extension(n=32)	6.2	21.9	6.2		50.0	3.1				6.2	6.2	100.0
Crop technology demonstration(n=28)		28.6	10.7		39.3	14.3			7.1			100.0
Post-harvest technology demonstration(n=12)	8.3	41.7			50.0							100.0
Input provision(n=31)		12.9	25.8		22.6	25.8	9.7	3.2				100.0
Post-harvest Services (n=12)		16.7	16.7	33.3	25.0		8.3					100.0
Agro-processing(n=5)		20.0			20.0			60.0				100.0
Market information and linkage(n=14)	7.1	7.1	7.1		21.4			57.1				100.0

Source: SAEDE TE Kebele level Data

ANNEX3.1. Woredal Level Structured Questionnaire

Woreda leve questionnaire

ANNEX3.2. Kebele/P/FTC Level Structured Questionnaire

Kebele_FTc level questionnaire

ANNEX3.3. Household Level Structured Questionnaire

HH level questionnaire

ANNEX3.4. Checklist for Key informants

Regional checklist

ANNEX3.5. List of Key informants/respondents

List of KIs

ANNEX3.6. SG-2000 ME&L Logframe

MEL logframe