COFFEE FARMING & THE DIVERSIFICATION OF LIVELIHOOD

Options for Smallholder Farmers in Kenya and Uganda

A Report of the End-Term Evaluation of the Sustainable, Secure Smallholder Systems at Scale (4S@Scale) Program

Prepared for

Hivos
people unlimited

September, 2019

Authors:

Omondi Otieno, Samwel Njoroge, Naliaka Robai, and Mable Serem

Table Of Contents

Table Of Contents

Table of Figures

List of Tables

Executive Summary

Background

The Sustainable and Secure Smallholder Systems @ Scale (4S@Scale) programme is a Public-Private Partnership (PPP) supported by the Ministry of Foreign Affairs of the Netherlands (DGIS) between Hivos and ECOM with an overall objective of improving the livelihoods of 80,000 small holder coffee farmers in East Africa (60,000 farmers in Kenya and 20,000 farmers in Uganda) using integrated farming systems. The 4S@Scale programme which commenced implementation in 2014 purposed to intensify and expand ongoing farmer support in Good Agricultural Practices and climate adaptation. Farming households would also be helped to diversify their income through commercial dairy and Horticulture farming.

In addition, the 4S@Scale worked towards ensuring at least half of the participants were women and/or young people, and gave priority to drawing economic activities intended to help them generate incomes. This programme worked closely with various partners among them Kenya Biogas Programme, Business Solutions Uganda Limited, and SNV to promote biogas, and the ECOM subsidiaries to support coffee farmers' improve Quality, productivity and access to finances. The 4S@Scale programme was planned for implementation over a 5-year period with. The project covered 6 result areas, which are: inception phase, Good Agricultural practices, Gender Mainstreaming, Biogas, Dairy and diversification and viability of the ECOM technical model.

Objective of the Evaluation

The overall purpose of the evaluation was to assess whether the Program achieved the desired outcomes and produce evidence-based recommendations to inform future programming. In particular, the aim of the evaluation was to determine the overall merit and value of the project, by addressing questions on the relevance, efficiency, effectiveness, appropriateness and sustainability of the activities that were meant to improve the livelihoods of smallholder farmers.

Evaluation Methodology

This evaluation used a non-experimental design for simple pre-post comparison of results using a mixed-methods approach involving both quantitative and qualitative data. Data collection involved a quantitative beneficiary household survey; document reviews, including routine monitoring data and project reports; beneficiary and stakeholder interviews, field observations, and post-evaluation validation workshop and discussions. The consultants used a comparative analysis approach to report on project achievements for selected indicator values.

The sample size calculated at 5% level of significance and adjusted for a design effect of 1.5 resulted in 570 respondents smallholder farmers in Uganda, and 1,047 in Kenya. The proportionate distribution of these sample sizes by gender, project area (County/District) and cooperatives was done in the subsequent stages prior to data collection.
The evaluation team engaged key individuals directly involved with the project as implementers, staff of Hivos, Technical Assistance partners, collaborating institutions, or as donors through key informant interviews. Smallholder farmers were further reached through focused group discussions. In total 21 FGDs were held.

Summary of Key Findings

DESIGN

The project design and implementation benefited from a collaborative effort between all the partners. The efforts from the multi-layered structures made project implementation possible. The extensive collaboration ensured the project design was successful in addressing the needs of smallholder farmers Households. 4S@Scale project theory of change assumed that if men, youth and women specific training modules and approaches were developed; horticulture, dairy and climate change adaptation expertise were incorporated; extension services and credit services included then there would be increased coffee production, increased income from coffee sales, increased food security, youth and women would be able to earn money from coffee production and viable horticulture products and links to markets established.

With increased coffee, farmers would diversify by investing in dairy and banana farming; generate extra revenues from non-coffee income streams, farmer client loyalty would increase stabilising trade relationships and revenue for coffee marketing companies, food security would be achieved through stabilised crops, coffee farmers would be willing to invest more in higher risk, higher potential return coffee production.

The project's theory of change framework was flexible, allowing Hivos and other implementing partners such as ECOM, SNV and biogas companies to adjust their programmes to respond to the continuously identified needs from the project target areas.

Notably, there were significant changes and alignments to the project that occurred due to shifts in the operational context, and which the project design was unable to anticipate. This certainly had a knock-on effect on the targets and necessitated a review/rationalization of the project's M&E framework. There were equally changes in the Technical Assistance partners based on operational complexities but the evaluation was unable to find any evidence of a negative effect of such changes on the delivery of the project. The process of realigning the project's results framework was highly consultative, and that the mechanisms for rationalization of targets and for the overall review of the project performance frameworks were well established

RELEVANCE

According to the stakeholders interviewed, the project was very relevant to their needs. The evaluation findings are that the project activities, beneficiary targeting and selection criteria, implementation approach and the outcomes are highly relevant. The project was aligned to Hivos and partners work of building sustainable livelihoods, strengthening smallholder organizations' access to markets, finance and business development, sustainable energy and carbon finance. The project has demonstrated an appropriate approach in reaching the smallholder farmers to achieve sustainable agriculture while taking care of cross-cutting issues of gender and youth.
On improved gender awareness and capacity for youth and women in Coffee sector to contribute towards viability of coffee industry, there was an observed satisfaction with the 4S@Scale project by the Women

EFFECTIVENESS

The 4S@Scale main objective was to improve the livelihoods of **80,000** small holder coffee farmers in East Africa using integrated farming systems. The project contributed immensely towards bettering the lives of smallholder coffee farmers and its main objective was largely achieved. The objective of Improving household incomes and increased climate resilience was achieved.

89%

of farmers confirmed that since joining the project their income has increased

98%

of these farmers attributed the increase to benefits derived from the project

Average household income On good agricultural practices training in coffee production per month was

KES **13,849**
USD 133 per month;
daily USD 4.4

UGX **439,325**
USD 118 per month;
daily USD 3.9

Gender Action Learning and gender hybrid framework for Sustainability, banana farming, horticulture, dairy production, biogas development and biogas use trainings,

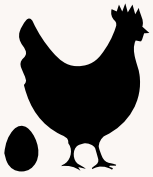
83%

of farmers found the trainings very useful and as a major contributor to their knowledge base on good farming practices.

The project provided the opportunity to transfer knowledge and skills that are critical to self-sustenance of smallholder coffee farming through training. On the whole farmers attributed improvement in coffee farming practices as well as other types of farming, farm decision making, and improvement in farm production in quality and quantity terms, farm management skills and farm profitability to trainings conducted under the project among other interventions like extension services and good governance of cooperatives.

To reduce the emissions at farm level, the project during implementation brought on board biogas companies to support programme implementation, 88% indicated that bio-slurry has reduced cost on inorganic fertilizer and 88% of the farmers said they have fewer cases of chest and eye ailments in the household due to safe cooking from Biogas. The project therefore contributed to mitigating against effects of climate change through the biogas for cooking, bio slurry which is an organic fertilizer for soil fertility as part of outputs. On increased productivity of coffee farming among small scale farmers, the findings indicate that 88% of the coffee farmers recorded increase in coffee yield as a result of training and extension services provided by the project.

The 4S@Scale project contributed towards diversification through focus on food security where the project helped the smallholder farmers to stop depending on coffee only as source of household income. In Kenya, most farmers are now able to sell milk as well as bio slurry; benefits derived from the project. In Uganda, the farmers have banana both for food and income. Evidently the quality of food in the household has also improved. A good number of dairy farmers representing 68% indicated that their dairy farming improved as seen in changes in number of livestock, milk production, and profitability. The average increase in percentage of quantity of milk produced in litres per day was 81%.



58%

of farmers recorded an increase in number of poultry kept

49%

average increase in percentage of number of poultry kept

67%

of farmers confirmed that their bananas and horticultural produce improved

60%

of the farmers recorded an increase in bunches of bananas produced and improved quality of banana fingers in those bunches.

144%

The average increase in yield from bananas

and Youth. Decision making in the household relating to use of land and land resources, household budgeting, harvesting and selling have improved. Farmers reported that cases of divorce and separation reduced since women can now contribute to the wellbeing of the family and influence decisions in the home.

On Gender Action Learning trainings, the youth said they now had a better understanding in; working together as a family, joint distribution of income after selling, equal opportunities for all the members of the family and the community, equal ownership of the resources in the family, peace and transparency, freedom of expression and confidence of the children in the home, equal access to family assets. Thirty five percent of households (35%) noted an increase in access to land for farming by women through leasing, allocation and acquisition increased. It was reported that 87% of the women have increased their incomes arising from better access to land. The evaluation revealed that the promoter farmers were very instrumental in the project having been a crucial link between the farmers and the project implementers.

The project sought to reduce workload (250 and 50 person year in Kenya and Uganda respectively) through installing bio digesters to provide access to clean energy at household level by substituting the use of firewood; findings indicate that awareness of biogas technology by households has improved. Six percent (6%) of households indicated that they have installed bio digesters. This is against baseline data which shows that only 2% of the households had biogas digesters and less than 3% of the households used bio slurry. The uptake is above national averages for both countries. The project through ECOM provided credit to coffee smallholders for purchase of farm inputs. This credit facility was later applied to install bio digesters for farmers. The financial report show that credit uptake from ECOM was exceeded by 143%.

The programme provided viable extension service in seeking to achieve sustainable and viable coffee farming businesses; 61% of farmers indicated that they relied on the extension services for farming, marketing and pricing information.
The public private partnership was found to be a viable model which brought on board various synergies and cultures from all the different organisations.

EFFICIENCY

Efficiency was measured in terms of timeliness, implementation capacity and budget utilization. The project activities were implemented in accordance with set objectives and the work plan. Delays in kickoff of some project components like install of biodigesters negatively affected uptake. The evaluation findings indicate that the project timeframe was adequate to draw lessons from and provide recommendations for future programming with necessary adjustments alluded to in the report.

In terms of implementation capacity, the project invested in a formidable team of experts and had a robust planning, monitoring and evaluation framework which ensured achievement of the 4S@Scale programme within an optimal time range.

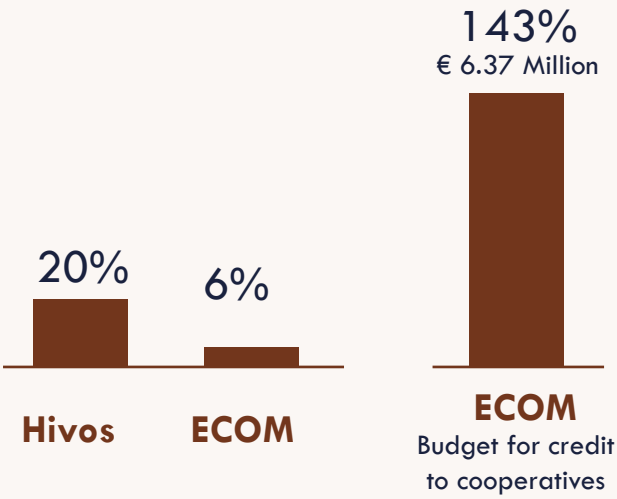
Project operational budget

2013 to 2019

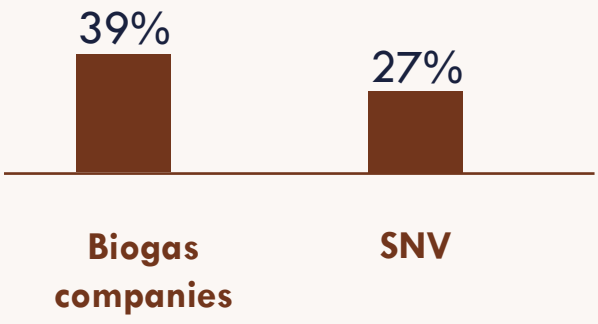
€11,519,276

shared and expended by partners according to an approved activity work plan

Budget exceeded



Favorable budgets



PROJECT IMPACT

The interaction with all stakeholders and beneficiaries of the 4S@Scale project provides all the indications that the project has already made a shift from output related results towards the impact level. The diversification component of the project helped the small holder farmers to stop depending on coffee only. In Kenya, the farmers are now able to sell the milk as well as bio slurry. In Uganda, the farmers have banana both for food and income.

The evaluation revealed that the cooperatives that have most up take of biodigeters are now being used as marketing hubs to influence more farmers and more cooperatives to take up the practice. Households that use bio digesters reported savings on firewood cost, time taken by women searching for firewood, cost saving arising from reduced purchase of inorganic fertilizers, contribution to climate adaptation and mitigation efforts and saved time for women in the kitchen

Increase in production of coffee had a direct impact on the incomes of farmers and thereby improved livelihoods. Farmers affirmed their incomes increased and contributed towards buying food, savings and meeting other household needs. The end result of this was reduction in poverty. Increased income from coffee and other crops proved a symbiotic relationship, in that with more income from coffee, then diversification is possible and with income from diversification, farmers can consistently follow up on coffee farming.

Hivos and partners have at least four reasons to replicate the project in other regions, counties and countries. One, the farmers have acquired skills on good agricultural practices, better farm management and crop husbandry. Two, training to cooperatives managers on good governance practices has a trickledown effect to the smallholder farmers in that the knowledge imparted will enable them to continue providing better services to farmers. Three the use of biogas as a source of clean energy and production of organic fertilizer (bio slurry) for the farms will continue. This is because farmers that have installed bio digesters confirmed they understand the benefits accruing to them. Four, women, men and youth inclusion in the coffee farming activities, decision making on farm management present an infrastructure that can be utilized continually in all future development projects

SUSTAINABILITY

At the smallholder farmers' level, they have skills and knowledge on good agricultural practices to continue increasing their coffee production and indeed from dairy, horticulture among other types of farming. They are empowered to keep their farming activities running as a means to better livelihoods. Further, their knowledge on renewable energy (biogas) and bio-slurry will protect the environment from use of inorganic fertilizers, soil degradation and climate change.

Armed with knowledge on use of biogas for cooking the women's livelihoods will continually play a key role in contributing towards mitigating effects of climate change as well as adaptation mechanisms.
Beyond the 4S@Scale project, KAWACOM in Uganda and SMS and CMS in Kenya have the capacity to continue with the interventions due to the existing infrastructure and benefits that will continue to accrue to them in terms of good quality coffee and high production.

The use of promoter farmers' model was viable. Farmers will continue to obtain information from promoter farmers on good agricultural practices beyond the 4S@Scale project. The training models used under 4S@ Scale will be sustained mainly through the promoter farmers and producer organisations.

The model farms will continue to be centers for learning whereby those learning from the farms may pay fees to support continuous learning's and improvements. The promoter famers in their endeavor to increase their production of coffee and incomes will continue to adhere to GAPs and in the process provide a platform for learning for the community.

Sustainability is already structured within ECOM subsidiaries; they have sustainability departments which ensure that peer farmers are well supported. The companies will continue to use the extension models to ensure that all farmers grow their coffee sustainably across various certification standards. These models will definitely continue to be used even after the 4S@scale programme is over

LESSONS LEARNT

- The symbiotic relationship between Increase in coffee yield and thereby household income contributed to diversification into other farming for example dairy, horticulture, poultry and bananas. Income from diversification made coffee farming easy for farmers as they can wait longer for payments because household needs are met by income from elsewhere.

- The project provided the opportunity to transfer knowledge and skills that are critical to self-sustenance of smallholder coffee farming beyond the project period through training. Farmers learnt GAPS which was a catalyst to increased household incomes. Similarly, knowledge in GALs complemented the GAPs leading to inclusivity of women and youth in farming and farm management.

- The self-sustaining business model adopted by the project is destined to eventually move the smallholder farmers to whole-farm approach where short-term and long-term decision making will consider the whole farm for improved profitability while enhancing sustainability of the farm.

- Inclusion of the renewable energy component (biogas) is an efficient and effective way of ensuring habitable and clean homes. Involving the smallholder farmers to manage their own environment emerges as a good practice especially with a threat to smallholder farmers' livelihoods due to climate change.

- The extension services provided by the project and promoter farmer component provided capacity for the farmers and provided an enabling environment where farmers could continue to learn good agricultural practices and share with other farmers.

- By involving women and youth and through training, financial inclusions and diversification, we do not only secure coffee for the future, contributes to impact for the coffee growers' families and communities.

- Training of cooperatives managers on good governance practices for farmer cooperatives, putting in place systems to improve productivity and quality of product was important in creating a seamless value chain.

- Good communication underpins the success in coordination and effectiveness of any activity. It is even more imperative for a project with a wide coverage such as 4S@Scale, with multiple implementing partners, to ensure its channels of communication are efficient and information and knowledge management in the programme is well preserved.

- Public Private Partnership in project design and implementation greatly contributed to the project's success. Bringing together all stakeholders in planning built onto the project relevance as stakeholders jointly prioritized their needs. However government involvement at the national and county level should be improved, such that they are directly involved in the coffee chain link to create enabling environment for the investors

RECOMMENDATIONS

- There is need for specific baseline data and need assessments that will inform the demand and interests of small holder farmers, the cooperatives, the industry stakeholders and the government engagement in line with local and external resourcing

- Improve the credit terms of farm inputs, bio digesters conditions with a minimum of 2 years noting the agricultural cycle and externalities. End to end financing could be a consideration that looks at introducing the market into the chain, the type and quality of seeds that are conducive to the environment.

- There remains the need to rethink the current approach of extending credit to farmers and possibly propose a model that would be more effective in improving access to essential financing for the small-holder farmers. Such a model must be sensitive to the uniqueness of country contexts, and farmer needs.

- Provide more technical support to the implementing partners as well as the farmers. This should be integrated and planned for at the project design stage

- Enhance the project design processes with more demand drive in the market with consideration for contract farming, strengthening of farmer organizations in the supply chain, production for both domestic and international markets.

- More structured involvement of the relevant government departments to leverage on capacities, push for policy and regulations to promote the Coffee economy in marketing and quality of the products. This would enhance the involvement of the government in the enforcement of the policies and regulations with integration of ownership elements by farmers for sustainability.

- Continued promotion of integrated programs for reducing income volatility and promoting gender equality.

- Enhance access to finance and input resources through rural community banking, support to financial institutions towards innovative management of risks

- Invest more on research of technologies that can easily be contextualized at local levels towards the commercialization of bio – slurry.

- With the global goals 7 and 13 of clean energy and climate change resilience respectively, there is an opportunity to sustain the investment in clean energy and climate change friendly practices relevant to coffee farming; such as organic fertilizers, use of bio digesters through the existing frameworks.

- The Public Private Partnership proved to be a highly viable model for the delivery of the project. The tripartite partnership has matured and should be maintained in the event of a subsequent project phase.

- The project has demonstrated its ability to contribute to significant improvements in the yields and quality of coffee as well as improvements in the individual livelihoods of smallholder farmer households. The project is highly recommended for intensification and replication, bearing in mind the few design adjustments proposed in previous sections.

- Noting that the coffee industry contributes to carbon emissions through roasting harvesting and yield, it is recommend that more green projects are incorporated to coffee value chain projects and creation of more green jobs.

- In order to sustain the gains from the project, it would be necessary to integrate the structures such as the promoter farmers into other continuing programs under implementation.

- One of the most critical improvements that may need to be made to ensure better delivery would be the adherence to finance reporting timelines and standards. There were a few instances of delayed funding disbursements based on delayed or non-compliant reporting.

List of Acronyms and Abbreviations

ABPP	African Biogas Partnership Programme
BCE	Biogas Construction Experts
BSUL	Biogas Solutions Uganda Limited
CMS	Coffee Management Services
CO2	Carbon Dioxide
CSR	Corporate Social Responsibility
DGIS	Ministry of Foreign Affairs of the Netherlands
DRC	Democratic Republic of Congo
FGD	Focus Group Discussions
GALs	Gender Action Learning
GAPS	Good Agricultural Practices
GHG	Greenhouse Gas
IQR	Interquartile Range
KBP	Kenya Biogas Program
Kgs	Kilograms
KII	Key Informant Interviews
KUL	Kawacom Uganda Limted
NGOs	Non-Governmental Organizations
PCR	Project Change Request
PF	Promoter Farmers
POs	Producer Organizations
PPP	Public-Private Partnership
PPS	Probability proportionate to size
RA	Research Assistants
RE	Renewable Energy
RVO	Netherlands Enterprise Agency
SMS	Sustainable Management Systems Limited
USD	United States Dollars
VSLA	Village Savings and Loan Associations

1.Introduction

1.1. Coffee Sector Context

1.1.1 Kenya

Coffee was for a long time Kenya's most important agricultural export, accounting for as much as 40% of the total value of exports. This situation has changed dramatically since coffee production peaked in 1988. In recent years, coffee accounted for only about 6% of agricultural exports.

Despite the decrease in coffee exports, coffee production is still a major cash crop. Kenya has a dual production system with about 3,300 large-scale coffee estates and over 600,000 smallholder producers organized into about 550 cooperatives. Smallholders account for 75% of the land under coffee but only slightly over half of production. Smallholder farmers have insufficient access to inputs and therefore use fewer purchased inputs and practices such as mulching for water conservation and weed control, the outcome is that yield from their coffee farms is low.

There are a number of other possible reasons for the decline in coffee production. Decline in world coffee prices, how cooperatives are operated- the efficiency of the cooperatives is critical to the competitiveness of Kenyan coffee production. Other features of coffee value chains in Kenya that have significant impacts on outcomes include the dual structure of production split among cooperatives serving small-scale growers and large-scale coffee estates, the dominant role of cooperatives serving small-scale growers and the long delays between the delivery of coffee cherry and payment for small-scale growers.

1.1.2 Uganda

In Uganda, coffee remains among the traditional cash crops and is one of the country's top foreign exchange earners as well as its most important agricultural export, contributing on average 18% of the total national export value. Uganda has about 1.7 million Smallholder farmers. The average coffee farm size in Uganda is 0.18 hectares that produces an average yield of 120 kg green per farmer. Comparatively the state of Coffee farming in Uganda is better than in Kenya.

1.2. Background of the project

The Sustainable and Secure Smallholder Systems @ Scale (4S@Scale) programme is a Public-Private Partnership (PPP) supported by the Ministry of Foreign Affairs of the Netherlands (DGIS) between Hivos and ECOM with an overall objective of improving the livelihoods of 80,000 small holder coffee farmers in East Africa using integrated farming systems.

This programme is based on sustainable coffee farming systems through the use of good agricultural practices (GAPS), addressing Gender issues along the value chain, the use of bio-slurry and income diversification efforts through dairy and/or horticulture.

The 4S@Scale programme which commenced implementation in 2014 purposed to intensify and expand ongoing farmer support in Good Agricultural Practices and climate adaptation. Farming households would also be helped to diversify their income through commercial dairy and Horticulture. In addition, the 4S@Scale worked towards ensuring at least half of the participants were women and/or young people, and gave priority to drawing economic activities intended to help them generate incomes.

This programme worked closely with various partners among them Kenya Biogas Programme, Business Solutions Uganda Limited, and SNV to promote biogas, and the ECOM subsidiaries to support coffee farmers' improve Quality, productivity and access to finances.
The 4S@Scale programme was planned for implementation over a 5-year period with 60,000 farmers in Kenya and 20,000 farmers each in Uganda. The project covered 6 result areas, which are:

- **Result 1- Inception phase**
- **Result 2 – Good Agricultural practices**
- **Result 3 – Gender Mainstreaming**
- **Result 4 – Biogas**
- **Result 5 – Dairy and diversification**
- **Result 6 – Viability of the ECOM technical model.**

1.3. Partnership

The programme was led by HIVOS who provided fund management, partner coordination and monitoring and evaluation for the project. Other partners were ECOM through its subsidiaries; ECOM works through Coffee Management Services (CMS) and Sustainable Management Services (SMS) in Kenya and through KAWACOM Uganda limited in Uganda. ECOM provided farmer centered agricultural extension service and credit access to improve productivity.

The project had other partners that were brought on board later to support programme implementation. These were, Kenya Biogas Programme (who works in Uganda and Kenya) was bought on board to implement the Bio-Gas components under Result area 2 that focused on Bio-slurry application as a result of Bio-digester promotion and construction under result 4 in Kenya. Biogas Solutions Uganda Limited is the other partner who worked to promote the use of Bio-slurry for improving soil fertility, and work towards reducing workloads for women and carbon emissions through the use of Biogas. The two partners also provide quality assurance with regard to training of construction enterprise.

Hivos continued to receive overall technical support in the programme from the Africa Biogas Partnership Programme (ABPP) and SNV-Netherlands through their Kenya offices. This followed the disengagement with KENAFF in late 2015. SNV-Netherlands supported the 4S@Scale Kenya programme on Biogas promotion and rolling out of the dairy value chain as part of a diversification initiative.

In Kenya ECOM acquired a new Coffee Management Services (CMS) to support the delivery of Kenya's targets under result 2, 3, 4 and 5. Hivos re-structured the partnership in Uganda a re-organisation that saw integrated implementation approach towards Bio-digester targets through KAWACOM Uganda limited and Biogas Solutions limited.

Where the organisations previously worked independently with focus on the same target beneficiary of the programme, the new implementation arrangement ensured joint planning for promotional events targeting farmers and training of field officers attached to KAWACOM to expand coverage and strengthen the sustainability through an institutional capacity investment that targets training of KAWACOM field staff on bio-slurry management.

1.4. Programmatic Changes

In 2016 Hivos submitted a project change request (PCR) that formalised the revisions to the expected results of the partnership. This request came against a background of changes in the sector most of which were structural. In Kenya, the Gazette notice was issued seeking to restructure the coffee value-chain giving farmers' direct access to the Nairobi Coffee Exchange and placed the marketing companies at risk of failing to secure their licences with cooperatives.

While the matter is still in court, the future of current market licences that run up to June of 2017 remains uncertain. This therefore slowed the disbursement of credit facilities that was a key deliverable for the grant. Secondly training initiatives on Artificial Insemination were not possible due to the eligibility requirements set by the Government and high cost of the training programme.

As a result, the programme opted to train the farmers on animal breeding. As a result Hivos expanded the focus for GAPs to cover Youth and Women involved in the value chain and support them towards certification and improving their skills with the entry point being the farmers who are members of the producer organisations.

Additionally Hivos revised the Bio-gas targets to 3,600 from 22,000 following an assessment of current breeds and economic status of famers. However despite these changes some of the beneficiaries in the coffee value chain especially women and youth remain invisible to the programme due to their lack of membership numbers for registration and ownership of Land.

To expand the space for learning across programmes Hivos convened joint learning programme that demonstrated strong progress with regard to adaptation of the interventions around GAPs and increased demand for bio-gas uptake. The project further provided space for farmers cross-learning on aspects of governance as well as explored opportunities for synergy with the FOSEC project under Solidaridad.

1.5. The Project's Intervention Logic

The overall intention of the project was to improve the livelihoods of 80,000 small holder coffee farmers in Kenya and Uganda using integrated farming systems. This was to be achieved through the implementation of the six results areas mentioned above.

The program focused on full involvement of youths, women and men as production members, this was achieved by increasing women and youth in leadership positions, increase number of women, men and youth members and equal allocation of time spent in production for men, youth and women. Youth specific training modules and approaches developed and older farmers were encouraged to involve youths in on-farm production, this would enable youths to earn money from farming thus increasing their income.

On diversification of products and enhancing sustainability, horticulture, biogas and dairy experts were brought in for horticulture, biogas and dairy programs respectively, viable horticulture and dairy products proven, links to markets were established and dairy sales expanded next to coffee sales. Biogas plants were established at the household level, this reduced the household and coffee production expenses because the manure form the dairy farms were used in the bio digester to produce biogas and the slurry put in the compost and later used as manure.

Biogas has positive impact on climate change due to reduced emission of carbon dioxide and methane. Horticulture, dairy farming and Biogas production was aimed at growing income streams for women in particular thus household income diversified and stabilized.

The bringing on board of viable service providers namely; ECOM (a reliable coffee production and trading organization), KBP, Business solutions ltd Uganda, Producer Organizations, (POs), Biogas Construction Experts (BCE), Biogas User Associations & Biogas dealer associations , was geared towards improvement of coffee production and market linkages.

The farmers were trained on good agricultural practices; ECOM provided the market for the coffee and gave the farmers financial credit.

1.6. Project Objective and Expected Outcomes

The main objective of the project was to improve the livelihoods of 80,000 small holder coffee farmers in East Africa using integrated farming systems.

The outcome indicators of the project are listed below against which quantitative and qualitative data was sort.

(i) Increased productivity of Coffee farming among small scale farmers

(ii) Improved gender awareness and capacity for youth and women in Coffee sector to contribute towards viability of coffee industry

(iii) Improved household incomes and increased climate resilience

(iv) Sustainable and viable extension services

(v) 250 and 50 Person year workload reduction in Kenya and Uganda Respectively

1.7. Purpose of the Evaluation

Hivos established the need to conduct an End-Term Evaluation of the 4S@Scale Programme to assess the extent of attainment of program objectives – and draw lessons on what worked and what did not work and why, and review how the design of the project and implementation approaches contributed to improvements in the lives of the targeted population.

The overall purpose of the evaluation was to assess whether the Program achieved the desired outcomes and produce evidence-based recommendations to inform future programming.

In particular, the aim of the evaluation was to determine the overall merit and value of the project, by addressing questions on the relevance, efficiency, effectiveness, appropriateness and sustainability of the activities that were meant to improve the livelihoods of 80,000 smallholder farmers.
Specifically, the evaluation purposed to;

- **Determine achievement against performance of select indicators;**
- **Identify program strategies, structures, systems and interventions that contributed to or impeded the achievement of intended impact of program interventions;**
- **Draw lessons and recommendations from the project and results achieved to inform future similar programming.**

The Evaluation generated qualitative and quantitative data to support program learning and consolidate evidence on; the extent to which the program did achieve its indicator targets, the immediate effects of the interventions corresponding with the objectives and flag longer-term effects of the interventions vis-à-vis the project goal of creating viable and sustainable smallholder coffee farming systems, and in line with the project results as articulated in the project logical framework.

The Evaluation process gathered information that will enable Hivos to; validate the different approaches used, improve the outcomes of future programs by guiding strategic and operational actions, and generate knowledge that may be used to inform vertical or horizontal scalability of the project.
The evaluation also reviewed the project context and the policy landscape, project approach, Cross cutting issues of Gender and inclusion, processes of beneficiary/farmer engagement, monitoring and Evaluation, sustainability and coordination with other actors in the coffee sector in Kenya and Uganda.

2. EVALUATION METHODOLOGY

2.1. Overview

A non-experimental evaluation design was used to measure the causal changes brought about by the interventions of the Project in Kenya and Uganda. Probability sampling was used for the household quantitative survey to ensure that all subjects of the beneficiary population got an equal opportunity to be selected as respondents, using a two-stage, stratified sampling approach.

For the qualitative data, a purposive sampling method was used to select study respondents, based on the role they played in the project. The methodology was designed to collect data from household heads or their spouses, based on the demographic, socio-economic characteristics of the households and to determine achievement against project performance indicators.

The data was collected using a structured household questionnaire that was programmed into mobile data collection application.

The qualitative data collection targeted key stakeholders of the program and the information gathered was used to supplement and help triangulate the quantitative data collected from the household interview; it also provided in-depth insights into how the gender dynamics were (or were not) addressed.

The respondents for qualitative data collection included Hivos staff, Implementing partners, Cooperatives, Government officials, Technical Assistance Partners, and promoter farmers/ farmer groups.

Qualitative data collection was done through Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), site observations of biogas, nurseries and horticulture/coffee farms, and a desk review of project documents including progress reports, indicator performance tracking tool and information, post-distribution monitoring reports, after action review reports, and baseline reports.

Key audiences of the evaluation report include HIVOS; ECOM (CMS, SMS, and KAWACOM); the donor (RVO); and other development partners with similar programs. While HIVOS, RVO and ECOM have received the entire report, a summary of the key findings will be shared with county and national government stakeholders, cooperatives, and other development partners. The findings from the evaluation will facilitate learning and adoption of best practices from the project's experiences and, in turn, will be used to inform future decisions and investments in livelihoods support for smallholder farmers.

2.2. The Approach

This evaluation used a non-experimental design for simple pre-post comparison of results using a mixed-methods approach involving both quantitative and qualitative data. Data collection involved a quantitative beneficiary household survey; document reviews, including routine monitoring data and project reports; beneficiary and stakeholder interviews, field observations, and post-evaluation validation workshop and discussions. The consultants used a comparative analysis approach to report on project achievements for selected indicator values.

2.3. Sources of Data and Data Collection Methods

Both quantitative and qualitative data collection methods was used, including secondary data from project documents, previous evaluation reports, progress reports, routine project monitoring data and other secondary literature.

Quantitative data collection targeted smallholder farmer households in the selected project areas that have benefited from the project and was designed to collect data from household heads or their representatives on demographic and socio-economic characteristics of the households. The number of beneficiary households per project area is as summarized within the sampling section below. The data was collected using structured household questionnaire programmed into a mobile data collection application.

Qualitative data collection targeted the key stakeholders for the project and this information was used to supplement and complement the quantitative data collected from the household interviews, providing in-depth data on how the project has been able to contribute to improvement in livelihoods amongst targeted farmer households.

The targeted respondents were Hivos staff, Implementing partners, Cooperatives, Government officials, Technical Assistance Partners, and promoter farmers/farmer groups. Qualitative data was collected through Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), site observations of biogas, nurseries and horticulture/coffee farms, and a desk review of project documents including progress reports, indicator performance tracking tool and information, post-distribution monitoring reports, after action review reports, and baseline reports.

Secondary data was collected through desk review of project documents, baseline reports, progress reports, and indicator performance tracking tools.

2.4. Survey of Smallholder Farmer Households

This involved the use of a structured survey questionnaire (closed-ended) to gather numerical data that respond to specific evaluation questions. The questionnaires were administered at household level sampled from the regions covered by the Project. Data collection was done using Hoji mobile data collection software

The structured questionnaire was administered through face to face interviews by trained research assistants. The questionnaire was designed to gather demographic information, and data to answer various research questions.

2.4.1. Sampling Strategy and Sample Size

A two-stage cluster probability sampling was used for the household interviews to ensure the representatives of the beneficiaries got an equal opportunity to be selected as respondents. In addition, the study used a design effect of 1.5 since the targeted beneficiaries were relatively homogenous group with uniform structure, common religious and socio-economic heritage.

To assess the outcome of the 4S@Scale project, the evaluation adopted the Cochran's formula to calculate the required sample size for selected project indicators expressed as a proportion in each cluster (defined as Counties in Kenya and Districts in Uganda). The beneficiary -based survey employed stratified two stage cluster sampling methodology for household quantitative survey respondents. Each county/district served as the Tertiary stratum for the evaluation while the producer organizations was Secondary stratum – the parishes/ cooperatives from which sample was drawn was selected purposively.

In each county/district a sample was drawn independently using the existing survey parameters for the project indicators. Probability proportionate to size (PPS) was used to determine the number of households selected in each intervention district/ county, and simple random sampling methodology was used to select households from the existing beneficiary registration lists. The respective District/County level samples were proportionately distributed across gender. As such, a stratified random sampling technique guaranteed inclusivity of all demographic categories and subsequent increase the accuracy and legitimacy of evaluation findings.

Using the country beneficiary lists as the sampling frame, the sample sizes were calculated and proportioned (see tables in annexes). The sample size was calculated based on a 95% confidence level, a 5% confidence interval and adjusted for a design effect of 1.5. Based on these criteria, the Sample size for Uganda was 570, and that of Kenya was 1,047.

The proportionate distribution of these sample sizes by gender, project area (County/District) and cooperatives was done in the subsequent stages prior to data collection.

2.5. Data Collection Procedures

2.5.1. Recruitment and Training of Research Assistants

At team of 20 qualified locals (12 in Kenya and 8 in Uganda) were recruited to support the survey as research assistants/ enumerators. Doing so minimized the risks of insecurity, community hostility or even challenges with transport.
For purposes of improving quality of data to be gathered, two-day training was conducted for the RAs. The training covered; Interview Skills, basics in social research, an in-depth orientation on the survey questionnaire, development of field movement plan, team roles, communication paths, Role playing, quality control measures, use of mobile data collection technology, and a pre-test on the final day of training. Before commencement of the main fieldwork process, a pre-test of the questionnaire was conducted. This was useful for checking issues such as:

2.6. Qualitative Approaches

This involved conducting a Desk Review, FGDs, and Key Informant Interviews to gather useful information that help to create a better understanding of the context and which might be necessary in interpreting or triangulating some of the findings from the household survey. The number and breakdown of the demographic segments with whom FGDs were held, and the List of Key Informants is attached as Annex 2. A non-structured (open-ended) question was used to guide of open-ended questions FGDs and KIIs. Transcripts of qualitative data collected were analyzed using Nvivo.

The list of documents that were reviewed includes; Key project reports and annual project work plans, Project documents (proposals and budgets), Log-frames for all the project phases, Reports of Assessments, surveys conducted in the course of the project, Documented case studies and Human-Interest stories.

2.6.1. Key Informant Interviews

The evaluation team engaged key individuals directly involved with the project as implementers, staff of Hivos, Technical Assistance partners, collaborating institutions, or as donors. The Key informants list is included in the annexes. A key informant question guide (attached), was used to guide conversations on strategy, effectiveness, process, outcomes, and learning from the implementation.

2.6.2. Focused Group Discussions

Within each cluster with active cooperatives/promoter farmers, Focused group discussions were held with one Women Group, One Youth Group, and one group of promoter farmers. In total therefore 21 FGDs were held. An FGD guide with open-ended questions was used to guide conversations on process and outcomes of project.

2.7. Data Analysis Procedures

Upon data cleaning and organizing, data was exported into Statistical Package for the Social Sciences (SPSS) for analysis. Descriptive statistics (frequencies and percentages, means, standard deviation and medians) was used to describe the evaluation findings on the project indicators.

Qualitative data, collected using recorders, flip charts and note books, was entered into Microsoft Excel data entry template, grouped and analyzed thematically using quasi statistics. The findings from qualitative data were triangulated with both the quantitative data, and secondary data from project documents and performance reports, for the final conclusions of the evaluation findings.

2.8. Data Quality

In order to ensure good quality data, the evaluation team ensured proper training of Research Assistants on basic communication/interview skills, the use of mobile data collection software, and on the understanding of the local closest translation of the questions. We conducted a pre-test of the survey tools to establish the appropriateness of the questions. The RAs used mobile data collection technologies to maximize accuracy of data and eliminate any risks that would have been occasioned by a traditional erroneous data entry process. Further, mechanisms for supervision both remotely (through the data collection software) and physically through active field presence during data collection were instituted. Transcribed select FGDs and KIIs to ensure all critical points are captured.

2.9. Evaluation Limitations

The evaluation process was susceptible to a set of limitations with varying magnitudes. These included distant sampling points, unfavourable weather conditions and unavailability of respondents (due to other priority engagements). In overcoming the limitations, the field team engaged gate keepers before beginning the field visits to make prior arrangements in every enumeration area. In areas where the weather was unfriendly, adequate planning measures were taken and where necessary time allocated research assistants was increased.

3. EVALUATION FINDINGS

This section discusses the findings of the evaluation study and provides analytical perspectives on the extent to which intended outcomes have been achieved. The main findings are organized in terms of the evaluation criteria adopted.

3.1. Project Design and Implementation

There are many smallholder farmers across Kenya and Uganda whose coffee is their main source of income. Limited knowledge of good agricultural practices, lack of or limited access to training, subdivision of land into small portions making farming untenable, limited access to markets and market information as well as limited access to finance among other factors all have contributed to low production and poor quality. Arising out of these challenges income for households keep declining and thereby aggravating poverty and food insecurity.

Project documents indicate that as a consequence of the above factors, crop productivity is in most cases at 25-30% of what is readily achievable. Additionally, women play a vital role in ensuring household are food secure but in most cases they are not involved in decision making and managing of farms. Hivos and partners have developed effective approaches to farm productivity and biogas production that have led to increase in farm yield and incomes.

The project design and implementation benefited from a collaborative effort between all the partners. The efforts from the multi-layered structures made project implementation possible. It is our opinion that this extensive collaboration ensured the project design was successful in addressing the needs of smallholder farmer Households.

The process of design of project drew greatly from existing knowledge of context by the partners and took into great consideration the unique livelihood differences between the respective countries.

Hivos 4S@Scale project theory of change assumed that if men, youth and women specific training modules and approaches were developed; horticulture, dairy and climate change adaptation expertise were incorporated; extension services and credit services included then there would be increased coffee production, increased income from coffee sales, increased food security, youth and women would be able to earn money from coffee production and viable horticulture products and links to markets established.

With increased coffee, farmers would diversify by investing in dairy and banana farming; generate extra revenues from non-coffee income streams, farmer client loyalty would increase stabilising trade relationships and revenue for coffee marketing companies, food security would be achieved through stabilised crops, coffee farmers would be willing to invest more in higher risk, higher potential return coffee production.

The project's theory of change framework was flexible, allowing Hivos and other implementing partners such as ECOM, SNV and biogas companies to adjust their programmes to respond to the continuously identified needs from the project target areas.

Notably, there were significant changes and alignments to the project that occurred due to shifts in the operational context, and which the project design was unable to anticipate. For example, the project had initially been designed to cover Kenya, Tanzania and Uganda, but had to drop in Tanzania due to cooperate realignments within ECOM. This certainly had a knock-on effect on the targets and necessitated a review/ rationalization of the project's M&E framework.

There were equally changes in the Technical Assistance partners based on operational complexities but the evaluation was unable to find any evidence of a negative effect of such changes (such as the exit of Heifer International) on the delivery of the project.

It is the opinion of this evaluation that the process of realigning the project's results framework was highly consultative, and that the mechanisms for rationalization of targets and for the overall review of the project performance frameworks were well established.

Whilst the evaluation recognizes the challenges in working with Government departments in both Kenya and Uganda, it is possible that additional effort could have been directed to greater involvement of County/District governments departments. The design of the project did not explicitly integrate this within the activities and left it to the partners to determine the extent of involvement with government departments. Beyond a regulatory role, the government has the primary duty to provide the policy and operational environment for programs of this nature, but they also have structures and resources against which the project can leverage. These often fall better in place if built into the design of project.

3.2. Socio-Economic Characteristics of Respondents

3.2.1 Sex Distribution

The respondents to the questionnaire were fairly distributed across the target counties, regions and cooperatives. Out of the total 1,517 respondents to the household questionnaire, 69% were men and 31% were women as shown in the figure below. This is in line with the sampling design which intended to reach at least 27% of the women farmers.

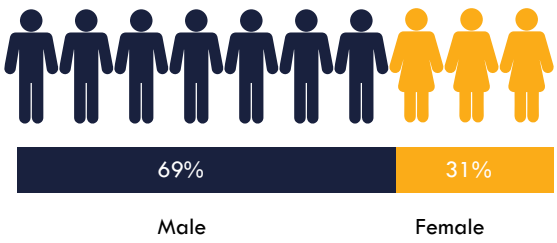


Figure 1: Sex of Respondents

In Kenya the respondents were 67% male and 33% female whereas in Uganda it was 73% male and 27% female. In both countries the intended number of women was reached during the evaluation exercise.

It is important to note that the evaluation methodology proportionately distributed the sample sizes across gender, based on the list of farmers provided. There's was therefore no methodological basis against which to target equal number of men and women as this would not have been statistically representative of either gender.

3.2.1 Distribution by Age

Majority of small-scale farmers are in the 36 to 60 years age bracket representing 62.2% of total respondents. The youth aged between 18 to 35 years accounted for 11.4% of the farmers. Two farmers representing 0.1% reached during the evaluation were below 18 years .

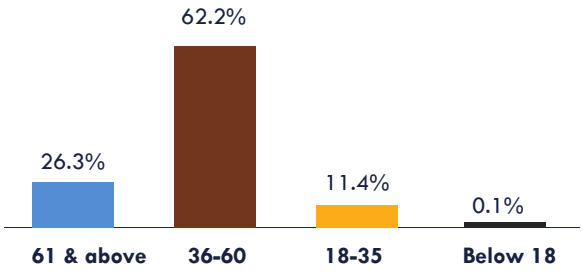


Figure 2: Age of respondents

Women form the majority of the world's estimated 25 million coffee farmers, yet coffee is seen as a men's crop . Youth are not motivated to stay in coffee, face lack of ownership of land, coffee trees, access to training and finance, and benefits derived from coffee. The programme intention through the Gender Action Learning System was to include men, women and youth in producing coffee and generate income for all. The above figure indicates that youth representation is still low.
Comparatively male farmers accounted for 64% of the youth (18-35 years of age) against female at 36%. The majority of famers within the 36-60 years age bracket comprised 75% men and 25% women.

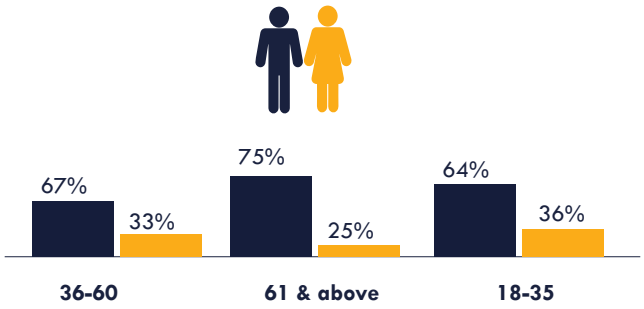


Figure 3: Comparison of age and sex of respondent

This may imply ownership and may not be interpreted as children working in the farms Hivos toolkit- Sustainable coffee as a family business

3.2.3 Distribution by Marital Status

The marital status of most of the farmers interviewed was married at 82.6% while 4.4% were single.

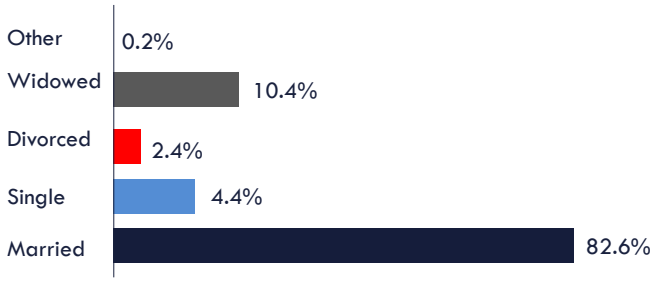


Figure 4: Marital Status

3.2.4 Education Status

The target group indicates a fair distribution in terms of education. Eighty one percent (81%) of farmers interviewed indicated they have completed primary school and above while 19% indicated that they have no formal education as shown in the figure below. High literacy level may have contributed to accurate data.

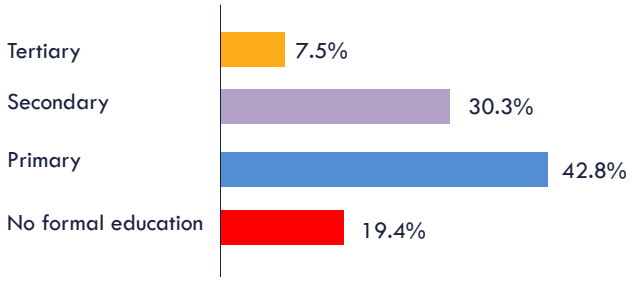


Figure 5: Respondent's level of education

Comparing the level of education between male and female, the figure below indicates that male were leading in all forms of education with the largest difference being in tertiary education where men with teritiaty education accounted for 76% against 24% of women.

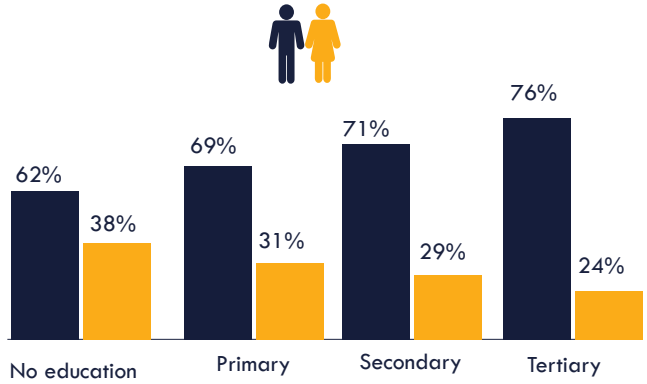


Figure 6: Comparative men-women level of education

3.2.5 Household Members

Most households have between 1 and 5 members followed by households with between 6 and 10 members.

Five percent of the households have between 11 and 15 members as shown in the figure below.

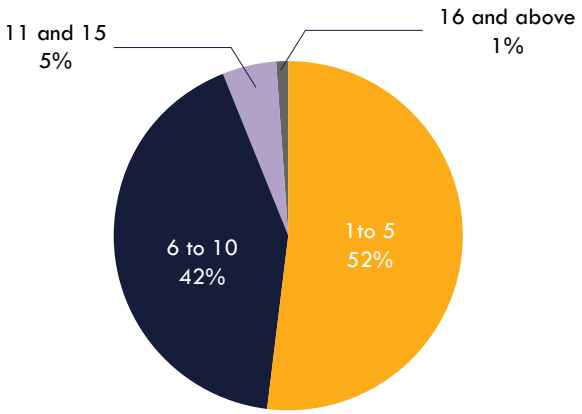


Figure 7: Number of household members

3.2.6 Source of Livelihood

The final evaluation shows that the farmers have diverse sources of livelihood. Most of the farmers at 91% main source of livelihood is farming while 9% relied on off-farming activities.

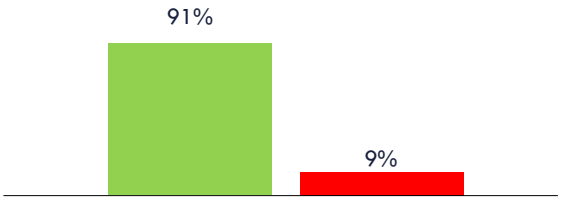


Figure 8: Household main source of livelihood

Coffee farming was found to be dominant among the target farmers at 82%, 6% banana farming and 8% dairy. This is an increase from baseline survey data where 64% of the households had coffee cultivation as the main source of income while 27% had other agricultural sources.

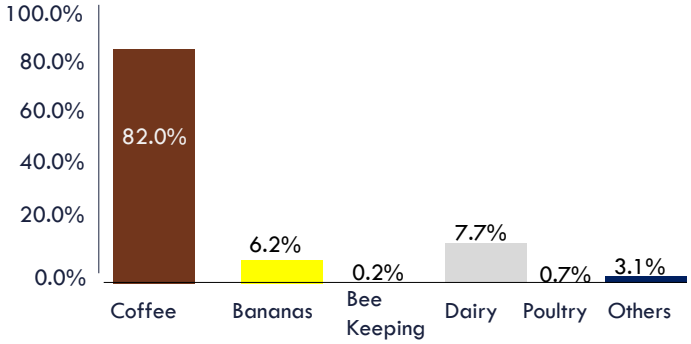


Figure 9: Type of Crops Farmed

Bananas and dairy were the focus of the programme in its diversification agenda. The level of dairy and banana farming reported above proves that diversification worked either using from increased income received from coffee or otherwise.

3.2.7 Acreage under Agriculture

The acreage under farming remained the same for most of the farmers (57%). However, a significant number of farmers (39%) had their acreage under agriculture increase. Baseline data shows that most of the households (73%) had land size of less than 2 acres.

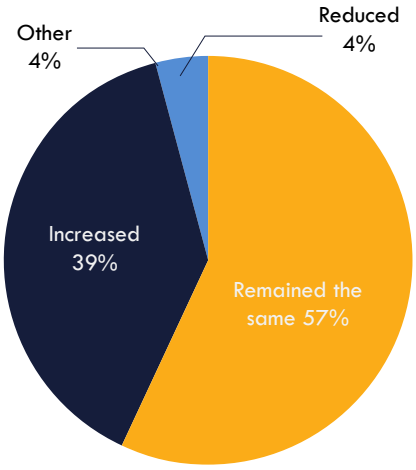


Figure 10: Change in acreage under farming

On average the percentage change in acreage under farming increased by 62%. The change in land under coffee farming was however different across the countries.

Uganda farmers reported an increase of 83% representing a change from an average of 2.34 acres to 4.28 acres per farmer whereas in Kenya the increase was from an average of 3.15 acres to 4.06 acres per farmer which was an increase in 29% as shown in the table below. Increase in acreage under farming may imply that farmers expanded their farms through acquiring land or by putting into use land which could have been idle. More land under coffee farming with good agricultural practices may have led to higher productivity.

Table 1: Comparative average increase in land under farming

Country	Av. Acreage before project	Av. Acreage after project	Percentage increase
Kenya	3.15	4.06	29%
Uganda	2.34	4.28	83%

3.2.8 Household Income

The baseline study for Kenya indicates that the annual average income for coffee farmers was KSh 40,000 (USD 388) and those for dairy farmers was KSh 23,000 (USD 223) which translates to dairy income of USD 1.06 and USD 0.61 for coffee and dairy farmers respectively.

In this case therefore most of the farmers had increased income at the time of project final evaluation.

Seventy four percent (74%) of the small holder farmers indicated their average daily income on USD 1.25 and above, however a significant number (26%) are earning below USD 1.25 per day.

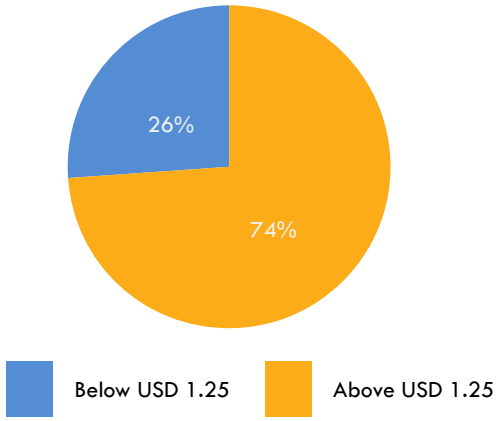


Figure 11: Average daily income

Comparatively Kenya had a higher number of farmers whose daily income is above USD 1.25 as shown in the table below. Eighty nine percent (89%) of the farmers in Kenya indicated their average daily income of above USD 1.25 as compared to Uganda 58% of the farmers. In Uganda 42% of farmers daily income is below USD 1.25 compared to Kenya's 11% of the farmers.

Table 2: Comparative Daily Income

Average Daily Income	Percentage in Kenya	Percentage in Uganda
Above USD 1.25	89%	58%
Below USD 1.25	11%	42%

3.2.9 Diversification

4S@Scale program trained farmers on improving farm productivity through diversification. The final evaluation found that apart from coffee farming which was the main activity done by 82.7% of the farmers; farmers have diversified into poultry, bee keeping, horticulture, dairy farming and bananas mostly in Uganda as shown in the table below with an objective of increasing their farm income.

Table 3: Type of farming

Farming Type	Frequency	Percentage
Dairy	61	6.0%
Coffee crop	834	82.7%
Bananas	75	7.4%
Poultry	8	0.8%
Bee keeping	3	0.3%
Horticulture	8	0.8%
Tea	7	0.7%
Others	13	1.3%

In Uganda 40% of the farmers diversified into banana farming, 15% into dairy, 15% into poultry and 14% into trade. This is in line with the programme diversification objectives where banana farming was the target in Uganda. In Kenya 32% of farmers diversified to dairy as expected through project diversification agenda, 24% to banana farming and 17% to poultry. In both countries, macadamia, avocado and horticulture were also taken up but by a very small number of farmers. In both Kenya and Uganda bee keeping was the least that farmers diversified into.

3.3. Relevance of Project Design

Relevance was assessed by establishing the extent to which the project responded to the needs of the coffee farmers in Kenya and Uganda. The project was relevant to livelihoods of smallholder farmers involved in coffee, dairy and banana among other types of farming with limited income and largely food insecure.

These smallholder farmers needed training on GAPs, GALs, installation of bio digesters for generating clean energy (biogas) and bio-slurry used as fertilizer, and in need of strong market linkages. Additionally, the 4S@Scale project is well aligned to the main challenges in the coffee industry in Kenya and Uganda and across the globe such as production and marketing challenges of smallholders' farmers, limited access to capital and input resources, difficulty in implementation of organic and Good Agricultural Practices, overdependence on coffee for household income, gender inequality and changing weather conditions.

Our opinion based on the evaluation findings is that the project activities, beneficiary targeting and selection criteria, implementation approach and the outcomes are highly relevant. We note that the project was aligned to Hivos and partners work that is aimed at building sustainable livelihoods, strengthening smallholder organizations' access to markets, finance and business development, sustainable energy and carbon finance. To all the partners, the project has demonstrated an appropriate approach in reaching the smallholder farmers to achieve sustainable agriculture while taking care of renewable energy issues and cross-cutting issues of gender and youth.

According to the stakeholders interviewed, the project was very relevant to their needs. However, the intervention lacked specific a Knowledge, Attitude and Practice (KAP) data to inform the extent and specificity of intervention that is directly aligned to the needs of the smallholder farmers within their local and national contexts.

3.4. Project Effectiveness

Effectiveness of the project was assessed through improved household incomes and increased climate resilience. These improvements were measured by seeking to establish effectiveness of training initiatives and extension support services provided to farmers. The effectiveness of the trainings was assessed by the proportion of farmers applying good agricultural practices and together with the extension support services provided have worked towards improving productivity, climate resilience and income diversification. Key factors of interest were the number of farmers who have adapted GAPs for coffee and are receiving better prices, income generation from dairy and Horticulture attributable to the project interventions.

The evaluation further looked at the number of farmers who through installation of biogas plants are using clean energy and organic fertilizer, as well as controlling deforestation. Savings on energy and production costs from the use of biogas and bio slurry was of importance to the evaluation. The initial targeting was very high especially for the Bio digesters. At the project design level the targets were set so high (22,000 bio digesters) than the reality on the ground and with more inclination on the Kenyan context.

The target was later revised to 3,600 bio digesters. Changes in the program design led to delays in implementing installation of bio digesters. Despite these initial challenges for both countries, the evaluation revealed that the intervention was effective to a large extent meeting the laid out thematic areas and objectives as presented in detail below.

3.4.1. Improved household incomes and increased climate resilience

3.4.1.1 Changes in household Income

The main objective of the project was to improve the livelihoods of 80,000 small holder coffee farmers in East Africa using integrated farming systems. This comprised 60,000 farmers in Kenya and 20,000 farmers in Uganda spread across several counties and regions. This objective was largely achieved as demonstrated in the sections below.

Majority of farmers (89%) confirmed that since joining the project their income has increased as shown in the figure below. Moreover, interviews and FGDs conducted support the HH survey findings.

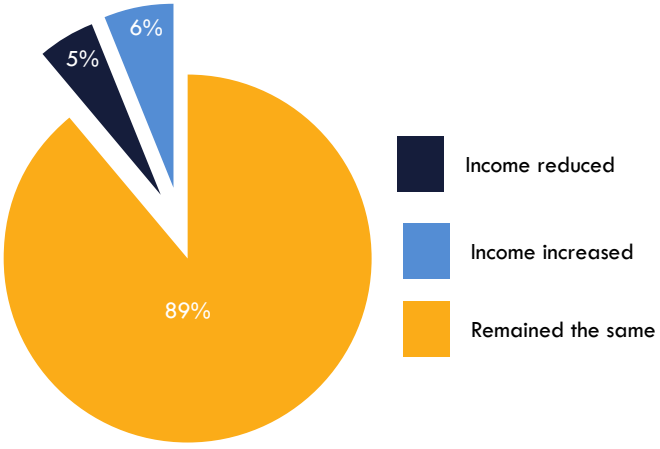


Figure 12: Change in income after joining the project

To answer the question of attribution, the evaluation tested whether the indicated increase in income was caused by the project. Ninety eight percent (98%) of farmers who indicated an increase in income since joining the project attributed the increase to benefits derived from the project as shown in figure below.

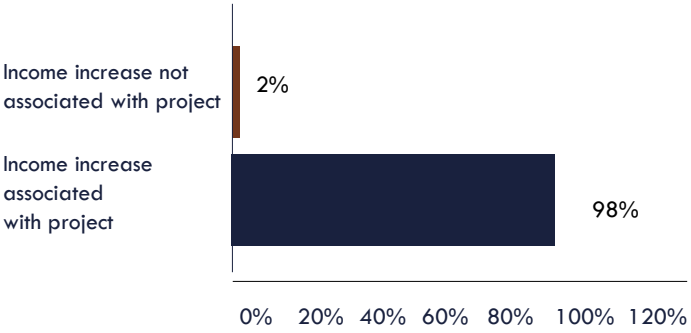


Figure 13: Attribution of increase in income to benefits derived from the project

Farmers were asked to indicate their household income per month considering all sources of income for the household (from farming and otherwise). The average household income per month for farmers in Kenya was KES 13,849 (USD 133 per month; daily USD 4.4) and for Uganda was UGX 439,325 (USD 118 per month; daily USD 3.9)

The change in income in terms for male or female, indicate that 70% of men had their income increase compared to 30% of women, however 73% of men reported a decrease in income compared to 28% of women as shown in the figure below.

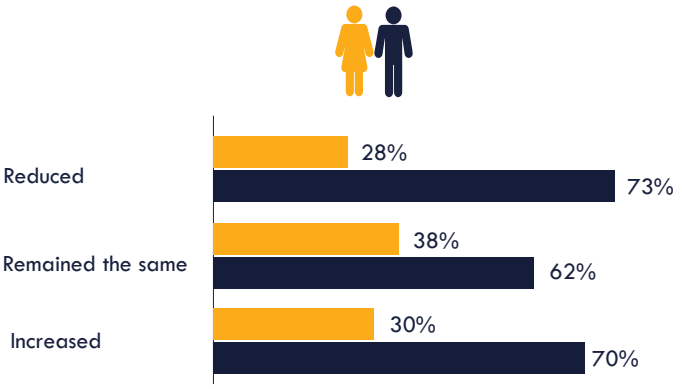


Figure 14: Comparative men-female changes in income

3.4.1.2 Farmers Training

Hivos and partners took the initiative of training beneficiaries on various topics including GAPs, GALs, biogas technology among others. Most beneficiaries (94%) confirmed that they received training as shown in the figure below.

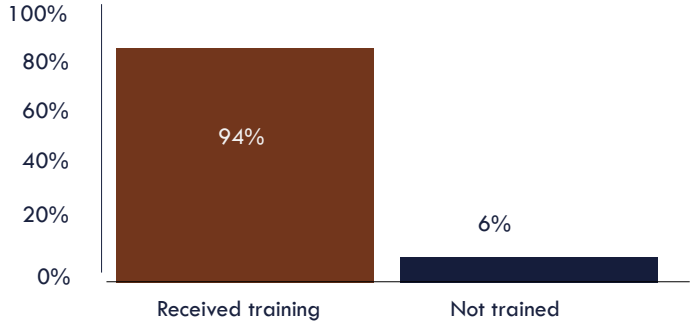


Figure 15: Training

The areas of training were diverse including Good agricultural practices in coffee production, Gender Action Learning for Sustainability, banana farming, horticulture, dairy production, biogas development and biogas use among others. Most of the farmers received trained in more than two areas as shown in the table below.

Table 4: Areas of Training

Training Areas	*Frequency*	*Percentage*
GALS	529	16.4%
GAPs in Coffee Farming	1022	31.8%
Horticulture	331	10.3%
Dairy	396	12.3%
Biogas Digester	509	15.8%
Banana Farming	414	12.9%
Others	15	0.5%

The evaluation asked farmers on relevance of trainings they received from the project. Most of the farmers represented by 83% in the figure below found the trainings very useful to their farming and as a major contributor to their knowledge base on good farming practices.

The evaluation further noted that these trainings are a good practice to bring about transformative change in rural areas amongst the small holder farmers.

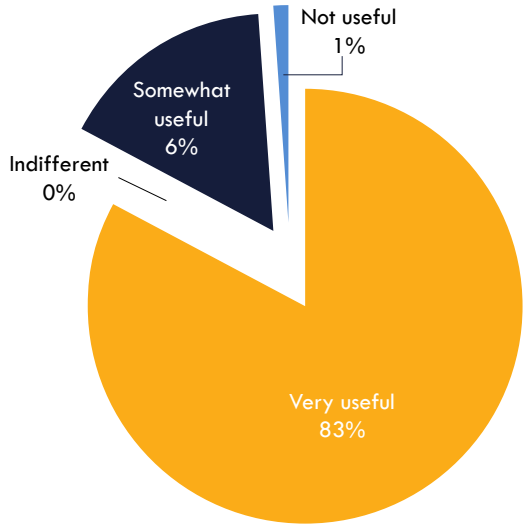


Figure 16: Relevance of trainings conducted

In line with the objective of the project to improve the livelihood of small holder farmers, the trainings conducted did not only improve the farming practices amongst the communities reached but also imparted knowledge on other aspects in the coffee, bananas, horticulture and dairy farming values chain for example on the benefits of collective marketing, knowledge sharing amongst small holder farmers and increased their bargaining power in pricing their produce. The table below indicates the other benefits that the small holder farmers received from the project.

Table 5: Other added benefits received from the project

Type of Benefit	Frequency	Percentage
Collective marketing	574	24%
Knowledge sharing	925	39%
Access to financial products	378	16%
Increased bargaining power	253	11%
Linkages to service providers	169	7%
Other	47	2%

The project provided the opportunity to transfer knowledge and skills that are critical to self-sustenance of smallholder coffee farming through training. Specifically majority, 39% of farmers benefited from knowledge sharing over and above trainings, 24% benefited from collective marketing and 16% from access to finance which was provided by the project. Farmers learnt GAPS which was a catalyst to increased household incomes. Project beneficiaries learnt good coffee husbandry, diversification for better incomes and avoidance of overreliance on one crop.

On the whole farmers attributed improvement in coffee farming practices as well as other types of farming, farm decision making, and improvement in farm production in quality and quantity terms, farm management skills and farm profitability to trainings conducted under the project among other interventions like extension services and good governance of cooperatives. To a large extent the trainings contributed to improvement in farm yield as discussed in the sections that follow.

3.4.1.3 Climate Resilience

To reduce the emissions at farm level, the project during implementation brought on board biogas companies to support programme implementation. The use of biogas and bio slurry by farmers was one of the objectives towards promoting green energy. Studies indicate that use of bio digesters to produce biogas for cooking reduce the use of firewood by 50%, the release of harmful soot particles by 24-45%, and CO2 emissions up to 90% compared to traditional cooking. Furthermore, women save 30 minutes on cooking time and there are reduced health effects arising from use of firewood.

Studies using a carbon tool to determine the carbon footprint along the coffee chain indicate that there is an average of 2.36 CO2 eq emissions per kg of roasted coffee; 42% of the emissions occur during harvesting and yield. Certification of this carbon emission reduction creates a new source of income: carbon credits. Carbon credit is used as a source of income for the households involved in cooperative coffee production. The scope of evaluation did not cover the extent to which carbon credit could have been used by cooperatives and producers organisations.

Although farmers were not asked to quantify the cost savings out of use of biogas and bio slurry, 88% indicated that bio-slurry has reduced cost on inorganic fertilizer and 88% of the farmers said they have fewer cases of chest and eye ailments in the household due to safe cooking from Biogas.

The project therefore contributed to mitigating against effects of climate change through the biogas for cooking, bio slurry which is an organic fertilizer for soil fertility as part of outputs under sub-results in result area 2 thus "Farmer extension programme expanded with climate adaptation, biogas slurry use, non-coffee activities". On adaptation to effects of climate change, the programme focus on diversification contributed by training farmers to engage in various non-coffee based income generating activities like dairy, bananas and horticulture. Coffee farmers were therefore moved from 'surviving' to 'productive business units'. With several sources of income for farmers, they are more resilient to market and climate shocks than when relying on coffee income only.

3.4.2. Increased productivity of Coffee farming among small scale farmers

3.4.2.1 Increase in Coffee Yield

Increase in income is directly tied to increase in production of farm produce for the farmers. The baseline study had observed an average decrease in coffee production and coffee prices per kilogram by 45% which is a disincentive to the farmers. Increased productivity of coffee farming among small scale farmers was one of the outcome indicators under the project. This increase is a direct measure of how the outputs (Extension support, training and access to credit facilities) worked to ensure increase in coffee yield and thereby improvement in the livelihoods of the farmers. Increase in the yield of coffee as a result of training and extension services provided by the project was recorded by 88% of the coffee farmers as shown in the figure below. However, coffee yield of 12% of the famers did not increase.

The marketing companies and producer organizations relies fully on coffee and therefore Increase in coffee yield fed into their objective of increasing both quantity and quality of coffee.

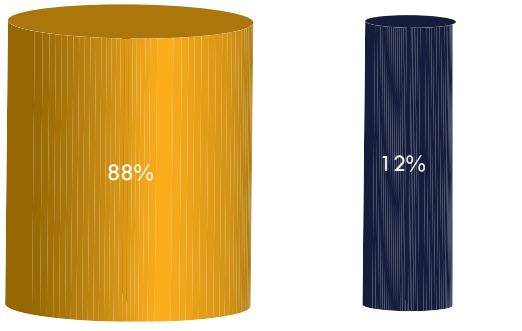


Figure 17: Coffee Yield

The evaluation sought to understand the level of the above mentioned increase in the yield of coffee. Seventy one percent (71%) of the farmers indicated that the yield increased significantly, 28% moderately and 1% noted a slight increase as shown in the figure below.

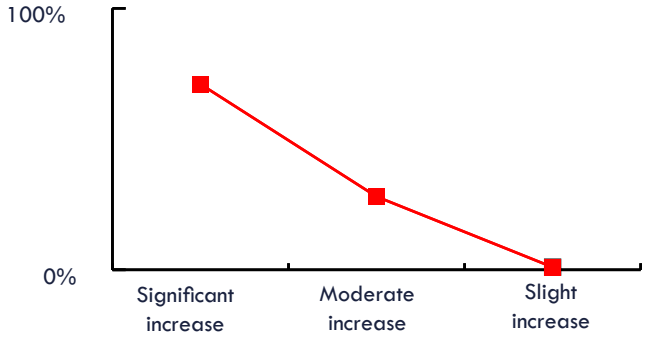


Figure 18: Level of Increase in Coffee Yield

3.4.3. Diversification and food security

According to Hivos toolkit on sustainable coffee farming as a family business, a steady income from coffee is not assured. Yields are seasonal and it takes four years before a coffee tree starts to produce berries. In addition, coffee is sensitive to changing weather conditions and diseases. Moreover, the price of coffee depends on world market prices.

Therefore finding additional sources of income for coffee farmers related to farming and coffee is a way to spread risks and make coffee farming more attractive. Diversification can be done in different ways: focusing on food safety, innovative ideas, or processing.

The diversification component of 4S@Scale focused on food security where the project helped the smallholder farmers to stop depending on coffee only as source of household income to feed their families. In Kenya, most farmers are now able to sell milk as well as bio slurry; benefits derived from the project. In Uganda, the farmers have banana both for food and income. Evidently the quality of food in the household has also improved because the farmers are now able to plant vegetables in their kitchen gardens and with increased income source for food stuffs that they do not produce.

The diversification has reduced over dependency on coffee and increased household income through sale of milk, savings from the milk production and banana use for household use and promotion of the green cover through banana farming.

3.4.4.1 Dairy farming

In Kenya the project supported dairy farmers towards increasing their production. The evaluation tested how many of these farmers recorded an improvement in their dairy farming and production as a result of training and other services received from the project. A good number of dairy farmers representing 68% indicated that their dairy farming improved; 32% felt the contrary.

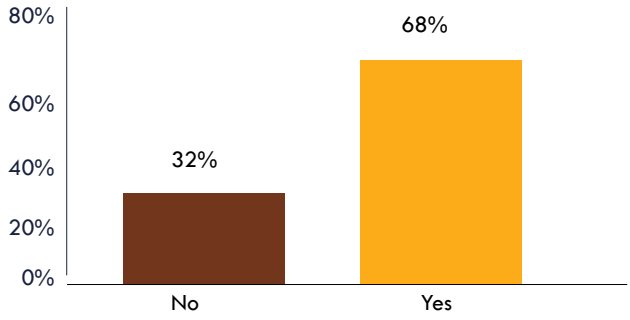


Figure 19: Improvement in Dairy Farming

The farmers who indicated that their yield did not improve as a result of the project were mostly from Embu, Kiambu, Kirinyaga Counties and a few from Machakos County. On the other hand those who asserted that their dairy produce improved as a result of the project were mostly from Muranga, Nyeri, Tharaka Nithi Counties and a few from Machakos County.

The improvement was measured in terms of yield from dairy farming (changes in number of livestock, milk production, and profitability among others). On probing the level of yield, 74% of farmers indicated that their yield increased significantly and 26% percent moderately as a result of training and other services received from the project.

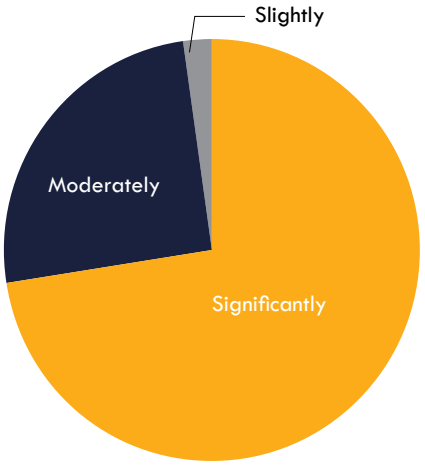


Figure 20: Increase in Yield from Dairy farming

The above changes in yield from dairy farming are partly associated with the increase in the number of livestock kept by the farmers.

The evaluation interrogated this change by asking the farmers to indicate the number of livestock they had before joining the project and how this has changed after joining the project. Majority of farmers at 60% percent as shown in the figure below reported that the number of livestock has increased since joining the project. Baseline data on number of livestock indicate that majority of farmers (82%) had between 1 and 3 cows.

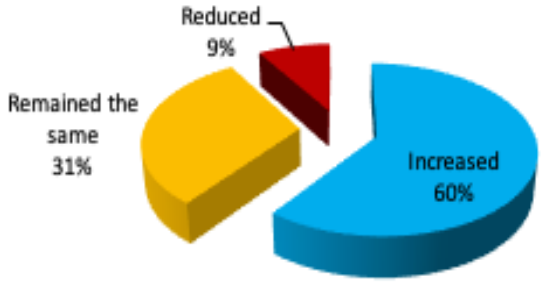


Figure 21: Change in number of livestock kept

However not all farmers recorded increase in the number of livestock; 31% had their stock remain the same and 9% had their stock of livestock reduce. Measured in absolute terms the average change in number of livestock kept was calculated as 115%.

On the same note the improvement in dairy farming can be seen through an increase in litres of milk produced measured over the project period i.e. before and after the project. According to data collected 55% of farmers had their milk production increase, 37% remained the same and 8% reduced (see the figure below)

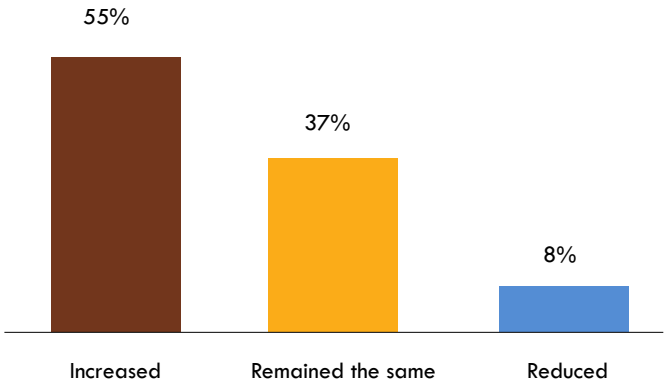


Figure 22: Change in quantity of milk produced

The data on the number of litres of milk produced before the project was collected and was compared to the yield after the project. The average increase in percentage of quantity of milk produced in litres per day was calculated as 81%.

3.4.4.2 Poultry farming

Poultry farming though not directly supported by the project was one of the other activities undertaken by farmers and in line with the project diversification goal. Fifty eight percent (58%) of farmers recorded an increase in number of poultry kept as shown in the figure below. This could be attributed to either increase in household income discussed earlier where farmers had additional income to diversify into poultry keeping or poultry keeping could have contributed to the increase in household income.

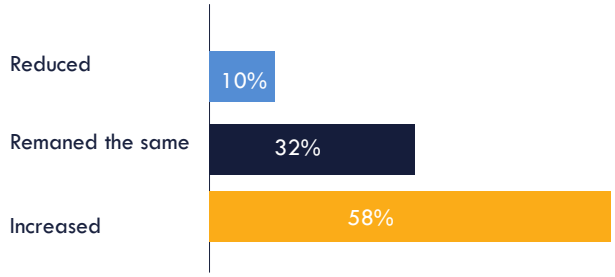


Figure 23: Change in number of Poultry Kept

The average increase in percentage of number of poultry kept was calculated as 49%.

Out of the increase in the number of poultry kept, the production in eggs produced per day also increased. On average the percentage change in trays of eggs produced increased by 111%. Most farmers (52%) as indicated by the figure below had their eggs production increase while 38% reported no change in production.

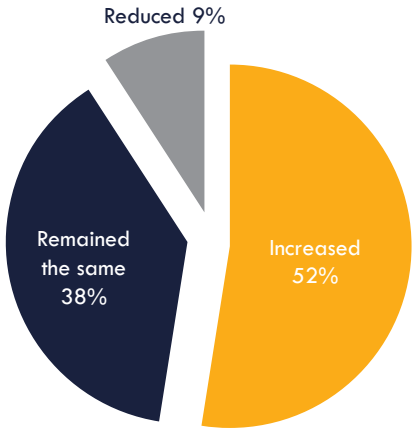


Figure 24: Change in trays of eggs produced per day

3.4.4.3 Banana and horticulture farming

In Uganda the project supported horticulture and banana farmers towards increasing their production. Sixty seven percent (67%) of these farmers confirmed that their bananas and horticultural produce improved as a result training and extension services received from the project.

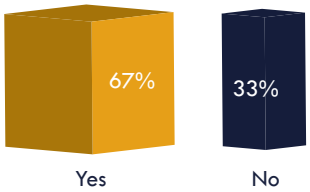


Figure 25: Improvement in Yield from Horticulture or Banana Farm

Those farmers who indicated that their produce from horticulture and/or bananas has increased were mostly from Kasese, Kiboga- Kyankwanzi, Mitooma, Kween, Sheema and Rukungiri. On the other hand, most of the farmers from Kapchorwa, Bushenyi and Bulambuli did not experience increase in production. According to 68% of farmers in project areas in Uganda, the increase in yield from banana and horticulture farms increased significantly. These farmers attributed the improvement and increase in production to the project interventions.

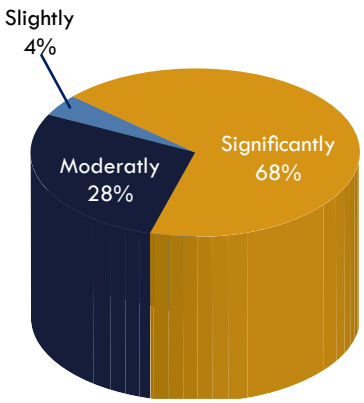


Figure 26: Level of increase in Yield from Horticulture or Banana Farm

The improvement in yield from banana farm noted above was supported by the change in the number of banana bunches produced after farmers got involved in the project compared to before joining the project. Sixty percent (60%) of the farmers recorded an increase in bunches of bananas produced while 37 percent did not record any change.

This improvement in number of bunches of bananas produced was accompanied by improvement in quality of banana fingers in the bunches as explained by members of women groups and promoter farmers in Uganda who participated in FGDs.

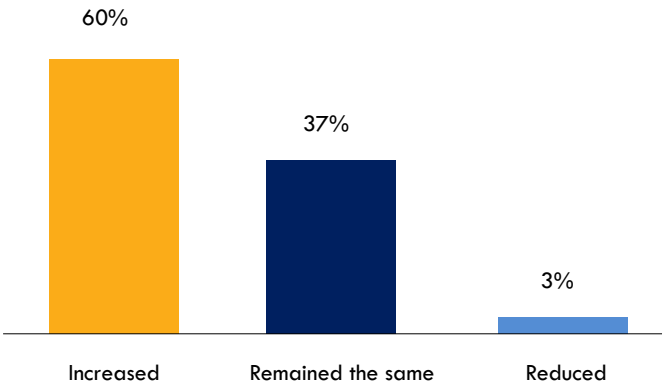


Figure 27: Change in Bunches of Bananas produced per day

The calculated average percentage change in yield from bananas was an increase of 144%.

3.4.4. Improved gender awareness and capacity for youth and women in Coffee sector to contribute towards viability of coffee industry

3.4.4.1 Women and Youth Integration

Women and youth potential can influence vibrancy and sustainability in the coffee sector however more often than not they have been left out in the value chain missing out on the business opportunities and ability to bring change. In many countries men as well as women report that women perform most of the work in coffee production - an estimated 70%. However, because men own the land and also the coffee trees, they generally claim the income. For the longest period coffee has been seen as a man's crop. Men sell the cash crop and pocket the earnings, while women and youth do the majority of the agricultural work and see little, if any, of the profits. In addition, in a context of shrinking farm sizes, providing people with the skills and resources necessary to maximize land use and produce quality coffee that fetches a good price is extremely important.

GALS is based on value principles of inclusion, respect and equity that underlie and are continually reinforced by distinctive participatory facilitation techniques and adaptations. By involving women and youth and through training, financial inclusions and diversification, we do not only secure coffee for the future, but can also make an impact for the coffee growers' families and communities. This in turn promotes economic development, social justice and environmental sustainability.

Inclusion of men, youth and women in coffee production was vital to the project outcomes. This was achieved through two gender training approaches used in the programme; Gender Action Learning for Sustainability used in Kenya and gender hybrid framework used in Uganda. This was undertaken under key results area 6 whose indicators were increases in Gender sensitive staff and cooperative leaders, farmers (Men, Women and Youth) selling good quality coffee and women and youth reached with agricultural extension. This way gender awareness and capacity for youth and women would contribute towards viability of all in the coffee sector.

Improved gender awareness and capacity for youth and women in Coffee sector to contribute towards viability of coffee industry was one of the project outcome indicators. The indicator appreciated that gender and youth mainstreaming within the industry will be gradual and therefore sought to empower women and young people with skills to contribute effectively in different components of the value chain through various targeted capacity strengthening initiatives such as training and sensitizations.

With the support of the 4S@Scale project the women and youth were expected to become actively involved in coffee cooperatives and earn a fair share of coffee production profits. The project helped women and youth move from providing menial labor harvesting coffee to assuming positions of responsibility actively involved in adding value to the coffee, and related coffee market as illustrated in the following case studies and paragraphs.

Case Study: Kaptoyoy Integrated Youths Farmers Association, UGANDA

When asked about their experience in the project, the Kaptoyoy Integrated Youths Farmers Association excitedly shared their benefits that have accrued to then as a result of the project.

"…I have saved time. I no longer waste 8 hours going to collect firewood at the forest. I have an easy cooking method and cheap lighting system… and I am not the only one, we are many. We don't have to cut down trees unnecessary…"
"…We now have jobs which are reducing on the insecurity in the community…"
"… We have formed groups which help to get capital for investments… easy to get organic fertilizers…"
"I have created more friends… improved trust amongst us…"
"…The project has created a saving culture in youths … brought "banks" / saving groups near us
"…We now get and share information…"
"… As youth, we nowadays seat with our parents to decide on what to do before, during and after the season by making a work plan…"

The members were able to sensitize farmers about Biogas with leading to 6 farmers constructing the bio digesters. They received an appreciation from Biogas solution Uganda of UGX 50,000 per farmer who had constructed the bio digester. The members reported satisfaction in their involvement in the project. On organic fertilizer, this is what the youth had to say;

"… My 'matooke' yield has increased due to manure application…"
"…Bio slurry has helped to improve my vegetable garden now I get more money from the vegetable I sell..."
"…I have benefited from the increased coffee production due to application of bio slurry…"

They had received a total grant of UGX 5110,000 which helped 3 of their members to study. At the moment of evaluation they 3 members had graduated as accountants and a nurse. The group owns a piggery farm, a dairy farm and a coffee nursery which equally has increased their income. Thy have also started saving and loans group and members can now easily borrow money for their needs.

There was an observed satisfaction with the 4S@Scale project by the Women and Youth with most of them sharing the benefits the project brought to them. Of high priority is the improved financial status, supporting them to pay school fees for their children and to improve their living standards. The trainings the women and youth were beneficial towards improved yields. The project helped to have more involvement and creation of employment for other members of the society through coffee picking and support on the farms. The youth now have motor bikes that have helped them to earn gainful income and therefore improved their productivity on the society.

3.4.4.2 Women and Youth Integration

The final evaluation showed that majority of smallholder farmers are in the 36 to 60 years age bracket representing 62.5% followed by youth aged between 18 to 35 years represent 25.6% of the farmers. Farmers below 18 years were 0.2%. This is against the baseline data showing 18% and 18.5% youth in Kenya and Uganda respectively. Findings indicate that 69% of farmers are men and 31% are women. The baseline data had 86.8% and 68% of men coffee farmers in Uganda and Kenya respectively. In both countries women do most of the work at farm level whereas the farm is male owned.

3.4.4.3 Decision Making in the Households

To further assess the extent to which the project achieved gender and youth inclusion, data was collected on how decisions are made in farmers' households relating to budget, use of land and land resources, harvesting of crops and selling. How inclusive the above processes are, is a pointer to the role the project players to making coffee a sustainable family business. When asked who makes decisions in the household, 45% indicated that it is done consultatively between man and woman. In some homesteads decision are made by either man or woman (36% and 18% respectively). It is only in 1% of the households where decisions are made by children as shown in the figure below.

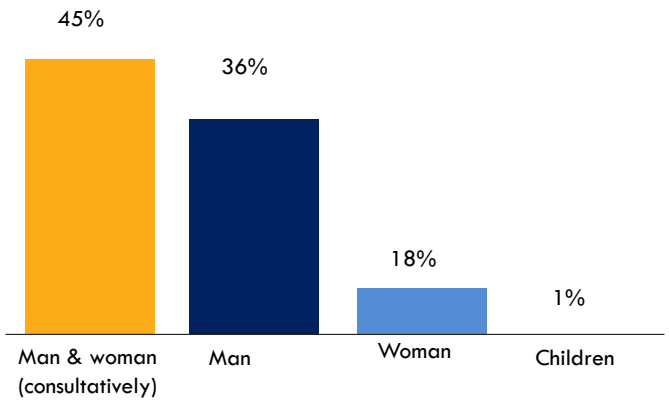


Figure 28: Decision Making in Households

The figure below indicates that in most of the households (51%) decisions on household budgets are made consultatively between man and woman. This speaks to ownership of household income by the family.

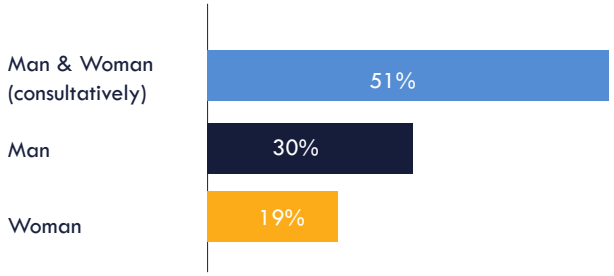


Figure 29: Decisions on household budget

This is a good sign of shifting mindset among men compared to what other studies have concluded in the past that, men largely makes decisions on how income from coffee especially is used with very many men (men themselves estimated 70% in communities in Uganda, Tanzania, Kenya and DRC) spend much of the income on alcohol, women in town or more wives.

One of the constraints for young and women coffee farmers is getting access to resources. Access to land is by far the most problematic one. Often traditional ownership structures make it difficult to acquire land from older farmers. Data collected from the households and FGDs indicate that matters related to use of land and land resources are still sensitive. In coffee farming ownership of land is a determinant of who owns coffee trees, and thereby income.

When asked who makes decisions on use land and land resources, 51% of farmers indicated that such decisions are made by both man and woman, 33% by man alone and 16% by woman alone (see figure below). Despite the progress made, land ownership still remains the big hindrance to youth and women inclusion in coffee farming.

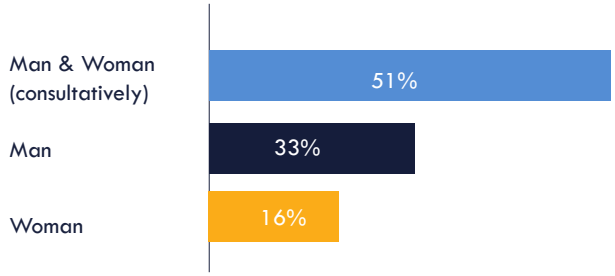


Figure 30: Decisions on use of land and land resources

Stories from the field indicated that cases of divorce and separation reduced since women can now contribute to the wellbeing of the family and influence decisions in the home. The women just like other smallholder farmers were given tarpaulins which made picking of coffee easier and faster. Most women confessed to having more contribution to the way farming was done in their households while confessing to having more control over their economic lives with reduced dependency on men.

These women have the vision for continued financial empowerment and not just at an individual but corporate community level. Below is what some said;

"… My house was grass thatched… I bought iron sheets, and now I have a better roof for my home…" Woman participant

"…With improved yields from coffee, bananas and other farming activities … we will be able to save more to buy more tents and chairs for our group and provide catering services to the community…" Chairperson of Women Group

Thirty six percent (36%) of farmers are now able to make critical decisions jointly while 37% jointly discuss how to spend the proceeds from their farming activities and a further 25% have become more open with each other on ownership of property.

Decisions on harvesting are critical to a coffee farming household. When asked who makes decisions on harvesting 76% of farmers indicated that is the decision of the woman of the household while 24% indicated it is the man who makes such decisions. This is in line with what is observed that 70% of work in coffee farms is done by women.

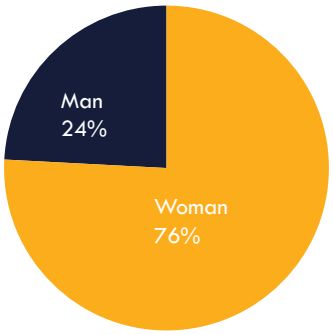


Figure 31: Decisions on Harvesting

Equally in most of the households decisions on selling are made by the woman representing 74% of the farmers as shown in the figure below. Testimonies from field however indicate that decisions on selling should not be construed to mean that women control the sale proceeds as it were because men in most of the cases will be the final recipient of sales proceeds.

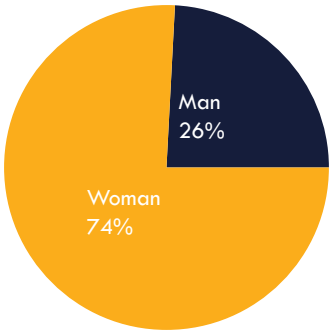


Figure 32: Decisions on Selling

Arising out of the improved decision making in the household and women empowerment the evaluation established that the contribution and influence of women on household income has increased as reported by 65% of the households (refer to the figure below).

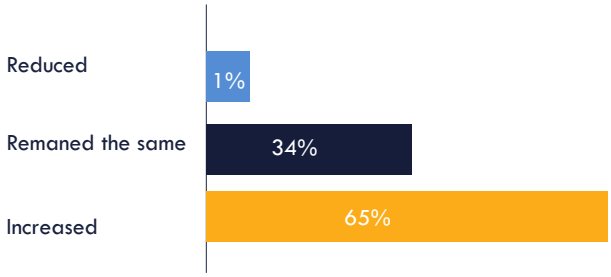


Figure 33: Contribution / Influence of women on Household income

3.4.4.4 Youth and Women Training

To achieve improved gender awareness and capacity for youth and women in Coffee sector, the project undertook trainings. The youth confirmed having received the training on Good Agricultural Practices and reported an increase in coffee yields. Unlike before, they felt they were now able to control soil erosion, do records and thus more accountable in their income generation activities.

The use of organic farm inputs has saved farmers from the using dangerous chemicals that would have been harmful to their health. Evidence from ECOM subsidiaries shows that training on GAPs to young coffee farmers; the uptake of new practices is much higher by these youngsters; they learn fast and can apply quickly. Consequently, the yields of young farmers are much higher than those of their fathers

On Gender Action Learning trainings, the youth said they now had a better understanding in; working together as a family, joint distribution of income after selling, no domestic violence, equal opportunities for all the members of the family and the community, equal ownership of the resources in the family, peace and transparency, freedom of expression and confidence of the children in the home, equal access to family assets, no more primitive traditional practices like female circumcision, all children have freedom to go to school, equal responsibility for child birth and upbringing and increased love and care for each other in the family. They observed the following changes in families.

"…There is now togetherness in the families…"
"…Children's education has increased due to joint planning…"
"…Families are now saving for their children…

67% of the farmers benefited from these trainings. However 33% of farmers were not trained on gender issues as shown in the figure below.

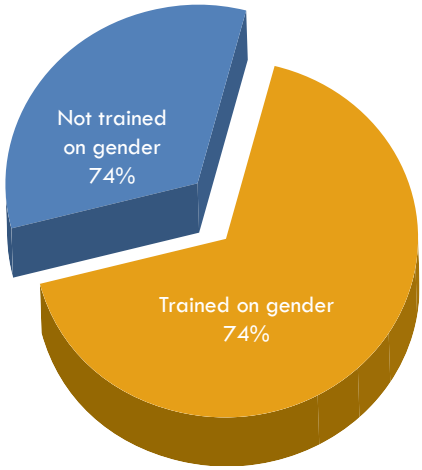


Figure 33: Contribution / Influence of women on Household income

The farmers who participated in gender training were asked how the trainings have benefited them. The table below indicates the various benefits that farmers derived from gender trainings.

Table 6: Benefits from gender training

Benefit derived from gender trainings	*Frequency*	*Percentage*
We now make critical decisions jointly	556	36%
We jointly discuss how to spend the proceeds from our farming activities	560	37%
We have become more open with each other on ownership of property	342	22%
others	75	5%

3.4.4.5 Benefits and changes experienced by Women

Additionally as mentioned above, access to land is key driver towards inclusion of youth and women in coffee farming. Through the various project inventions, this evaluation found that access to land for farming by women through leasing, allocation and acquisition has increased as confirmed by 35% of the households. However majority of the households (63%) indicated that access to land by farmers remained the same. The land in question here is land that women can farm and produce their own coffee and other crops and claim the income thereof.

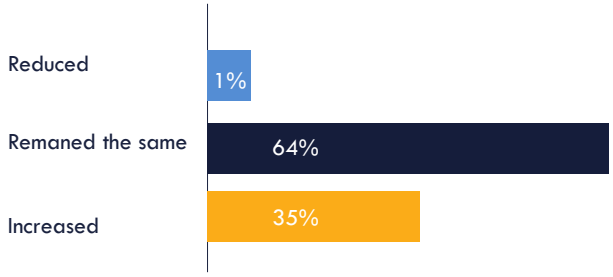


Figure 35: Access to land by Women

The evaluation further sought to establish how the above increase in access to land has contributed to changes in incomes for women. Through GALs training women were able to access more land and make decisions on farming and use of money from the sale of the farm produce. With increase in access to land by women, it was reported that 87% of the women have increased their incomes as shown in the figure below.

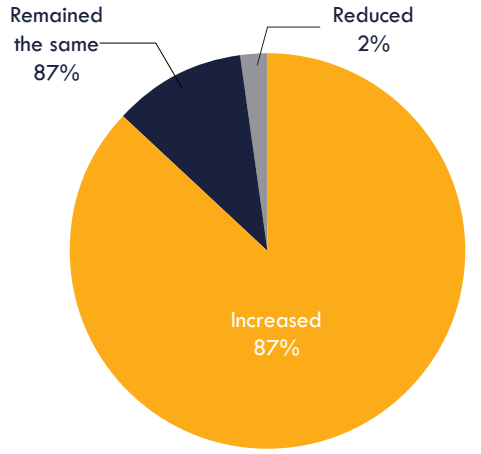


Figure 36: Women Level of Income

In most households, women are the ones concerned with provision of meals. When incomes increase, households tend to increase the number of meals per day. The findings of this evaluation indicate that the frequency of meals in the homestead have increased as reported by 79% of the farmers while 20% (see table below) reported that the number of meals remained the same, included in this group are those who already had three meals in their plan before the project.

Table 7: Frequency of meals

Frequency of meals	*Frequency*	*Percentage*
Increased	880	79%
Remained the same	225	20%
Reduced	6	1%

3.4.4.6 Promoter farmers on the involvement of youth and women

The evaluation revealed that the promoter farmers were very instrumental in the project having been a crucial link between the farmers and the project implementers. These promoter farmers supported farmers to monitor their projects while educating them and sharing information in the following areas;

The promoter farmers were experienced as an asset to the youth and farmers in general. Although few in number, it made it easy for the youth to access the farm tools. Bringing training near to the farmers, the promoter farmers trained and sensitized farmers on pruning, stumping, proper picking, mulching and many others.

The youth appreciated the promoter farmers as role models in the community on coffee GAPs implementation, readily available and accessible by the farmer in case of any challenge, and appreciated as agents of Kawacom. They easily and quickly spread information on prices, where to get genuine planting materials and how each material and input would help farmers.

Some of the promoter farmers' voices in Uganda and Kenya are captured below from FGDs conducted in August and September.

"… I acquired Good Agricultural practice (GAPs), and I had the opportunity to share the acquired knowledge with other farmers… "female farmer, Kenya

"… Enabled me to act as an example where farmers come and learn from my field… "female promoter farmer, Uganda

" … I gained more knowledge on coffee management practices. This has enabled me to be respected in the community… "female promoter farmer, Kenya

" …. I am more knowledgeable now in compost manure making which has enabled me to have everyday manure thus improving productivity of coffee and bananas… "male promoter farmer, Uganda

"… I have created more friendship and know more people that I can go to from trainings held in different places… "female promoter farmer, Uganda

" … I was encouraged to construct a bio digester which is very helpful in lighting, cooking, and bio slurry production. My bananas and coffee look healthier… "Female promoter farmer, Uganda

"… I see the importance of seedling selection, coffee management practices e.g. pruning, stumping, desuckering and proper picking which has resulted into having a higher yield and good income… "male promoter farmer, Uganda

"… I did not know that coffee farming was a business, but being a promoter farmer, now I know that coffee farming can be done as a business not just for the local but international market... "male promoter farmer

" … Before the project, I never knew the meaning of gender in farming and decision making. But now after being trained on gender issues, all family members participate in farming and decision making. The visioning journey training has helped me to dream and work towards making my dreams a reality … "male promoter farmer, Kenya

" … I gained knowledge in coffee establishment especially measuring pits, spacing and seedling selection… "female promoter farmer, Kenya

"… I am happy to see that instead of farmers selling wet cherries to middlemen, now they dry their coffee and sell it to KAWACOM at better prices… "male promoter farmer, Uganda

"… Farmers used to dry their coffee on bare ground but after training they now dry their coffee on tarpaulins hence good quality coffee and fetched higher prices which increased on their income and livelihood… "promoter farmer, Uganda

"… I think promoter farmers have created a link between farmers and the project making it more community oriented. However, there are incidences where not all farmers were reached in time because of inadequate facilitation and communication… "promoter farmer, Kenya

3.4.5. Workload reduction in Kenya and Uganda

The project brought in biogas companies later during implementation. The main objective was for them to install bio digesters to provide access to clean energy at household level through the implementation of biogas use while substituting the use of firewood, increasing agricultural production through the application of bio-slurry (the liquid effluent from the digesters), improving living conditions by reducing the workload (250 and 50 person year in Kenya and Uganda respectively) and improving health and sanitation for mostly women, while at the same time contributing to reduction of greenhouse gas (GHG) emissions. However as noted earlier in the report, implementation for bio digester installations delayed thereby affecting this result area negatively. Notably despite the late kickoff, achievements as explained in the sections below show that uptake of bio digesters for the project was way above the national average for both Kenya and Uganda.

A study by World Bank indicates that general lack of demand and of awareness of the existence and benefits of bio digesters is a key barrier. The two key products of bio digesters – biogas (gas for clean cooking and lighting) and bio slurry (fertilizer) – need to be highlighted when communicating with farmers and other stakeholders. These products bring a variety of benefits, including agricultural yield increases, reduction of cost for agricultural inputs, workload reduction (primarily for women), improved health due to cleaner cooking fuel, increased rural employment, and decreased deforestation, among others.

3.4.5.1 Biogas Development

In Uganda, the desire for farmers to improve the yields accompanied by the construction and maintenance that was led by the community members, not forgetting the KAWACOM drive for organic farming promoted the bio digester technology embrace by the farmers. This technology however worked amongst the farmers who had cattle and had access to sufficient water supply. In Kenya the diversification element of the project focused on rearing of dairy cows which fed into the use of the Bio digesters for production of biogas and bio-slurry.

The findings indicate that awareness of biogas technology by households has improved. Six percent (6%) of households indicated that they have installed bio digesters. This is against baseline data which shows that only 2% of the households had biogas digesters and less than 3% of the households used bio slurry. It is worth noting that this above national average for both Kenya and Uganda. However the majority of households at 94% are yet to install bio digesters as indicated by the figure below.

World Bank Lessons learned from on-farm biodigester programs in Africa

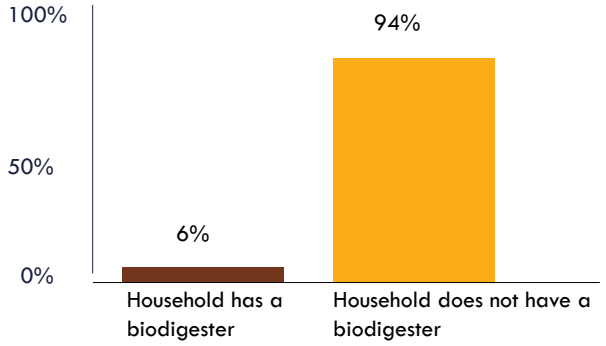


Figure 37: Installed Bio Digester in Households

Comparatively, Kenya had slightly more farmers who have installed bio digesters at 7% compared to Uganda at 5% as shown in the figure below.

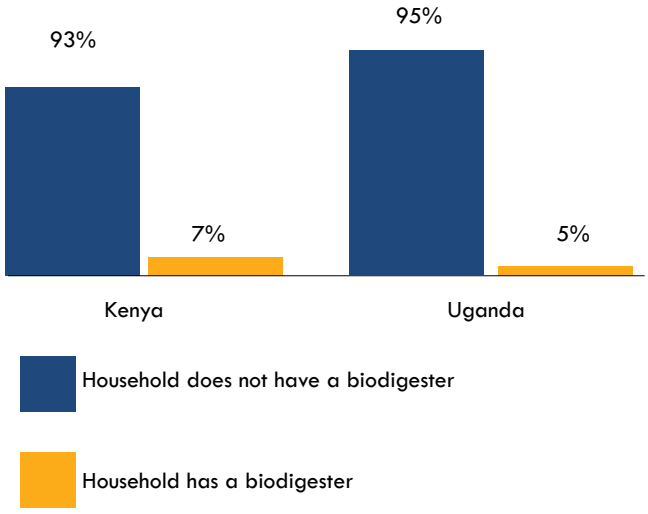


Figure 38: Comparative Kenya- Uganda biodigester installation

Among those households that have a Bio digester, 94% are aware that it can help the household save on cooking costs as shown in the figure below. Awareness of biogas technology has increased from baseline data of 64%.

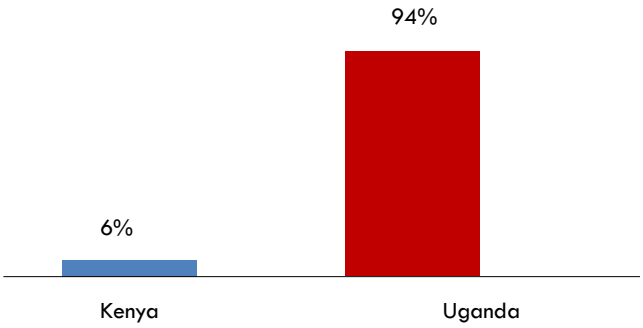


Figure 39: Awareness of benefits of a bio digester

Further the farmers that have installed a bio digester were asked to indicate how they were benefiting from and their experience in using a biodigester. Majority of the farmers (83%) agreed that bio digester has helped them cut down on costs of cooking; 80% reported that it has made their life easier in cooking among other benefits as indicated in the table below.

Table 8: Farmers' experience in using a biodigester

Experience	Agree	Disagree
It has made my life easier	80%	19%
It has helped me cut down on some costs	83%	16%
It takes too much of my time	1%	97%
It is labour intensive	6%	93%

Farmers who have installed bio digesters have multiple uses from this technology as indicated by the table below. Majority of these farmers (91%) use bio-slurry as organic fertilizer in the farms which according to 90% of the farmers has contributed to improvement in coffee yields, 88% indicated that bio-slurry has reduced cost on inorganic fertilizer and 88% have fewer cases of chest and eye ailments in the household due to safe cooking from Biogas.

In Uganda specifically, the following Bio digester Benefits accrued to the community;

•Reduction of installation costs by half as installation was done by the local technicians who were empowered with construction and maintenance skills.

•Bio slurry used as organic fertilizer cutting cost on farm inputs and improving yields meaning increased income thus improved living standards.

•Renewed energy (biogas) is cheap and clean. It reduced respiratory infections and saved on money and the time spend fetching firewood by women

•Shared roles in the households hence freeing time for women to engage in other activities. The men took up cooking roles because of the effectiveness of the biogas

•Bio slurry was used for kitchen gardening and in banana farms, this improved quality of meals and more income from banana farming.

•Empowering youths from the community on construction and maintenance of the bio digester increased income among the youth, reduced unemployment rates and more productive use of their time

•Women empowerment; in Sipi the women are constructing and marketing the bio digesters. Training is done to the CBO, youth groups, and women groups to encourage them to embrace bio digesters in their households. Biogas Solutions, Uganda

Table 9: Benefits of Bio-slurry

Benefits derived from use of bio-slurry	Percentage
Organic fertilizer in my farm	91%
Has reduced my cost on inorganic fertilizer	88%
Has contributed to improvement in my coffee yields	90%
Fewer cases of Chest and Eye ailments in my house due to safe cooking from Biogas	87%

The evaluation gathered information on why the uptake of biogas and use of bio-slurry is still low (6% uptake) despite the project's interventions on training farmers on the benefits of biogas and the high awareness levels.

For those farmers who do not have a bio digester, a large number of them (72%) confirmed that they are aware of the benefits of bio digesters, 58% reported that installation is expensive and 27% said they do not have skills to set up a bio digester (see the table below). The baseline study observed the same high awareness but low intake

Table 10: Reasons why bio digesters uptake is low

Reason why I do not have a bio digester	Agree	Don't know	Disagree
But I am aware of its benefits	72%	19%	9%
Because it is expensive to set up	58%	20%	22%
Because I do not have the skills to set it up	27%	20%	53%

The credit linkage to the Bio digester technology perhaps was the biggest challenge to the farmers who tied everything to the annual coffee income which was unpredictable. Some farmers also utilized the credit for other priorities and the credit conditions were equally stringent to the farmers.

The micro – financing structures of 12 months were limiting. Unlike Kenya where farmers had contracts with CMS and SMS, the Ugandan counterparts had no contract and basic arrangements of having the promoter farmers providing "guarantee" for the credit, a practice that was not well embraced. The cost of financing was apparently high and the seasonal characteristics of agriculture as an industry had a risk perceived to be too high.

It is worth noting that in Uganda there is a community that was against the installation of bio digesters because the women said the only time they get to catch up with the other women was when they were fetching firewood. Culturally, some communities see cow dung as dirt and mixed chambers were thus constructed to avoid contact with cow dung.

3.4.6. Access to Finance

The project through ECOM provided credit to coffee smallholders for purchase of farm inputs. This credit facility was later applied to install bio digesters for farmers. The evaluation assessed the level of credit facility uptake and what may have contributed to the achievement or non-achievement.

Uptake of credit facility helped the project achieve its objective in various ways; the farmers could buy inputs for their farms, increase production of coffee, increase their income from coffee, and use this income to diversify into other crop farming. For the coffee marketing companies high uptake of credit would lead to increased profits arising from better quality coffee and higher production. The financial report discussed later in the report show that credit uptake from ECOM was exceeded by 143%. This is a sign that the credit facility was well thought out as part of the programme interventions.

Farmers Access to a bank account either individual or group is important for smallholder farmers as a means to savings and access to credit for expanding farming activities. Overall 65% of the smallholder farmers said they have access to bank account as shown the figure below.

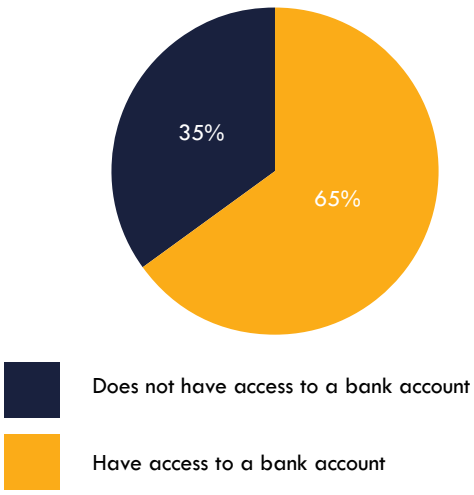


Figure 42: Access to a bank account

Most farmers maintain personal accounts (91%) while 8% have access to group accounts. Through the access to credit and financial inclusion the women had their savings in village savings and loan associations (VSLA) which meant they were able to take more loans that they used to buy inputs for their farms and meet other needs.

When asked how they finance their farming, most farmers indicated that they rely on the farm produce together with other sources for example salaries and borrowing from banks and cooperatives. As the figure below shows, 43% of farmers do not experience difficulties accessing credit to finance their farming while 41% do have difficulties. Sixteen percent of farmers (16%) indicated that they do not need credit.

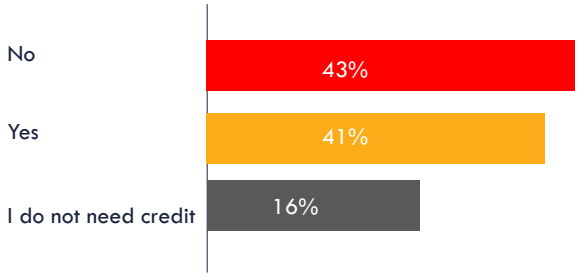


Table 11: Reasons for not accessing credit

The evaluation probed the farmers that face difficulties in accessing credit to understand the reasons behind their experiences. As the table below show, high interest rates as reported by 50% of the farmers is the greatest hindrance to farmers followed by stringent loan pre-conditions raised by 42% of the farmers.

Table 9: Benefits of Bio-slurry

Reasons for not accessing credit	*Frequency*	*Percentage*
The interest rates are high	333	50%
The pre-conditions are too stringent	280	42%
I do not know where to get credit	45	7%
Lack of enough savings	4	1%

3.4.7. Sustainable and viable extension services

The programme planned to put in place sustainable and viable extension services which were meant to be the source of information on agricultural practices to farmers. The goal of the project was to ensure a transition of extension services function across structures over time to ensure it is sustainable. This would ensure that marketing agents for example ECOM and producer organizations continuously find extension service a viable function as its contribution to improved productivity of coffee and that it remains plausible and cost effective.

Further, producer organisations such as Cooperatives in Kenya and village savings and lending associations adapt and institutionalise structures that would provide extension service to farmers either through a combination of promoter farmers, field committees, field officers, sustainability managers and agronomists.

The figure below shows where farmers sourced information on good agricultural practices, pricing and other marketing services. The programme provided viable extension service; this is based on the 61% of farmers who indicated that they relied on extension services for farming, marketing and pricing information.

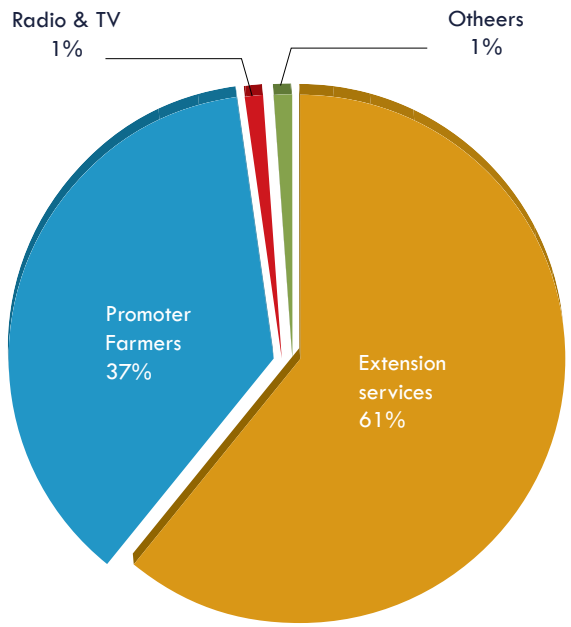


Figure 44: Source of Information on farming

The programme further used farmer-to-farmer model (promoter farmer/ lead farmer) where 1,200 promoter farmers were trained on GAPs to reach other farmers in their areas with training, data collection and follow-up.

At the heart of ECOM subsidiaries (SMS and CMS) the need to provide extension and farm advisory services to smallholder coffee producers is to secure business and loyalty of clients. The 4S@Scale project strengthened the already established farmer extension model for ECOM. At CMS for example At CMS two extension models have been promoted and scaled up i.e. Trainers of Trainers model and Promoter Farmers Model. For SMS Farmer to Farmer extension approach will perpetually be used where Promoter farmers play a critical role of Training, data collection and follow-up. Evidence obtained from ECOM subsidiaries indicate that the models have worked very well over the years during implementation of various trainings. On the part of CMS and SMS, they motivated the promoter farmers through ensuring that they participate in decision making pertaining to developments in the cooperatives
Evaluation findings indicate that 37% of the farmers relied on promoter farmers as a source of information on farming.

The sustainability of extension services would largely depend on further support by marketing companies like ECOM, as a business strategy to increase coffee production. However, focus group discussions conducted in Kenya and Uganda confirmed that the promoter farmer model was viable and will continue to be used because farmers will still go to learn from promoter farmers about good agricultural practices in their farms.
The promoter famers confirmed they have increased coffee production in their farm and thus better income. Notably, most promoter farmers indicated that they like the respect they are accorded in their communities and will therefore continue working on their farms to keep them as model farms.

3.4.8. PPP and Project Communication

The 4S@Scale was a Public Private Partnership with NGOs who focus on social interests and private companies with business interests and funded by a Ministry of Foreign Affairs of the Netherlands. This kind of partnership is expected to have its share of communication challenges due to diversity of partners' primary objectives. Either way, the partnership brought on board various synergies and cultures from all the different organisations. Partners had to agree to be open and transparent in order to progress and achieve goals. Working committees would meet to deal with emerging issues. The channels of communication were clear between the project and the farmers.

When asked how the project communicated with them and them with the project, majority of farmers (45%) indicated that they gave feedback and/or send grievances through the promoter farmers, 33% through the field officers and 17% through farmer associations (see table below).

Figure 40: Channel of Communication

Channel of Feedback & Grievances Used	Frequency	Percentage
Through the promoter farmer	941	44.6%
Through the field coordinator/officer	704	33.3%
Through an opinion box	92	4.4%
Through farmer association	361	17.1%
Directly to the main office	10	0.5%
Did not give feedback	3	0.1%

The farmers were satisfied with the feedback channels with 65% saying they were very satisfied and 28% satisfied as shown in the figure below.

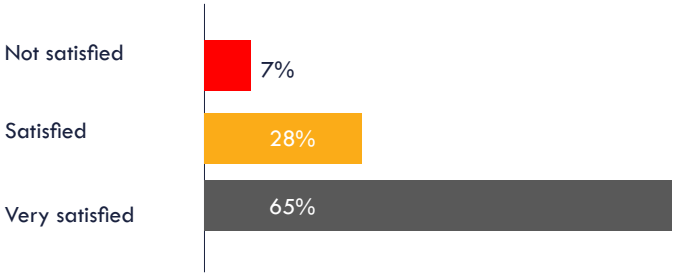


Figure 41: Level of Satisfaction with feedback channels

3.5. Project Efficiency

3.5.1. Timeliness

A review of the project reports indicate that project activities were implemented in accordance with set objectives and the work plan. This was facilitated through a robust communication strategy between the project partners, project staff, promoter farmers, and field coordinators, farmers and farmers associations. Delays in kickoff of some project components like install of biodigesters negatively affected uptake.

The feedback mechanism put in place by the project and the planning, monitoring and evaluation framework developed gave an opportunity to share emerging lessons or experiences from the project, out of which adjustments to strategies were considered and implemented. It is our informed opinion that the project timeframe was adequate to draw lessons from and provide recommendations for future programming with necessary adjustments alluded to in the report.

3.5.2. Implementation Capacity

The project invested in a formidable team comprising of country level management, gender experts, experts in agronomy, cooperative management, standards and certification, experts in cooperative management, local market and business development. The country office provided financial, procurement and communication staff and other human capacity needed to support the project.

Partnerships were established with ECOM and its subsidiaries Sustainable Management Systems Limited, Kawacom Uganda Limited and Coffee Management Services. Additionally Kenya Biogas Program (KBP), Biogas Solutions Uganda Limited and SNV were part of the partnership. These partners provided expertise in project management, training of smallholder famers and cooperatives governance, extension services, certification and biogas technology among others. The organization of various stakeholders in project implementation is assessed to have been sufficient for the delivery of project results.

The stakeholders enjoyed the partnership for capacity and technical support from HIVOS which provided informed interpretation and promotion of accountability, systems and structures in line with the donor requirements. There were delays experienced at the beginning of the program because of the staff turnover at HIVOS and the adjustments that they needed to make on their targets took a bit of back and forth processes into the project implementation. The support from SNV was intense at the beginning but reduced afterwards especially on the ground for Uganda. This however was mitigated by Biogas Solutions.

The project had a robust planning, monitoring and evaluation framework which ensured achievement of the 4S@Scale programme within an optimal time range. The focus of the PME was not only on achieving targets set but also ensured the project was implemented in an efficient and sustainable manner. This framework provided stakeholders with a platform that enabled them to approach all interventions in a coherent manner.

3.5.3. Budget Utilisation

The project operational budget was for the period 2013 to 2019 was €11,519,276 which was shared and expended by partners as follows and according to an approved activity work plan covering technical assistance, capital and infrastructure goods and M&E.

Figure 41: Level of Satisfaction with feedback channels

Budget			Expenditure					Variance
Partner	**€**	**Percentage**	**2013-15**	**2016-17**	**2018**	**2019**	**Totals**	**€**
Ecom Subsidiaries	**2,780,000**	24%	457,078	1,416,167	728,082	353,049	**2,954,377**	(174,377)
Ecom Credit	**4,473,500**	39%	1,423,720	3,963,817	3,842,940	1,620,883	**10,851,360**	(6,377,860)
Biogas Companies	**1,430,885**	12%	162,030	481,596	121,601	114,212	**879,440**	551,446
SNV TA	**1,154,337**	10%	234,270	354,130	120,517	137,547	**846,464**	307,873
Hivos	**1,680,554**	15%	591,830	711,908	281,486	426,290	**2,011,514**	(330,960)
Total	**11,519,276**	**100%**	2,868,927	6,927,618	5,094,627	2,651,982	**17,543,154**	(6,023,878)

The partners and beneficiaries were able to work within the available resources. The resourcing for both programs in Kenya and Uganda was considered inadequate with initial targets. However the flexibility of the partnership allowed for the revision of targets and project design to fit within the local contexts. The harmonization of the activities was therefore contextualized at the individual country level. For instance the subsidy component in the

Ugandan project was removed, utilization of low cost local materials, use of own nursery for demonstration with local labor integrated into the implementation. The existing infrastructure provided for both flexibility and sustainability early into the project. The biogas installations were contributory with farmers giving in a portion of the costs.

Hivos and ECOM subsidiaries exceeded the budget by 20% and 6% respectively, this may have been contributed by the delays encountered at inception and the programmatic changes that the project under went in the course of implementation. ECOM also exceeded the budget for credit to cooperatives by € 6.37 Million (143%). Though this is an unfavourable variance, it implies that more credit was extended to cooperatives than had been planned. Biogas companies and SNV had favorable budgets of 39% and 27% respectively.

3.6. Project Impact

The project's primary objective was to improve the livelihoods of 80,000 small holder coffee farmers in East Africa using integrated farming systems. The project target outcomes were to increase productivity of Coffee farming among small scale farmers, improve household incomes and increase climate resilience, improve gender awareness and capacity for youth and women in Coffee sector to contribute towards viability of coffee industry, sustainable and viable extension services and 250 and 50 person year workload reduction in Kenya and Uganda Respectively.
The impacts envisioned by the theory of change was; in the intermediate youth would be involved in coffee farming and therefore expanding the number of viable coffee farmers which would lead to sustainable coffee supply for marketing companies, experience increase in yields and income; growing income streams for women in particular.

Household income diversified and stabilised. In the short term, net income increases for each actor group, allowing further investment and farmers providing stable coffee supply to traders and becoming preferred clients, coffee sector improves in status and farmers invest in coffee production. In the long term, coffee farming systems transition to profitable whole farm enterprises, women's independence established, the youth have a future in viable farming, profitable and growing coffee sector and a growing global demand for sustainably produced coffee.

The interaction with all stakeholders and beneficiaries of the 4S@Scale project provides all the indications that the project has already made a shift from output related results towards the impact level. The measurements of the impact are thus more descriptive based on the feedback and information provided by the stakeholders and the primary beneficiaries of the project who are the smallholder farmers.

The diversification component of the project helped the small holder farmers to stop depending on coffee only. In Kenya, the farmers are now able to sell the milk as well as bio slurry. In Uganda, the farmers have banana both for food and income. Evidently the quality of food in the household has also improved because the farmers are now able to plant vegetables in their kitchen gardens.

For instance the bio digester project focused on the improvement of livelihood and climate change elements. The evaluation revealed that the cooperatives that have most up take of biodigeters are now being used as marketing hubs to influence more farmers and more cooperatives to take up the practice. Households that use bio digesters reported savings on firewood cost, time taken by women searching for firewood, cost saving arising from reduced purchase of inorganic fertilizers, contribution to climate adaptation and mitigation efforts and saved time for women in the kitchen.

Involvement of women on coffee production has been on the rise because they are now able to find time that was previously spend in collecting firewood and there is also direct linkage between dairy farming and coffee because of the bio slurry. Most women confessed to having more contribution to the way farming was done in their households while confessing to having more control over their economic lives with reduced dependency on men.

"... We have managed to put have savings within our group and purchased seats and a tent for hire… our children now can go to school without worrying for school fees because of the income we receive from the coffee… we have more food available to us… kitchen gardens …, savings from wood fuel, we dress well and are happy when we go to church because of the fruits of this project…" Women Group in Uganda

"…The uptake increased after other farmers saw that with the bio digester they would use bio slurry and equally get biogas. This was evident in all the implementation areas and farmers had a lot of success stories from the biodigeters…" SNV, Nairobi

Impact was also realized in the following areas;

3.6.1. Improved Household Incomes

Since the project trained farmers on GAPs, increases in production were achieved in all the crops; coffee, bananas, dairy, horticulture, poultry. The increase in production had a direct impact on the incomes of farmers and thereby improved livelihoods. Farmers affirmed their incomes increased and contributed towards buying food, savings and meeting other household needs. The end result of this was reduction in poverty. Increased income from coffee and other crops proved a symbiotic relationship, in that with more income from coffee, then diversification is possible and with income from diversification, farmers can consistently follow up on coffee farming.

3.6.2. Replicability of the project

This project had an ingenious way of sharing knowledge through extension services, peer to peer trainings and through use of promoter/lead farmers. Hivos and partners have at least four reasons to replicate the project in other regions, counties and countries. One, the farmers have acquired skills on good agricultural practices, better farm management and crop husbandry. This enables them to continue with their farming activities even with the project ending as a way of improving and sustaining their livelihoods. Two, training to cooperatives on cooperative management on good governance has a trickledown effect to the smallholder farmers in that the knowledge imparted will enable them to continue providing better services to farmers.

Three the use of biogas as a source of clean energy and production of organic fertilizer (bio slurry) for the farms will continue. This is because farmers that have installed bio digesters confirmed they understand the benefits accruing to them. Four, women, men and youth inclusion in the farming activities, decision making on farm management present an infrastructure that can be utilized continually in all future development projects.

The realization by coffee private companies who partnered with HIVOS that all of their income is derived from coffee related transactions and that they do not have their own coffee growing coffee and also that their clients coffee growing environment are ever changing, made them to act. The contribution they made through GAPs trainings, credit for farm inputs and installation of bio digesters and the work and investment around diversification has ensured that their base for producing coffee is moving towards sustainability.
The impact for them therefore is banked on men, women and youth with a future in viable coffee farming that is profitable and contributing towards a growing global demand for sustainably produced coffee in Kenya and Uganda.
The knowledge gained by smallholder farmers on biogas and bio slurry and considering the uptake is above national average will ensure that these farmers continue to use biodigesters and attract other farmers to install.
Other actors in the development sector, governments, counties in Kenya and regions in Uganda supporting and/or growing coffee, involved in livestock keeping, horticulture and banana farming can replicate the project using the lessons learnt and best practices. Key of these comprises participatory approaches in project design and implementation and inclusion of men, women and youth in GAPs.

3.7. Sustainability

The sustainability of this project can be banked at various levels; smallholder farmers, cooperatives, government and implementing partners. At the smallholder farmers' level, they have skills and knowledge on good agricultural practices to continue increasing their production from the farms. They are empowered to keep their farming activities running as a means to better livelihoods. Further, their knowledge on renewable energy (biogas) and organic fertilizer derived from bio digesters will protect the environment from use of inorganic fertilizers, soil degradation and climate change. Since the project targeted smallholder farmers who are largely poor and vulnerable people, it enhanced their resilience.

The role of the donor (RVO) on sustainability of this project is paramount. The donor would ensure sustainability of what has been achieved by supporting the project for scale-up so as to reach more smallholder famers in the coffee value chain as well support to similar viable projects.

The training models used under 4S@Scale will be sustained mainly through the promoter farmers and producer organisations. Further the training aspects in the project can be self-reproducing through peer networks. On the whole training by itself boosts sustainability.

Inclusion of women in the agricultural value chains has improved their livelihoods through income opportunities, reduced workload for fuel collection and raised social status. Armed with knowledge on use of biogas for cooking the women's livelihoods will continually play a key role in contributing towards mitigating effects of climate change as well as adaptation mechanisms. Diversification from coffee farming to other crops is a contributor to increase in household incomes. Mainstreaming of the project activities and cross-cutting issues of gender, climate change and youth will also ensure sustainability of the project results over time.

At the cooperative level, the lessons on good governance and management practices of farmer cooperatives, putting in place systems to improve productivity and quality of coffee as well as the need for extension services are important in sustaining vibrant cooperatives. Similarly, the knowledge on market-driven agriculture builds a multiplier effect on poverty reduction in their jurisdictions.

At the government level, the conversations around sustainability are at a nascent stage with ongoing through conferences, policy influence both in the agriculture and energy sector with

emerging partnerships with line government departments and ministries in both Uganda and Kenya. Notwithstanding the conversations and emerging partnership opportunities, the government involvement at the national and county level should be improved, they should directly involve them in the coffee chain link to create enabling environment for the investors and have regulations on the quality of the bio digesters.

Beyond the 4S@Scale Project, KAWACOM in Uganda and SMS and CMS in Kenya have the capacity to continue with the interventions due to the existing infrastructure and benefits that will continue to accrue to them in terms of good quality coffee and high production. With reference to the Biogas support, the ABPP is looking into possibilities of continuing with the bio digester program within Kenya as well as Biogas Solutions in Uganda. This is mainly as a result of the farmers telling their fellow farmers of the benefits of the bio digesters and the emerging need to engage and influence the government to promote more ownership by farmers in the promotion of renewable energy practices and policy implementation in the two countries.

The extension services from the Ministry of Agriculture and farmer to farmer (promoter farmers/lead farmers) improved capacity of the farmers and provided an enabling environment. The governments have provided coffee frameworks and mainly focus on the quality of coffee right from the seed level and provide certificates assuring quality standards are adhered to for export purposes. Continuous capacity building of communities / cooperatives is however desired for more cost effective and improved quality of yields. Clear structures need to be put in place to provide regular linkages between the promoter farmers, the cooperatives and field extension workers.

The use of promoter farmers' model was viable. Farmers will continue to obtain information from promoter farmers on good agricultural practices beyond the 4S@Scale project. While promoter farmer model is largely voluntary and peer trainers conduct training voluntarily, the marketing companies will continue to encourage the producer organizations to meet the actual cost of extension by reducing the number of promoter farmers and the few competent promoter farmers selected are paid on quarterly basis and performance basis to motivate them.

The model farms will continue to be centers for learning whereby those learning from the farms may pay fees to support continuous learning's and improvements. The promoter famers in their endeavor to increase their production of coffee and incomes will continue to adhere to GAPs and in the process provide a platform for learning for the community.

Sustainability is already structured within ECOM subsidiaries; they have sustainability departments which ensure that peer farmers are well supported. The sustainability mechanism is fed by field liaison officers and sustainability systems managers. The marketing companies use the extension models to ensure that all farmers grow their coffee sustainably across various certification standards. These models will definitely continue to be used even after the 4S@scale programme is over.

4. CONCLUSION & RECOMMENDATIONS

4.1. Conclusion

In conclusion, 4S@Scale project has brought with it many lessons for successful interventions in similar programmes in the future. The interaction with all stakeholders and beneficiaries of the project provides all the evidence that the project has already shifted from output related results towards the impact level.

4.2. Lessons Learnt

•The symbiotic relationship between Increase in coffee yield and thereby household income contributed to diversification into other farming for example dairy, horticulture, poultry and bananas. Income from diversification made coffee farming easy for farmers as they can wait longer for payments because household needs are met by income from elsewhere.

•The project provided the opportunity to transfer knowledge and skills that are critical to self-sustenance of smallholder coffee farming beyond the project period through training. Farmers learnt GAPS which was a catalyst to increased household incomes. Project beneficiaries learnt good coffee husbandry, diversification for better incomes and avoidance of overreliance on one crop. Similarly, knowledge in GALs complemented the GAPs leading to inclusivity of women and youth in farming and farm management.

•The self-sustaining business model adopted by the project is destined to eventually move the smallholder farmers to whole-farm approach where short-term and long-term decision making will consider the whole farm for improved profitability while enhancing sustainability of the farm.

•Inclusion of the renewable energy component (biogas) is an efficient and effective way of ensuring habitable and clean homes. Involving the smallholder farmers to manage their own environment emerges as a good practice especially with a threat to smallholder farmers' livelihoods due to climate change. The intervention led to cost savings on inorganic fertilizers through use of bio-slurry and savings on time spent by women fetching firewood and time taken cooking. Use of clean energy reduced cases of chest and eye ailments in the household.

•The extension services provided by the project and promoter farmer component provided capacity for the farmers and provided an enabling environment where farmers could continue to learn good agricultural practices and share with other farmers.

•By involving women and youth and through training, financial inclusions and diversification, we do not only secure coffee for the future, contributes to impact for the coffee growers' families and communities. This in turn promotes economic development, social justice and environmental sustainability.

•Continuous provision of opportunities to youth and women to gain access to training and education, whether formal or informal, helps them move one step closer to a green job. Additional facilitation of youth and women to become members of the producer organizations or groups, can help them people overcome the challenge of accessing markets. This gives the women and youth the necessary bargaining power to interact on equal terms with other market actors

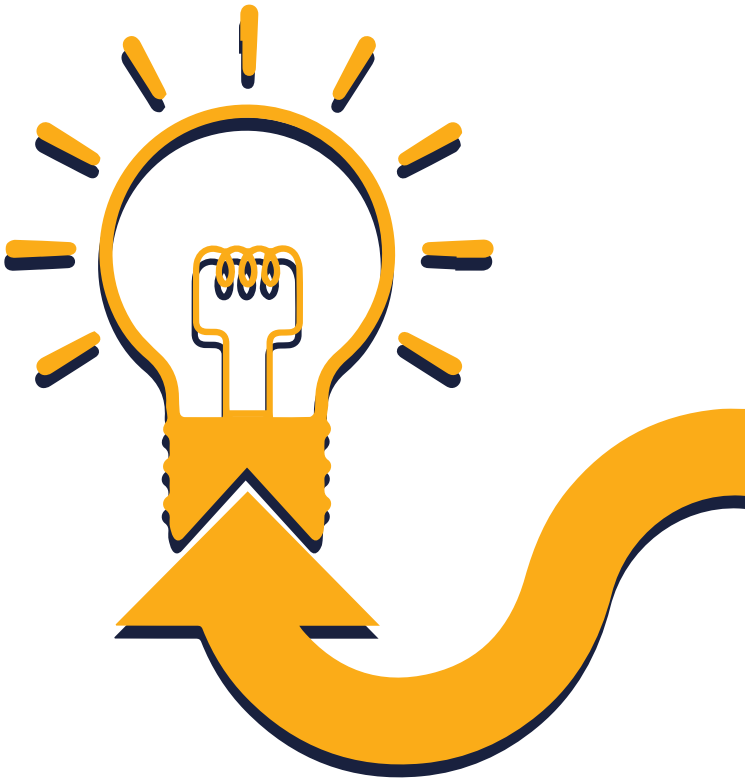
•Training of cooperatives managers on good governance practices for farmer cooperatives, putting in place systems to improve productivity and quality of product was important in creating a seamless value chain.

•Good communication underpins the success in coordination and effectiveness of any activity. It is even more imperative for a project with a wide coverage such as 4S@ Scale, working in 2 countries in 7 counties in Kenya and 10 regions in Uganda with multiple implementing partners, to ensure its channels of communication are efficient and information and knowledge management in the programme is well preserved.

•Public Private Partnership in project design and implementation greatly contributed to the project's success. Bringing together all stakeholders in planning built onto the project relevance as stakeholders jointly prioritized their needs. However government involvement at the national and county level should be improved, such that they are directly involved in the coffee chain link to create enabling environment for the investors.

4.3. Knowledge Management

The 4S@Scale has had unique capacity to create new knowledge and experiences on sustainable coffee farming. The need and use of such information is not restricted to Kenya, Uganda and the counties where implementation was undertaken. HIVOS which is already a leader on sustainable coffee farming as a family business can do more to support studies and develop knowledge materials on sustainable coffee farming incorporating the other components for climate change through use of renewable energy (bio digesters) in other counties and countries - and its impacts on smallholder farmers.



4.4. Recommendations

Project design

•There is need for specific baseline data and need assessments that will inform the demand and interests of small holder farmers, the cooperatives, the industry stakeholders and the government engagement in line with local and external resourcing

•Improve the credit terms of farm inputs, bio digesters conditions with a minimum of 2 years noting the agricultural cycle and externalities. End to end financing could be a consideration that looks at introducing the market into the chain, the type and quality of seeds that are conducive to the environment.

•There remains the need to rethink the current approach of extending credit to farmers and possibly propose a model that would be more effective in improving access to essential financing for the small-holder farmers. Such a model must be sensitive to the uniqueness of country contexts, and farmer needs.

•Provide more technical support to the implementing partners as well as the farmers. This should be integrated and planned for at the project design stage

•Enhance the project design processes with more demand drive in the market with consideration for contract farming, strengthening of farmer organizations in the supply chain, production for both domestic and international markets.

Partnerships

•More structured involvement of the relevant government departments to leverage on capacities, push for policy and regulations to promote the Coffee economy in marketing and quality of the products. This would enhance the involvement of the government in the enforcement of the policies and regulations with integration of ownership elements by farmers for sustainability.

•Continued promotion of integrated programs for reducing income volatility and promoting gender equality.

•Enhance access to finance and input resources through rural community banking, support to financial institutions towards innovative management of risks

•Invest more on research of technologies that can easily be contextualized at local levels towards the commercialization of bio – slurry. Innovative designs such as the bio digester bags can be used as collateral for credit facilities. Nonetheless, the very cost of the bio-digesters is prohibitive to many farmers and such investment in research would help identify technologies that will in the end reduce the cost of a bio-digester.

•With the global goals 7 and 13 of clean energy and climate change resilience respectively, there is an opportunity to sustain the investment in clean energy and climate change friendly practices relevant to coffee farming; such as organic fertilizers, use of bio digesters through the existing frameworks.

•The Public Private Partnership proved to be a highly viable model for the delivery of the project. The role of each of the partners was clearly defined and there were substantive communication channels in place to ensure efficient decision making. The tripartite partnership has matured and should be maintained in the event of a subsequent project phase.

Outcomes

•The project has demonstrated its ability to contribute to significant improvements in the yields and quality of coffee as well as improvements in the individual livelihoods of smallholder farmer households. The project is highly recommended for intensification and replication, bearing in mind the few design adjustments proposed in previous sections.

•Noting that the coffee industry contributes to carbon emissions through roasting harvesting and yield, we recommend incorporating green projects to coffee value chain projects and creation of more green jobs. This could entail the vocational training of identified youth and women at biogas companies, raising youth's awareness on organic agriculture, certification of social youth enterprise, expanded engagement in renewable energy production and promotion of innovative models for young coffee farmers

•In order to sustain the gains from the project, it would be necessary to integrate the structures such as the promoter farmers into other continuing programs under implementation.

•One of the most critical improvements that may need to be made to ensure better delivery would be the adherence to finance reporting timelines and standards. There were a few instances of delayed funding disbursements based on delayed or non-compliant reporting. These delays have the potential to interrupt the momentum of project implementation and should be minimized – which is the reason any capacity investments necessary to ensure compliance with donor finance reporting guidelines should be discussed.

5. Annexes

5.1 Work Plan

GANTT CHART: End-Term Evaluation of the 4S@Scale Program

Work Breakdown Structure (WBS)	Aug-19																				Sep-19				
	5	6	7	8	9	12	13	14	15	16	19	20	21	22	23	26	27	28	29	30	2	3	4	5	6
Introductory Meeting and Familiarization with Key Project Team																									
Desk Review																									
Development and **Submission of Evaluation Protocol + Tools**																									
Review of the Inception report (by Hivos Staff and partners)																									
Training of Research Assistants + Pretesting of tools																									
Collection of primary data																									
Data Analysis and interpretation																									
Preparation and **Submision of Draft Report**																									
Validation of the report/Input from Hivos and Partners																									
Finalization and **Submission of Final Evaluation Report**																									

5.2 Evaluation TOR

TERMS OF REFERENCE FOR END OF PROJECT EVALUATION OF THE SECURE SUSTAINABLE SMALLHOLDER SYSTEMS AT SCALE PROJECT (4S@ SCALE)

1.Background

Rain fed smallholder farming represents 75% of East Africa's agricultural landscape and is particularly sensitive to climate change. It is the backbone of the region's food and income security. Through the 4S@Scale project, Hivos promotes climate adaptation among coffee producers and leverages private sector investment in sustainable agricultural practices in the following key result areas:-

•Enhancing climate resilience and food security through good agricultural practices and income diversification.

•Improve family farmers' livelihood, through gender and youth sensitive programme development. Address gender inequality in the coffee sector, including access to resources and leadership development.

•Support complimentary livelihoods options such as dairy production in Kenya and banana farming in Uganda. Provide specialized extension support and affordable credit facilities to enable farmers to diversify without financial strain.

•Contribute towards environmental sustainability in the production of coffee and use of cooking gas at the household level through the promotion, construction and use of bio digesters to ensure access to renewable energy at farm level and organic manure for the land.

2.Project Summary

The 4S@Scale programme is a 5-year Public-Private Partnership (PPP) supported by the Ministry of Foreign Affairs of the Netherlands (DGIS). The purpose of the project is to create viable smallholder coffee farming systems, that will allow the coffee sector in East Africa to regain its vitality and offer long-term business opportunities for 2.4 million smallholder coffee farms and 16 million people dependent on the sector.

Project implementation is on-going with activities scheduled for implementation in Kenya, Uganda and Tanzania within the period 2013-2018. The public and private partners implementing the project are Ecom Agroindustrial Corporation (Ecom); Sustainable Management Systems Limited (SMS), Kawacom Uganda Limited (KUL), and Biogas Solutions Uganda Limited (BSUL). Hivos ROEA is the fund manager and process facilitator in this project.
The project focused on implementation of mutually reinforcing interventions that would lead to higher coffee productivity, diverse income streams and reduction of key recurrent costs.

It was envisaged that these interventions would strengthen individual coffee farming systems' viability, and that large scale application would permit a viable private sector-led farmer support system, which is built on marketing services with embedded farmer support services. Key activities within the project included incorporating biogas into the whole farm system; diversification of incomes, in particular through dairy and horticulture; provision of credit facilities; enhanced good agricultural practices including climate resilience; and women and youth targeted training and support.

Planning, Monitoring and Evaluation within the project was expected to serve the purpose of joint learning & reflection, improving project effectiveness and efficiency as well as accountability towards key donors and target groups of the 4S@scale project (upward and downward accountability).
In collaboration with the project partners, systems to monitor the performance of all parties in accordance with this PPP were expected to be developed and maintained. Building the capacity of the staff managing these systems within the partner organizations through technical guidance, regular follow up and mentoring by Hivos ROEA was also envisaged.

3.Description of assignment

The objectives of the End Term Evaluation are:

1.To assess the relevance, effectiveness and sustainability of the current 4S@scale project;

2.To assess the efficiency of the governance of the 4S@scale project;

3.To provide concrete lessons learned and recommendations for other projects to learn from

Based on 4S@scale implementation between 2013- 2019 and in line with the evaluation criteria of relevance, efficiency, effectiveness and sustainability, this End Term Evaluation aims to address the following key evaluation questions per objective.
To assess the effectiveness, relevance and sustainability of the current 4S@scale project

a.Are we doing the right things? (relevance)

i.To what extent does 4S@scale contribute to a viable Coffee Sector , leading to 'increased food and nutrition security of rural households in Kenya and Uganda, more employment and local economic development' and do the assumptions underpinning this still hold true? Was the Theory of Change (TOC) adopted? Why or why not?

ii.Can a trend be observed, through assessing outputs and outcomes, that 4S@scale has / will achieve the impact as described in the ToC? Why or why not?

iii.To what extent did 4S@scale contribute to achieving intended pathways, outcomes and impact of Kenyan, Ugandan and Dutch policies (Aid-Trade, Food and Nutrition

Security, Inclusiveness, Agricultural Growth Programme)? How and what way?

b.Are we doing the things right? (effectiveness)

i.Did the collaboration between the partners create sustainable synergy and added value? was the combination of these partners in the 4S@scale resulting in an added value?

ii.Did the collaboration result in cost reduction as compared to individual programmes?

c.Are the activities and the institutional modalities sustainable?

i.To what extent did the roles and relationships between the 4S@scale and organizations support or constrain the implementation of the programmes? Why or why not?

ii.To what extent were the strategies and activities taken up by policy and other institutional organizations (scalability).

iii.Were there any unintended, either positive or negative, effects of 4S@scale observed?

2.To assess the efficiency of the governance of 4S@scale till the end of the project.

a.Were the inputs (funds, expertise, and time) efficiently converted into outputs?

b.To what extent were the roles and relationships between

c.Were Partners of 4S@scale steering/advisory board supportive or constraining in implementing the 4S@scale?

3.The recommendations should support the implementation of new projects based on the assessments made around the following questions:

a.Where do we need to focus our support in case of new projects? which other (new) components or approach should be supported?

b.What should have been stopped changed? What should have been maintained (in case of a new project and / or continuation? And Why?

c.Identify unintended outcomes

d.Where should we have diminished our efforts/ support in favour of other elements?

e.How can uptake of outputs and outcomes be more efficiently taken up in the system of UG, and KE and as such increase scalability and, in the long term, impact?

4.Deliverables

The End Term Evaluation will be expected to provide the following lead to the following deliverables:

A.Detailed work plan, including:

A detailed methodological approach - The methodology used for this evaluation will be a combination of mixed methods, which the team will develop in order to achieve the answers on the evaluation questions developed. The general process will be the following:

•Preparation Phase, including use of most significant change stories or Narrative Assessments resulting in a work plan totalling to 15 Days

•Assessment (and if necessary refinement) of the work plan 3 Day

•Data collection, Data processing, analysis and report writing 20 Days

•Validation workshop 2 Days

•Draft report and finalising report 5 Days

B.The data set and transcriptions of both qualitative and quantitative data

C.Final draft report for comments and approval

D.Validation workshop (staff and partners) with PPT based on final draft report for feedback

E.Final End Term Evaluation report (< 50 pages, excluding annexes):

a.In English, according to this ToR;

b.Executive summary in English;

c.In Microsoft Word, fit for a broad non-academic audience;

d.Answers to all ETE questions (including the suggestions for improving the current programme and potential follow-up);

e.Two-page executive and visual summary of the key findings of the Evaluation for the general audience.

Duration of the assignment

It is estimated that the evaluation team will need approximately 50 days to complete the entire assignment.

•The starting date of this assignment is 1st of August 2019

•The final report deadline is 6th September 2019.

Relevant documents

Primary data can be assessed by interviews (individual, key informants, focus group, film-video, etc.) with the key target groups, key stakeholders and staff.

Secondary data can be accessed for the purpose of the EE including monitoring data (datasheets), annual reports and plans, M&E framework and guidelines, workshop reports, newsletters, magazines, briefs, minutes of meetings, Most Significant Change stories/ Narrative assessments, etc.

Results framework:

Overall goal: To create viable smallholder coffee farming systems with:

Expected Outcomes:

A. Increase in HH income ($/ha):

- **% of household income change as a result o coffee and non-coffee products.**
- **% household income as a result of Biogas.**
- **Increase of coffee and non-coffee production as a result of use of bio slurry.**

B. Resilience

- **Reduced emission of carbon dioxide and methane.**
- **% of trees cut and planted**
- **% of carbon credits acquired.**

C. Full Involvement of men, women and youth as productive members

- **Level of men, women and youth influence in coffee production.**
- **Joint decision making at the household.**
- **% ownership of assets for men, women and youth**
- **% control over use of coffee income in the household.**
- **Women and youth in leadership positions at PO Level.**
- **No. of women, men and youth members of PO voluntarily.**

D. Revitalized Coffee sector:

- Resources and incentive to expand farmers support
- % Increase of coffee production as from the implementing country to the national coffee figure.
- Buy in of other players and traders

5.Skills and competencies

The team should be composed of a mix of international consultant(s) (team leader) and at least 1 consultant per country Uganda, and Kenya.

Qualifications of the International Team leader

-Demonstrable experience in conducting reviews/evaluations and institutional strengthening;

-Proven experience with participatory methodologies;

-Ability to write concise, readable and analytical reports;

-Proven experience in agricultural sector transformation, agri-business, with gender awareness;

-Up to date Knowledge of the Dutch foreign policy;

-Proven ability to work from an independent position (i.e. neutral);

-Extensive experience in Eastern Africa will be an added advantage;

-Experience in Uganda and Kenya will be an added advantage.

Qualifications of team members

-Good knowledge of policy, politics, business and agriculture sector in UG and KE and other countries of East Africa;

-Proven experience in conducting reviews/evaluations.

-Proven experience in evaluating complex, big programmes and its management

6.How to apply

Interested consultants (?) should send their applications to …

The application should be accompanied by the following:

•Technical proposal (not exceeding 10 pages) based on the ToR that includes:

oA clear description of the intended scope

oA short application outlining per research question the proposed methodology, tools and key deliverables

oA work plan, indicating also the expected role of 4S@SCALE staff and partners and detailed timeline (using the broad timelines provided in the ToR)

oDetailed Financial Proposal, for this study based on the objectives outlined in the ToR

oPotential risks

•CV(s) of all team members, and information about their availability during the evaluation process.

•Track records highlighting relevant experience

•At least 2 relevant references from previous clients, including contact details;

•At least 2 examples of recent and relevant evaluation reports.

Selection process and criteria

The tendering and assessment procedure will be as per Hivos Financial & procurement guide. The ToR will be published in Kenya and circulated purposeful amongst potential international evaluators. The selection committee will be composed of the Hivos HUB EA Tender membership.

The proposal will be analysed based on the following criteria and related points:

No	Criteria	Points
1	Overall proposal delivers on the ToR	20
2	Methodology of the EE appropriate to review the progress of the 4S@SCALE portfolio, including the different research questions	35
3	CVs, Experience and capacity of the team to take an independent position	35
4	Budget, both total amount and how the budget will be spent	10
	Total	100

The procurement committee will develop transparent criteria and a scoring system in order to analyse the proposals. The team is requested to coordinate the development of a proposal, to be submitted to

lchacha@Hivos.org before 15th July 2019

For questions related to this ToR and content of the 4S@SCALE partnership, please contact:
Lucas Chacha, lchacha@hivos.org

Outcomes of the assessment of the proposals will be communicated with the applicant latest 22nd July 2019

5.3 Data Collection Tools

END OF PROJECT EVALUATION
4S@SCALE

Survey Tool for Small-holder Farmer Households

INFORMED CONSENT

Good morning/afternoon, my name is ……..and I am working for an independent team of consultants, who are currently we are gathering opinion of community members on the 4S@Scale Project for which you have been a beneficiary. The information you provide will be useful for HIVOS, KAWACOM/SMS/CMS (insert partner as applicable) in learning about the impact of their work and will subsequently be used to plan and deliver better services to farmer households.

All project beneficiaries have an EQUAL chance of being included in the study. Your household has been randomly selected to participate in this exercise, and your participation is voluntary, and anything you say will be kept confidential. You do not have to answer any questions that you do not want to answer, and you may end this interview at any time you want to. However, we hope you can participate fully since your opinion is very important to us.
Do you agree to participate in the survey?

If respondent agrees to be interviewed, proceed with the interview. If respondent does not agree to be interviewed, thank the respondent and move to the next sampled beneficiary household

#	**SECTION A: Introduction**
A.1	Enumerator Name
A.2	Enumerator Code
A.3	Interview Date
	SECTION B: Demography, Household stability and Absorptive capacity
B.1	County/District(ward)
B.2	Village
	Cooperative/Producer Organization
B.4	Respondent sex 1=Male, 2=Female
B.5	Respondent Age 1=Below 17, 2=18-35, 3=36-60, 4=61 and above
B.6	Marital Status 1=Married, 2 =Single (never married), 3=Divorced 4=Widowed, 5=separated 6=Co-habiting 7=Other(specify)
B.7	Respondent education level? 1=No education 2=Primary 3=Secondary 4=Tertiary 5=university
	What is the average daily income 1= below USD 1.25 2= Above USD 1.25
B.8	Total number of hh members
B.9	What is the household's current financial status? 1= We only have money for food, 2= We have money for food and clothes, 3= We have money for food and clothes and some savings, 4 =can afford to buy what we want

	SECTION C: Livelihoods (diversification) and Household Income
C1	How many years have you been farming? 1= 1-2, 2=3-4, 3=4-5 4=Over 5 years
C2	Household MAIN source of livelihood?
C3	1=On Farm; 2=Off-farm (tick all that apply) - If answer is Off-Farm skip to C4 if answer in C1 above is On-farm; 1=Dairy; 2=Coffee crop farming; 3=Bananas; 4=Poultry farming; 5=Bee keeping; 6=Others – Specify (Single Choice Question)
C4	If answer C1 above is Off farm; 1=Trade; 2=Employment; 2=Casual labour; 4=Remittances; 5=Cash Transfers; 6. Government payments 6=Others (Single Choice)
C5	What are the other sources of income; 1=Dairy; 2=Coffee crop farming; 3=Bananas; 4=Poultry farming; 5=Bee keeping; 6=Trade; 7=Employment; 8=Casual labour; 9=Remittances;10=Cash Transfers; 11=Others – Specify (Multiple Choice Question)
C6	Considering all sources of income mentioned in C2/C4 and C5 above, what is your estimated total household income per month? (KES)..... (probe for highest limit)
C7	Has your income increased since you joined the project 1=Yes; 2=No; 3=Remained the same. If no skip to D1
C8	If yes, would you directly associate such increase of income to benefits you derived from the project? 1=Yes; 2=No
	SECTION D: GAPS & Diversification
D1	Did you receive any training from project? 1=Yes, 2=No. If no, skip to D4
D2	If yes in D1above, In which areas did you received training? 1=Coffee production; 2= GALS; 3= Horticulture; 4 = Dairy production; 5=Bio slurry biogas; ; 6=Banana Farming; 7=Others (Multiple Choice
D3	If yes in D1 how useful (relevant) was the training? 1=Very useful; 2=Somewhat useful; 3= Not useful; 4=Indifferent (Single Choice)
D6	Aside from the training, what other added benefits did you or your group receive? 1=Collective marketing; 2= knowledge sharing; 3=Access to financial products; 4=Increased bargaining power; 7=linkages to service providers; 8 = Other (specify)
D7	Has the Yield from your Coffee increased as a result of the training and other services received from the project? 1=Yes; 2=No
D8	If Yes; by how much? 1=Significantly; 2=Moderately; 3=Slightly (Prompt for narrative on the detail of the response and include in space provided)
	Please explain how the yields have improved as a result of training and other services received from the project
D9	Has the Yield from your Dairy (Kenyan Respondents)/Horticulture or Banana Farm (Ugandan Respondents) improved as a result of training and others services received from the project? 1=Yes; 2=No
D10	If yes, by how much? 1=Significantly; 2=Moderately; 3=Slightly (Prompt for narrative on the detail of the response and include in space provided) Please explain how the yields have improved as a result of training and other services received from the project Who in this household makes farming related decisions? 1= Man; 2= Woman 3= Both (Consultatively) 4=Children 5= Other (Specify) What is the main reason for the answer in E1 above? 1=Custodian of resources 2=Head of Household 3=Farming is their passion; 4=Other spouse has other off-farm engagements; 5=Culture 6=Other reasons _____

	SECTION E: Women and Youth
E3	Whose decision is most important on household budget? 1= Man; 2= Woman; 3= Both
E4	Whose decision is most important in the use of land and land resources? 1= Man; 2= Woman; 3= Both
E5	Did you participate in any gender related training organized by the project? 1=Yes; 2=No. If No skip to F1
E6	How has your household benefitted from the training(s)? 1= We now make critical decisions jointly; 2=We jointly discuss how to spend the proceeds from our farming activities; 3= we have become more open with each other on ownership of property 4=Other (Specify) Who makes the decision on? Harvesting: 1=Man; 2=Woman; 3=Both Selling: 1=Man; 2=Woman; 3=Both When to borrow: 1=Man; 2=Woman; 3=Both Farming inputs: 1=Man; 2=Woman; 3=Both Who controls the use of coffee income in the household? 1=Man; 2=Woman; 3=Both Who owns the land / assets for farming in your household? 1=Man; 2=Woman; 3=Both What is the nature of land ownership? 1= Individual (lease / certificates), 2= Individual (customary/ ancestral),3= communal (lease or certificates - shared), 4= communal (customary/ ancestral); 5= state ownership; 6=other How many acres/hectares of land do you have access to? 1=Less than 1; 2=1-2; 3=3-4; 4=5 and above What has been your main source of information on agricultural practices? 1=Extension services; 2=Radio Programs; 3=Books; 4=Newspapers; 5=TV Programs; 6=promoter farmers 7=other (specify)
	SECTION F: Access to Credit or Loan Services / Financial Services
	Do you have access to a bank account? 1=YES, 2=NO
	If YES; what type; 1= Personal, 2= Group, 3= Other (Specify)
	Do you feel you have difficulties in accessing credit? 1=Yes; 2= No (If No skip to F1); 3= I do not need credit
	If Yes, why do you think you have difficulties? 1=The interest rates are high; 2=The pre-conditions are too stringent; 3=I don't know where to get credit; 4=Other (Specify)
F1	How do you finance your farming? 1=Personal saving; 2=Family loan; 3=loan from VSLA; 4=Loan from friend 5=loan from bank 6=Loan from cooperative; 7= other (Specify)
F2	In the last 3 years, did you seek credit for your farm inputs from any source? 1=Yes; 2=No. If No, go to F6
F3	If yes to F1 above, did you receive the credit? 1=Yes; 2=No. If no, go to F6
F4	If yes in F3 above, what was the source of credit? 1=Bank; 2=NGOs; 3=Cooperative; 4=VSLA group; 5=Other Self Help Group; 5=Friend; 6=Others
F5	What was the loan/credit used for? 1=Bought Farm inputs; 2=Bought farm equipment; 3=Bought household items; 4=Used for medical care; 5= Bought livestock 6=Bought stock for other business 7=Other (specify)
F6	Do you have any savings? 1= Yes; 2=No. If No Skip to G1
F8	Where do you keep your savings? 1=bank 2=cooperative 3 = women group 4=VSLA 5=Other Savings and Loaning scheme 6=Other(specify) Are there any investments you have made as a result of your savings? 1=Yes, 2=No If Yes, where have you invested? 1=On farm, 2= Off farm, 3=Other (specify)

	SECTION G: Bio digester
G1	What do you think about the following statements regarding Biogas Digesters
G1.1.	I have a Bio Digester in my household (1= Yes 2= No) If no skip to G1.7
G1.2.	Bio digester can helps my household save on cooking costs (1=Agree; 2= Disagree 00= Don't know)
G1.3	I use bio-slurry as organic fertilizer in my farm (1= Agree; 2= Disagree 00= Don't know)
G1.4.	Bio-slurry has reduced my cost on Inorganic fertilizer (1= Agree, 2= Disagree 00= Don't know)
G1.5.	The use of bio-slurry is one of the factors that have contributed to improvement in my coffee yields (1= Agree, 2= Disagree 00= Don't know)
G1.6.	There are fewer cases of Chest and Eye ailments in my house due to safe cooking from Biogas (1= Agree, 2= Disagree 00= Don't know) Move to Question H1 What is your experience in using a bio digester? 1= It has made my life easier 2=It has helped me cut down on some costs; 3=It takes too much of my time ; 4=It is labour intensive 5= other (Specify)
	SECTION H: Changes at the Household
H1	**What changes have you realised in the following since enrolling in the project?**
H1.1	Number of livestock kept? 1=Increased, 2=remained the same, 3=reduced
H1.1.1	If number has increased; By how much? Before Project (insert number…….. Currently/After project (Insert number)…… Quantity of milk produced? 1=Increased, 2=remained the same, 3=reduced If number has increased; By how much? Before Project (insert number…….. Currently/After project (Insert number)……
H1.2	Number of Poultry Kept - 1=Increased, 2=remained the same, 3=reduced
H1.2.1	If number has increased; By how much? Before Project (insert number…….. Currently/After project (Insert number)……
H1.3	Volume of eggs produced? - 1=Increased, 2=remained the same, 3=reduced
H1.3.1	If number has increased; By how much? Before Project (insert number…….. Currently/After project (Insert number)……
H1.4	Number of Acreage under farming? 1=Increased, 2=remained the same, 3=reduced
H1.4.1	If number has increased; By how much? Before Project (insert number…….. Currently/After project (Insert number)……
H1.5	Yield from bananas - 1=Increased, 2=remained the same, 3=reduced
H1.5.1	If number has increased; By how much? Before Project (insert number…….. Currently/After project (Insert number)……
H1.6	Contribution / influence of women on Household income? - 1=Increased, 2=remained the same, 3=reduced
H1.7.	Access of land by women (through leasing, allocation, acquisition, etc.) - 1=Increased, 2=remained the same, 3=reduced
H1.7.1	If number has increased; By how much? Before Project (insert number…….. Currently/After project (Insert number)……

	SECTION I: Overall Impact of Project
I1	Household assets - 1=Increased, 2=remained the same, 3=reduced (probe for changes in size of land, and numbers of livestock and poultry)
I2	Levels of Education amongst children - 1=Increased, 2=remained the same, 3=reduced
I3	Frequency of meals - 1=Increased, 2=remained the same, 3=reduced
I4	Variety of meals - 1=Increased, 2=remained the same, 3=reduced
I5	Type of Shelter - 1=Increased, 2=remained the same, 3=reduced
I6	Number of Children in Household - 1=Increased, 2=remained the same, 3=reduced
I7	Level of Income – 1= Increased, 2=remained the same, 3=reduced
I8	Frequency of diseases – 1= Increased, 2=remained the same, 3=reduced Increase in green cover / forest cover- 1= Increased, 2=remained the same, 3=reduced Do you think there was a clear means of communication between you and the project official 1=YES 2=NO How would you have given feedback or expressed grievances related to the project? 1= Through the promoter farmers 2=Through the field coordinators/officers 3=Through an opinion box 4=Through farmer association 5=Other specify How satisfied are you with the feedback channels 1=Very satisfied 2=satisfied 3=Not satisfied

KEY INFORMANT INTERVIEW - QUESTION GUIDE

TARGET: STAFF OF HIVOS & THE IMPLEMENTING PARTNERS

Hello, my name is……. I am working to support an end of project evaluation for 4S@Scale. The purpose of the evaluation is to find out how well the project has achieved its objectives and what lessons can be learned that may inform intensification, upscaling or replication. I will be conducting interviews and discussions with various individuals who have been involved in the project at community, and partner level. The findings from these discussions and other sources will constitute a report to be used by the key partners and the donor. During our discussion, we will be talking mostly about your own experiences of involvement in the project and I am keen to hear about any changes (positive or not) that have occurred and which you can associate to the project. Although I will be asking for your name, the information will be confidential, and your name will not be linked to anything you say in the final report. Your name will only be useful for our interaction in this meeting. I understand you are probably very busy and I hope this will not take much more than one hour. I really appreciate your willingness to answer my questions but please be assured that this is entirely voluntary so if there is anything you don't want to answer or if you need or want to stop this interview at any time, just let me know. Your views are important for the successful evaluation of this project.

Outcome/Impact

1.What do you think are some of the notable achievements of this project?

2.Which activities do you think were most effective in improving livelihoods for smallholder farmers and why?

3.Do you think there were any activities that were not particularly effective? Yes/No. Which ones and Why?

4.In your opinion, have there been any unexpected or unintended outcomes as a result of this project? Yes/No - Can you give any examples?

5.What are some of the key learnings you can draw from the project?

6.To what extent were gender issues integrated and with what results?

7.Do you think the project contributed to improvements in the capacity of implementing partners to deliver effective services to targeted farmers? Probe for details

Efficiency and Effectiveness

8.What actions were taken to ensure effective financial implementation, monitoring and reporting during this project? (Prompts: reporting templates and guidelines, meetings, monitoring visits, etc.)

9.Were there any delays to implementation? If so, why/what effect did this have?

10.How frequently did the project teams meet to discuss progress/challenges? Was this effective? Yes/No. Why/Why not?

11.Was any capacity development provided to partners support effective implementation, monitoring and reporting of this project? Yes/No- If yes, how useful was this? Probe for any capacity gaps that may have had an effect on the implementation process

12.What kind of management and decision-making structures were put in place to support the project implementation and how helpful/supportive were these structures?

13.What did the project do to specifically encourage strategic partnerships? To what extent was this successful?

14.What (if any) challenges did partners have with regard to budgeting, forecasting and reporting on this project?

15.What programmatic challenges did the project face and how were they handled?

16.What some of the aspects you would recommend for improvement?

17.What would you say are the key lessons you could draw from this project?

18.On a scale of 1-10 (10 being the best) how would you rate the overall performance of the project? Probe for justification of score.

Sustainability

19.Are there any elements of the project that could potentially be scaled up? How? To what level? Can you foresee any challenges?

20.Do you think the project has potential to contribute to changes in any specific policies in the agricultural sector? (Prompt for details)

21.Do you think any of the project's activities will be carried on by partners/facilities after the funding comes to and end? - What might be needed to support this?

FOCUS GROUP DISCUSSION GUIDE

Target: WOYO Groups, Youth, Promoter Farmers

Consent:

Hello, my name is……. I am working to support an end of project evaluation for 4S@Scale which has been under implementation in this community. The purpose of the evaluation is to find out how well the project has achieved its objectives and what lessons can be learned that may inform intensification, upscaling or replication.

I will be conducting interviews and discussions with various individuals who have been involved in the project at various levels. The findings from these discussions and other sources will constitute a report to be used by the key partners and the donor. During our discussion, we will be talking mostly about your own experiences of involvement in the project and I am keen to hear about any changes (positive or not) that have occurred and which you can associate to the project.

Although I will be asking for your name(s), the information will be confidential and your name will not be linked to anything you say in the final report. Your name will only be useful for our interaction in this meeting. I understand you are probably very busy and I hope this will not take much more than one hour. I really appreciate your willingness to answer my questions but please be assured that this is entirely voluntary so if there is anything you don't want to answer or if you need or want to stop this interview at any time, just let me know. Your views are important for the successful evaluation of this project.

Ask participants to introduce themselves, stating their NAME, and RESIDENCE / COMMUNITY UNIT. Recap on ground rules for the focus group and ensure everyone feels comfortable and is aware everyone has a chance to speak and that there are no right/ wrong answers.

1.What do you know about the 4S@Scale Project? What role have you played/how have you benefitted?

2.Would you say that the project has improved the lives of farmers in this community? Probe for HOW?

3.What are your thoughts on the role of Promoter farmers in project (probe for achievements, gaps and recommendations)

4.If the project is to continue, what do you think should be done differently?

5.In your opinion, what kind of support/investment should be needed at the community level to nsure the gains of the project are sustained?

6.As a result of this project, can you now say that you have a better understanding of recommended practices in gender responsibilities? Probe for levels of decision making on various issues such as land use, household expenditure, etc.

7.What can you are some of the changes brought about in your community as a result of the 4S@Scaleproject?

8.What did you like most about the project and what did you like the least?

5.4 Training Materials

RESEARCH ASSISTANTS TRAINING SCHEDULE

DAY 1

TIME	INTERVENTION	FACILITATOR
0830	Arrival and Registration	KAWACOM/SMS/CMS
0900	Introduction and Agenda Setting	CHASP
0930	Overview of the Project •4S@ Scale Project •Why the Evaluation	CHASP / KAWACOM/SMS/CMS
1030	Health Break	
1100	Evaluation process •Roles in the evaluation process •Tools in the Process •Ethical Issues •Logistics and administration	CHASP
1230	Health Break	
1400	Overview of the Questionnaires and related emerging issues	CHASP
1530	Field Procedures Interview techniques and demonstration	CHASP
1700	End of Day 1	

DAY 2

TIME	INTERVENTION	FACILITATOR
0830	Recap of Day 1	Participants
0900	Interview Role Plays practice	CHASP
1030	Health Break	
1100	Hoji App	CHASP
1300	Health Break	
1400	Field Pretest	CHASP
1530	Debrief and emerging issues •Select pretest experiences •Incorporation of emerging issues •Way forward	CHASP
1645	Closure and Synthesis	KAWACOM/CMS/SMS

5.5 List of FGDs by Project Area

Project Area	Focus Group Discussion
Kasese	Women group Promoter farmers Youth group
Rukungiri	Women group Promoter farmers Youth group
Bushenyi	Women group Promoter farmers Youth group
Sipi	Women group Promoter farmers Youth group
Kilalani	Women group
Kambusu	Youth group
Mwatati	Promoter farmers
Kirurumwe	Youth group
Mutira	Promoter farmers Women group
Ndumberi	Promoter farmers Youth group
Kabuboni	Women group

5.6 List of KII Respondents by Project Area

Name	Organization	Designation
Amarens Felperlan	RVO	
Peter Ndambiri	SMS	Program Supervisor
Catherine Nganga	CMS	Sustainability Manager
Kamau Kuria	ECOM	Regional Sustainability Director
Donald Ochieng	HIVOS	Former M&E officer
Patrick Sigei	HIVOS	Program Officer
Lucas Chacha	HIVOS	Program Manager
Carol Gribnau	HIVOS- Global Office	Global director, Green energy and clean food program
Humphrey Kimiya	HIVOS	Program Officer, gender
Bert Van Nieuwenhuizen	SNV	Chief Technical Advisor
Judith Libaisi	SNV	Business Development & Extension Advisor
Lydia Namutebi	KAWACOM	Senior Accountant
Richard Baguma	KAWACOM	Financial Controller
Michel Muvule Pinto	Biogas Solutions Uganda Ltd	Programme Director
Kevin Kinusu	KBP	Program Manager

5.7 Success Stories and Case studies

"Bio slurry changing the coffee sector for the better" (Courtesy of Kenya Biogas Program, July 2019)

Philip Mutahi Ngunjiri is a farmer practicing Coffee and Dairy farming on a commercial scale in Mukurweini Sub County of Nyeri County. He got to learn about biogas through KBPs Biogas Extension Service Providers based in the region and immediately got interested in installing one. "It cost me a total of Ksh 66,000 to install this 6m3 digester in July of 2016.

Biogas is easy to use, cheap, and clean as I no longer need to scrub the soot on the base of my sufurias. There's no longer the drudgery that comes with firewood fetching .Moreover, most of our land now remains forested," Said Margaret Philip's wife.

The family uses the surplus trees for wood and other purposes. They initially had operation and maintenance challenges but through the mason, BESP, the local media and other farmers who have biogas plants, they were able to overcome and the now enjoy the full benefits of the gas.

They use it for cooking and heating and this has really brought down the cost of electricity that they used before. Margaret has established a kitchen garden where she grows vegetables like kales and capsicum for domestic use thanks to bio slurry.

She plans to expand her garden size and introduce other crops like coriander, cabbage, maize as the supply of bio slurry is continuous as long as gas is being produced and it is purely organic. Other than vegetables, she also uses the bio slurry on napier and most strikingly coffee.

"My coffee bushes have never looked better ever since I ventured into coffee farming. I anticipate a bumper harvest this season as the population of immature berries is quite high," she was quoted saying. Evidently, comparing her coffee bushes with those of her immediate neighbor who did not have a biogas plant, bio slurry had done wonders.

Her bushes were greener from the moisture that came with bio slurry, had more vegetative growth and more berries that were bigger in size.

Margaret has completely done away with organic fertilizer and this had significantly reduced the cost of producing various crops. "Notably, bio slurry also repels flying and jumping insects that further reduces on the cost of pesticides. I also mix the fresh slurry with chicken feed and feed my chicken on the mixture," Margaret proudly says.

"Other farmers come to see my plant and get interested. Some have already installed theirs as others try to save enough money to meet the upfront cost. I would recommend biogas to anyone anytime."

Figure 45: A healthy coffee bush under bio slurry

Figure 46: Bio slurry flow directly through shallow channels to the coffee roots

Figure 3: Kitchen garden under Bioslurry/ Clean cowshed housing 2 cows

GALS EXPERIENCES

(Adopted from Programme Review and Learning workshops for GALS champions and WOYO beneficiaries report - Kenya, July 2019)

Story 1: MARGARET MUNENE

Ms. Munene, from Mukurwe-ini said that she had trained in GALS 2016. She informed the GALS champions that she was married to a Juakali artisan while she worked as a tailor specializing in school uniforms. She said that after training, she had introduced her husband.

She reported that since then she and the husband had been including each other in decisions and businesses. She reported that coffee production had doubled from 500kgs to 1000 Kgs. She concluded by saying that the GALS model had improved the quality of life in her household.

Ms. Munene shares her gender tree story

Ms. Munene's Gender Tree

Period	Step 1 Step 1 Trunk; Those in the household	Step 2 Roots: Who does what?	Step 3 Branches: Who gets what?	Step 4 Forces: Property and Decision Making
Before Gals	Ms. Munene, the husband and children	Her duties -General chores in the household. Husband's Duties -He was the sole breadwinner. Shared duties -Tilling the land. -keeping records of	Her expenses -She spent heavily on the latest fashions. Bought a lot of airtime Husband's expenses -Spent heavily on alcohol for him and the friends. Shared Expenses -Buying farm inputs.	Her Assets -Individual Cooperative bank account. Husband's Assets -Individual KCB bank account. -Coffee Shared Assets -Land -Bananas
After Gals	Her changes -She reduced her expenditure on the latest fashions. Husband's changes -Helps with house chores. Shared Changes -Coffee is now owned by both wife and husband. -The sons help to run the farm and operate banks accounts with the money accrued from the enterprise. -There is transparency on the incomes earned by the wife, husband and sons. Income from the coffee can be deposited in any of the accounts of the husband, wife or sons.			

Story 2: FRACIAH NJOKI

Ms. Njoki from Mathioya informed the GALS champions that she was married and had children who were already adults. She told them that one of her daughters was married while the other was a university graduate. She also has a son whom she reported was a manager at a dairy farm in Embu.

She gave the champions a bit of her background, noting that while growing up, she had viewed coffee as a burden to children. This was because she and her siblings would toil in the coffee while the father pocketed all the proceeds. She said, she had therefore, grown up resenting the plant. She said that she gotten married, she had found that her husband owned 100 coffee bushes through inheritance.

Ms. Njoki said that she and the husband also planted 100 more coffee bushes. However, her husband had moved to Nairobi, and she had to hire someone to spray the coffee bushes until she bought a knap sack sprayer. She also said that before she had trained with GALS, her coffee production had been 300 to 1000 Kgs. She added that she was also a dairy farmer.

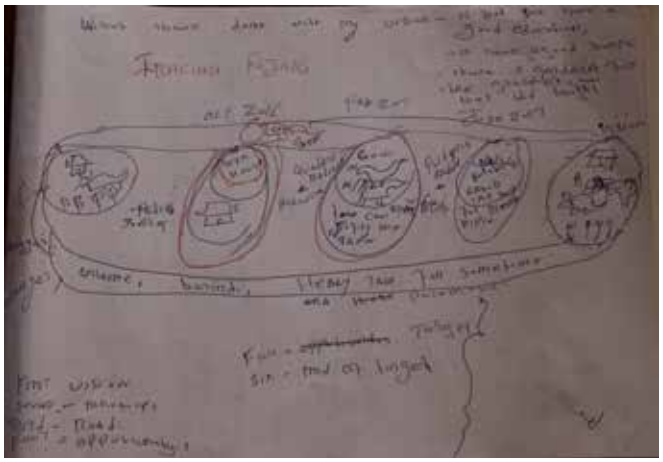
Vision / Goal (s)
-Build a huge permanent house.

The opportunities
-Land.
-200 coffee bushes on the land.
-Her children who are working contributed financially for the construction of the house.

The challenges
-Lost building stones to a road accident involving the truck that was transporting them.
-Lack of adequate water for construction.

Milestones Achieved
-She completed the house and it has seven bed rooms

Ms. Njoki's Vision Journey



Ms. Njoki's coffee production
200 coffee bushes

Year	Kgs
2016	1500
2017	1800
2018	500

Story 3: EVANS CHEGE

Mr. Chege from Murang'a started with a brief history indicating that there was a high suicide rate among most men of his generation from Murang'a. He said this was brought about by negligence from parents and lose of hope. He informed the champions that he had a drunkard father growing up who spent all the family's income on alcohol. He said that by the time he was going to high school, there was no money for his school fees. He said that he enrolled into high school at Rwathia boarding, but after many dismissals from school for lack of school fees, he opted to train as a mechanic.

He said that he also decided to live with his grandparents as he was very bitter with the father whom he kept conflicting with. He told the champions that he had also requested his father to give him 50 coffee bushes which he was granted in 1996. He informed the champions that in that year, he did not tend to the coffee but instead travelled to Nairobi in search of work. The stay in Nairobi proved unproductive due to the high cost of living and lack of employment opportunities. He told them that he had returned home the following year and started tending to his coffee. He then married in 2001. He expressed to the GALS champions that his socialization and approach to life were all learnt from his grandparents. To that end, he said that he had been taught that wives were property, a view he admitted to hold to date.

He informed the GALS champions that he earned a living from coffee, tomato farming, rearing sheep and dairy farming. He said that the wife earned from vegetable farming. Mr. Chege confessed that the GALS model adoption was particularly a challenge for him as he had anger control challenges. He said that as a way to avoid conflict, he kept away from situations that had the potential to rile him. He said that this was part of the reason why he closed had closed the joint account he had opened with the wife.

However, he indicated that he would continue to slowly incorporate the GALS model in his life.

Period	Step 1 Step 1 Trunk; Those in the household	Step 2 Roots: Who does what?	Step 3 Branches: Who gets what?	Step 4 Forces: Property and Decision Making
Before Gals	Mr. Evans, the wife and children	His duties -Sole breadwinner. -Repairs in the compound. Wife's Duties -Cooking -General household chores -Laundry -Feeding the cows	His expenses -Alcohol consumption -Airtime Wife's expenses	His assets/Decisions - Sheep and cows. -Tomatoes -The coffee account & share. -Land Her Assets -Individual bank account.
Changes after GALS	His changes -He assists on feeding the cows. -Gave her the dairy enterprise as her own. -Had made his bank account joint with the wife but later reverted it to individual ownership. -Reduced alcohol intake -Reduced airtime expenditure Wife's changes None Shared Changes -They make decisions together			

Story 4: ADAN GATU

Mr. Gatu said that after training on GALS he went and started making changes in his family. He reported that the biggest lesson of the training was understanding that a man doing roles that were traditionally thought to be feminine did not mean he was a lesser man.

Period	Step 1 Step 1 Trunk; Those in the household	Step 2 Roots: Who does what?	Step 3 Branches: Who gets what?	Step 4 Forces: Property and Decision Making
Before Gals	Mr Gatu, the wife and children	Hid Duties -Sole bread winner -Adan made most of the sensitive decisions in the family Wife's Duties -Mrs. Gatu does all the house chores	He was the sole title deed holder -He owned the coffee account alone -He pocketed all the proceeds from the coffee alone.	
Changes after GALS	They can sit together and discuss most of things unlike before -He can cook unlike before -Formed joint account with his wife -They can make decision together -They buy clothes together -The wife agreed to join him in her land ownership but for him he will do It latter -The wife was able to open up for him -The wife has been relieved from most responsibilities			

Story 5: REGINA KAMAU

Ms. Kamau from Mutira society in Kirinyaga County said that after she had trained for GALS she was able to plan her own vision journey. Ms. Kamau informed the champions 35 that her vision was to increase her coffee production. She reported that the GALS training had also been of benefit to her daughter and her fellow church members whom she taught. She said that her daughter who had been dropping marks in class had incorporated the GALS model in her life with great outcome.

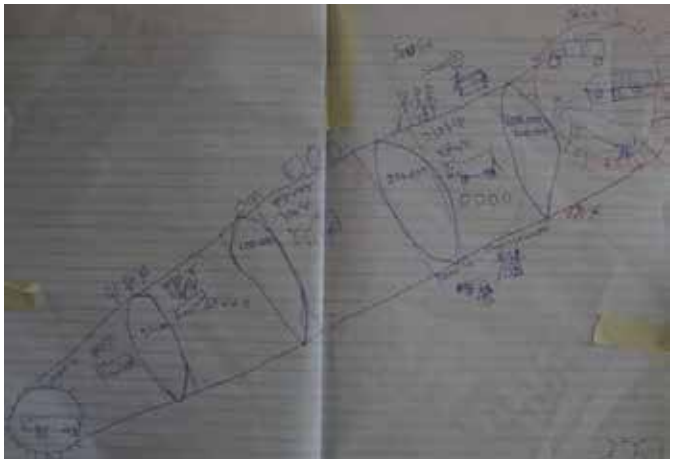
Story 6: ANN NJERI

Ms. Njeri a coffee farmer from Kiru society in Murang'a County told the champions that she was a tailor. She said that after learning about GALS she had set a vision of owning a tailoring shop. She told the champions that she lived with her mother who was nursing an infant at the time. She indicated that after learning about GALS she had decided to start farming on a piece of land in Molo that was owned by her grandfather. She said that she intended to farm large volumes of French beans.

Vision
-To open a tailoring shop

Opportunities
-She had her mother's coffee bushes
-Had 5 chickens.
-The land in Molo for planting better French beans
-She had grafted mangoes with apple mango and the older versions of mangoes.

Challenges
-Her mother hada small baby and she was assisting to look after the baby which took a lot of time away from her projects.
-The mother had not fully accepted the GALS model and she saw it as foolishness.



WOMEN AND YOUTH EXPERIENCES

(Adopted from adopted from Programme Review and Learning workshops for GALS champions and WOYO beneficiaries report - Kenya, July 2019)

Story 1. LUCY KAWIRA

Ms. Lucy Kawira a 40 year old lady from Tharaka, Kenya informed the WOYO beneficiaries that she only started pursuing her goals after she trained with SMS on the GALS model it was at that point when she when she realized that she had a dream to get a biogas digester. She narrated that at the time she had one cow who was sickly due to poor management and lack of shelter. She realized that she spent a lot of her financial resources consulting Veterinarians and buying drugs. She had also learnt that the dung from a cow under treatment could not be used to generate biogas. To reduce the incidence of diseases she was advised to construct a shed for her cow which she could not afford to do. It was during this period that she learned of the Hivos grants, signed the forms and received KES 24,000 which she used to construct a shed for her cows.

Impact of HIVOS Grant

- •Constructed a cow shed.
- •Increased milk production,
- •Reduced cost of treatment for the cow.
- •Cut energy cost as she now uses cow dung to generate biogas
- •Improved standards of living.
- •Increased the number of dairy cows to 4 of which 2 are milked.
- •Increased income.
- •She has built a house worth more than KES 1,000,000

Story 2: TIMOTHY MUTHAMA

Mr. Muthama a 31-year-old man from Machakos County reported that he received KES.19, 500 from Hivos which he deposited in one of his friends SACCO. This gave access to a loan three times the amount deposited, KES 57,000.

Impact of Hivos Grant

- •Bought a dairy cow.
- • Manure from the cow is used as fertilizer the collards (Sukuma wiki) increasing production.
- •Earns KES 800 to 25,000 per week from collards only.
- •The cow calved and is producing 8 litres of milk per day.
- •Increased income in the family.
- •Education; Mr. Timothy is studying (tertiary level) using the income from milk and the collards

Story 3: WINFRED WANGARI

Ms. Wangari a 40 years old lady from Gikanda reported that she received KES 99,500 from Hivos. She used the funds to construct a poultry house and bought 50 indigenous 49 poultry chicks (Kienyeji). She informed the beneficiaries that she intended to build another poultry unit and buy more chicks. The challenge that she faced so far has been the high number of middle man in the poultry value chain who ate into the profits of the producer.

Story 4: SUSAN NDUNGE

Ms. Ndunge a 35 year old lady from Machakos County told the other beneficiaries that her group also received the Hivos grant. She said that the group members used the money to buy coffee farm inputs which improved the coffee production. Ms. Susan reported that some members used the money to start growing coffee. She concluded that the families of the recipients had better living standards.

Story 5: HANNAH WAMUHU

Ms. Wamuhu told the beneficiaries that she became a widow in July, 1990 during the SabaSaba protests. At the time she had children and was 6 months pregnant. She told them that she had to get a casual job in a coffee farm to fend for her family. She reported that she struggled but she was able to raise her children who were adults now with jobs. She informed the other beneficiaries that she intended to purchase 300 chicks for the 4th batch in the next month.

Ms. Hannah said that Hivos had enabled her to accomplish a lot because she had used the proceeds from her broiler chicken project to pay for her dowry of KES 120,000. She was also happy because she was now self-employed with an income and no longer depended on her children. In fact she sent KES 600 to her children per month. In addition, she had created job opportunities because she would hire a casual laborer for KES300 per day. She would also hire a motorcycle rider at a rate of KES600 a month guy and the lady gives her children.

Expenditure of Hivos Fund

- Built a poultry shed.
- Bought 200 chicks at KES 75 per chick
- Bought antibiotics worth KES 1,000.
- Bought 4 bags of sawdust at KES 200 each.
- Bought charcoal to brood her and paid for electricity for lighting the poultry house.
- Bought vaccines; Newcastle and Gumboro vaccines.
- Bought poultry vitamins at KES 900.
- Bought 3 bags of broiler starter at KES 3,050 each.
- Bought broiler finisher mash at KES 2,800.
- Bought broiler pellets at KES3,200

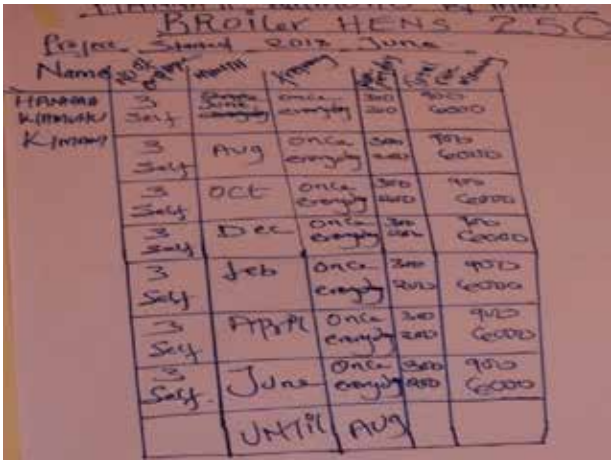
Proceeds from Hannah's Broiler Chicken Project

Batch	Number of Chicken	Selling Price per Chicken (KES)	Profits in (KES)
1st	200	330	16,000
2nd	250	330	22,000
3rd	250	330	22,000

- The birds are sold every 4th day of the 4th week at KES 330 and has made KES 66, 000 so far.
- Sells poultry manure.

Challenges

- Would not rear chicks in the next month because the Veterinarian noted that her floor was contaminated
- Lost some money to a middle man who refused to pay her after taking her birds for sale.



5.8 Sample size

The tables below show a breakdown of the various samples by gender, country and cluster (County/District).

For Uganda;

District/Cluster	*Population of Beneficiary Small Holder farmers*			*Sample Size*		
	Male	Female	Total	Calculated Sample	Male	Female
Bushenyi	4873	654	5527	86	76	10
Kasese	11024	2315	13339	207	170	37
Kiboga	2589	736	3325	52	40	12
Rukunjiri	2112	576	2688	42	33	9
Sipi	10620	1291	11911	186	166	20
TOTAL	**31218**	**5572**	**36790**	**570**	**483**	**87**

For Kenya;

County/Cluster	*Population of Beneficiary Small Holder farmers*			*Sample Size*		
	Male	Female	Total	Calculated Sample	Male	Female
Tharaka Nithi	2658	849	3507	60	45	15
Nyeri	5247	2018	7265	133	96	37
Machakos	6368	2058	8426	155	117	38
Bungoma	6012	1614	7626	130	109	30
Kirinyaga	3178	1188	4366	84	59	22
Embu	7027	3088	10115	185	129	56
Meru	695	339	1034	19	13	6
Muranga	6538	2369	8908	164	119	45
Kiambu	4316	2030	6346	117	80	37
TOTAL	**42039**	**15553**	**57593**	**1047**	**767**	**286**

Please Note: There is an additional level of granularity that was addressed during planning for data collection. Such involved the purposive determination of the cooperatives/parishes from which the established sample was drawn.

The purposive sample within the cluster took into consideration; geographical distribution, diversity of services, number of beneficiary farmers, nature of services received, state of partnership with implementing partner-whether current or past, or any diversities in culture and agricultural practices.

FINAL REPORT – END-TERM EVALUATION OF 4S@SCALE PROJECT