Community Sustainable Initiatives Link (COSIL) Baseline Survey Report

Submitted to
Agricultural Business Initiative (aBi) Trust
Plot 20, Umoja House, Nakasero Road
P.O. Box 29851
Kampala

By

Janda Consult
Strategy.Results.Value.

Plot 114-122, Port Bell Road P. O. BOX 21853, Kampala. Tel. +256 414 581440
Email: info@jandaconsult.org, Website: www.jandaconsult.org

April, 2016

Citation:
Janda Consult, 2014: Community Sustainable Initiatives Link (COSIL) baseline survey

DISCLAIMER

Agricultural Business Initiative (aBi) Trust accepts no liability for the content of this report, or for the consequences of any actions taken on the basis of the information provided, unless that information is subsequently confirmed in writing. The views contained in this report do not necessarily represent those of aBi Trust and its entities. All reasonable precaution has been taken by the report editor to verify the information contained in this publication. Any opinions, findings, and conclusions or extracted lessons expressed in this report are those of the author

ACKNOWLEDGEMENTS

The team would like to recognize and thank all the persons and organizations that participated in the Community Sustainable Initiatives Link (COSIL) Baseline Study. We would like to thank aBi Trust staff who provided guidance during the planning and execution of this evaluation. The wide knowledge and oversight to this study was paramount to its completion through shaping terms of reference, tools, analysis and report writing. We wish to acknowledge the contribution of Mr. Paul Dhabunansi (Ag. M& E Manager, aBi Trust), who provided overall coordination of the field study.

We also acknowledge the support from; Daniel Musoke the M&E officer, and Ms. Pamela Tumwikirize (M&E). The members worked tirelessly to input in the data collection tools.

Special thanks go to the aBi partners, especially the Community Sustainable Initiatives Link (COSIL), Sub County staff of Mahyoro- Kamwenge which actively participated in the baseline survey.

We extend our gratitude to Community Based Facilitators (CBF's) who mobilized members for FGDs and translation in local language.

Finally this baseline could have not been finished if it was not the sacrifice of community members who left their work and for no pay voluntarily participated in the baseline study and collection of information that has been compiled in this report.

AFFIRMATION

This baseline study was conducted by Janda Consult Ltd (www.jandaconsult.org) in collaboration with aBi Trust and the report, herein, gives a summary of the key findings for the baseline study for Community Sustainable Initiatives Link (COSIL) Kamwenge project which was conducted in April, 2016. The baseline study for COSIL, Kamwenge project results described, herein, are consistent with the terms of reference as provided by aBi Trust. The primary data collected during the baseline study remains the property of the communities and families that are described in this report consequently, the intellectual properties of any content of this report belong to aBi Trust and the communities that are supported through Implementing Partners and must only be used with their consent.

GLOSSARY

Baseline Survey:
This is the process undertaken to generate data on the situation of the community prior to initiation of a project or Program and planned interventions in that area.

Sustainability:
This is the ability and appropriateness of partners to maintain and replicate results of project interventions after the termination of the technical engagements and partnerships through the programme and projects. Sustainability seeks to cause continuous existence or enforcing to maintain without interruption or diminution.

Implementation:
This is the carrying out, execution of a plan in order for the project to achieve its objectives.

Loan
A loan may be money or securities supplied by one party (the lender) to a second party (the borrower) in a transaction in return for a promised future payment by the borrower. Such transactions normally include the payment of interest due to the lender as per agreed repayment schedules between the two parties.

Value addition:
Operations done to improve quality of produce to attract a higher price

Contents

EXECUTIVE SUMMARY **9**

CHAPTER 1: INTRODUCTION **12**

1.0 INTRODUCTION 12
1.1 BACKGROUND 12
1.2 STATEMENT OF OPPORTUNITY 13
1.3 SCOPE OF THE STUDY 14

CHAPTER 2: METHODOLOGY **15**

2.1 STUDY DESIGN 15
2.2 SAMPLING 15
2.3 DATA COLLECTION 16
2.4 DATA QUALITY CONTROL: 16
2.5 DATA TRANSFER TO STATA AND LOGICAL DATA CLEANING 17
2.6 DATA ANALYSIS 17
2.7 QUALITATIVE DATA ANALYSIS 17
2.8 ETHICAL CONSIDERATIONS 17

CHAPTER 3: KEY FINDINGS **18**

3.1 DEMOGRAPHIC AND SOCIAL-ECONOMIC CHARACTERISTICS 18
3.2 MARKET TRIGGER 20
3.3 MARKET UPTAKE 21
3.4 ENTERPRISE PERFORMANCE 30
3.5 SECTOR GROWTH 32
3.6 IMPACT/ POVERTY BENCHMARKS 33
3.7 CROSS-CUTTING ISSUES 34

CHAPTER 4: CONCLUSION AND RECOMMENDATIONS **36**

List of Figures:

Figure 1: Showing Kamwenge District sub-counties 14
Figure 2: Household age structure 19
Figure 3: Household Head Education Level 19
Figure 4: Sources of support 20
Figure 5: Group belonged to 22
Figure 6: Awareness of quality attributes 23
Figure 7: Households applying GAPs 26
Figure 8: Forms of value addition 27
Figure 9: Business skill training areas 28
Figure 10: Financial support sources 29
Figure 11: Savings and Borrowing patterns for the beneficiaries 29

List of tables

Table 1: Total LQAS sample allocation 15
Table 2: Type of support received 21
Table 3: Institutions that trained farmers in GAPs 25
Table 4: Allocation of rice produced by the beneficiaries 30
Table 5: Profit and Loss Analysis 31
Table 6: Total production 33
Table 7: Income from last season 33
Table 8: Full Time Employment (FTE) 34

LIST OF ACRONYMS

CBF	Community Based Facilitator
COSIL	Community Sustainable Initiatives Link
FGD	Focus Group Discussion
FTE	Full Time Employment
Kg (s)	Kilogram (s)
LC	Local Council
MARIFA	Mahyoro Rice Farmers Association
MT	Metric Tons
NAADS	National Agricultural Advisory Services
SACCO	Savings and Credit Co-operative
USh	Uganda Shillings
VSLA	Village Savings and Loans Association

EXECUTIVE SUMMARY

This report summarizes the key findings of the baseline survey for Community Sustainable Initiatives Link which was conducted in April, 2016. The key findings are summarized in table below:

Key Findings

Result Level	Result (Change)	Indicator	Target, 2017	Baseline , 2016
Market Trigger	Trainings	Number of established rice demos on GAPs and PHH	150	71
		Groups trained on GAPs and PHH	150	75
		Number of change agents on quality management, bulk marketing, VSLA and gender	50	43
		Number of FFs trained in gender and VSLA	150	75
	More adopters bulking and selling at COSIL	% of adopters bulking and selling rice through the hub	70%	30%
	Expand Storage and strengthen market linkages and partnership	Number of additional bulking centers set up	12	1
	VSLA kits	Purchase and distribute VSLA kits to 150 groups	150	150
	Weighing scales and grain pro-driers	COSIL to purchase 1weighing scale (Avery) and 4 grain pro-driers for the business center	1 Avery weighing scale, 4 grain pro-driers	1 weighing scale in place; Part payment on 2 grain pro-driers
Market Uptake	Farmers adopt improved technologies or practices	% of farmers who have applied at least 3 key recommended practices/ technologies to increasing productivity	70%	35.1%
	Functional VSLAs	All targeted VSLAs up and functional	150	75
		% of farmers saving with VSLAs	70%	29%
	Farming households implement joint plans and decision making	% of farming households implementing joint agricultural production plans and decision making on how to spend the income from sales of their agricultural produce.	60%	46.9%
	Farmers use better quality seed	% of participating farmers using better quality seeds	70%	57.2%
		Volume of improved quality seed sold by seed companies in the project area (Kg/season)	12,000	5,270
	More financial institutions	Facilitate linkages between financial/ credit institutions and VSLAs	3	1

Result Level	Result (Change)	Indicator	Target, 2017	Baseline , 2016
	and VSLAs linkages			
Enterprise Performance	Farmers increase profits	Average price offered to farmers (USh)	1,400 (un-hulled rice) 3,000 (milled)	1,229.3 (un-hulled rice) and 1,800 (milled rice)
		Gross profit per acre (USh)	1,161,400	124,881
		% of farmers supplying to COSIL	70%	15.6%
		Volumes bought from farmers by COSIL (MT)	6,600	38.2
	Agribusinesses increase Profits	Gross profit by (USh)	2,525,749,000	68,760,000
	Farmers accessing new markets	Number of new markets accessed	4(COSIL, Institutions, Traders, Companies)	2 (COSIL, Traders)
	Agribusinesses accessing markets	Number of new markets accessed	4 (World Food Programme, Schools, Supermarkets, and Traders)	2 (Traders and Supermarkets)
	Farmers sell more at attractive prices	Total volume of produce of targeted enterprise sold (Kg)	1,700	935.9
	Farmers increase production	Average acreage per farmer	1.4	0.83
		Total production in(Kg)	2,380	1,151.5
		Average yield per acre (Kg)	1,700	1,387.3
	Increased access to land and other property by women and youth	% of women with access to land to engage in the promoted value chain	No data	88.5%
	Increased women and youth participation	Number of women or youth on farmer groups leadership committee	No data	3Women, 1Youth
Sector growth	Agribusinesses increase their production capacity	Total volume of target enterprise produced last season/ quarter (MT)	6,600	1,827.4
	Farmers increase production capacity	Total area under cultivation for the target enterprise/ crop (Acres)	4,900	1,317.2
Impact/ Poverty	Farmers increase income	Net additional income to target enterprise as a result of the programme per year and cumulatively (USh)	3,236,800	1,150,511.7

Result Level	Result (Change)	Indicator	Target, 2017	Baseline , 2016
		Net additional income for COSIL	2,525,749,000	68,760,000
		This indicator measures the % of target enterprises who realize a financial benefit as a result of the programme/ project's activities per year	70%	22.1%
	Farmers employ more	Net additional, full-time equivalent (FTE) jobs created in target enterprises as a result of the programme, per year, (M,F)	No data	13.6 (4.8 M, 8.8 F)
	Agribusinesses employ more	Net additional, full-time equivalent (FTE) jobs created in target enterprises as a result of the programme, per year, (M,F)	42 (18 at bulking center, 8 at collection center, 12 at COSIL processing plant, 4 at the office)	3 at COSIL office (2M, 1F), 5 at the processing plant
Cross-cutting issues	Green growth	% of households that applied environment conservation practices	No data	82.5%,
	Gender	Number of change agents trained as TOTs on gender, joint planning and sharing of proceeds	50	43
		Develop a gender policy	Gender policy in place	Gender policy in place
	Human rights based approach	Discourage child labor especially during harvesting (bird scaring) and discourage gender bias in decision making and project participation	Reduced child labor More households planning and deciding together	On going

CHAPTER 1: INTRODUCTION

1.0 Introduction

This report describes the findings of the baseline for COSIL commissioned by aBi Trust in April, 2016. The main purpose of this baseline study is to capture key outcome and impact indicators as articulated in the programme and the projects and as such needs to include the 'pre-operation exposure' condition for the set of indicators that will be used to assess achievement of the outcomes and impact expressed in the results framework change over time.

The report consists of four chapters that describe both the process and results of the baseline study for COSIL presented in different forms and in line with the baseline objectives. Chapter one consists of the introduction to the baseline including the background and purpose. Chapter two provides the methodology used including a brief description of the sample size, sampling, data collection methods, tools, and data analysis. Chapter three gives the study findings. Chapter four provides the conclusion and recommendations.

1.1 Background

Community Sustainable Initiatives Link (COSIL) is a not for profit organization that was founded in the year 2002 by members of the community to precipitate productive collaboration among communities, rural interest groups, professional development animators, government institutions and individuals. It was registered as a Community Based Organization in Kamwenge District on 30th September 2002 under registration number 104/2002 and later registered as a company limited by guarantee under section 16(1) of the Companies Act of Uganda (Registration No. 152633) on 19th July 2012. Its ownership is invested with founder members that form the trustees and the Board of Directors of the company. It works with affiliate farmer groups and structures that form the partner's assembly, who meet annually to reflect on key successes and guide strategic direction to the organization. The trustee selects board of directors who form the supreme policy body of the organization. COSIL has a strong management team of different professions who carry out the day to day activities of the organization.

COSIL promotes economic development of smallholder harmers through diversification and commercialization of agriculture, value addition and sustainable marketing as strategies for increasing incomes and consequently improving livelihoods for the rural poor. COSIL uses the farmer field school approach focusing on the sustainable agricultural principles, household food security and building social capital.

COSIL has since 2014 been supported by McKnight Foundation (USA) and Kabarole Research and Resource Centre (KRC), Broderlijk Delen (BD, MIVA Netherlands and Belgium Technical Cooperation (BTC to support empowerment of smallholder farmers and setting up processing facilities among others. Farmers were coached, trained and guided on their farm on the best agronomic practices of different enterprises including, vegetables, maize, rice, banana management (plantain), and cassava. The practices include de suckering, pest and disease control, pruning, line planting, spacing, weed control, post-harvest handling among others. COSIL uses demonstration plots in illustrating best agronomic practices.

COSIL worked with National Agricultural Research Organization (NARO) and piloted NERICA-4 upland rice with total acreage of 1,125 in the main season. NERICA-4 upland rice is more appreciated for its hardiness, high yields, and shorter maturation time of 90-100 days vs. 120-140 days of traditional rice varieties that were first promoted. This increased upland rice production from 900kg per acre per household to 1,250kg per acre per household of un-milled rice (June 2015 harvest). Currently, COSIL has supported 90 lead farmers to start demonstration plots using 5,720kg as seed bank.

COSIL organized farmer field schools into four collection centers. The centers mobilized farmers for increased production, quality control and organized rice delivery to COSIL marketing center for processing and marketing. In 2013, 62,800kg of rice was collected, 78,800kg in 2014, and 37,000kg collectively bulked in January- June 2015, with the price of un-hulled rice increasing from USh.700 to USh.1400 currently and that of milled rice/hulled rice increasing from USh.1800 in 2012 to USh.3000 currently.

COSIL has a storage facility of 100 Tons, mill house, and a rice huller SB 30 with a capacity to mill 600kg/hr. COSIL's biggest market for rice has been schools, hospitals, traders, and supermarkets in the area. COSIL plans to open markets outside the district with increased production and quality.

COSIL supported the formation of Shores of Lake George Farmers SACCO Ltd, a farmer- led finance institution, registered on 18th April 2011, under certificate number 2523 in line with the provisions of section 6(1) of the Cooperative Societies Statute, 1991, and regulations of 1992. Currently, it has 800 individual members and 40 farmers groups saving and accessing credit. Share capital stands at USh. 26,507,200 (2014) and current loan portfolio of USh. 73,200,000. COSIL has formed 154 VSLA groups of 28-30 members giving a total number of 4,495 clients of which 2,764 are females and 1,731 are males, 40 of these are already linked to the SACCO. These groups have mobilized savings and accessed loans amongst themselves and utilized the welfare fund to improve their family incomes with a cumulative value of savings USh. 138,761,200 at an average of 56,753 per member and USh. 361,087,297 as cumulative value of loans at end of 2014. Women and men have borrowed money from the VSLAs to pay school fees for their children, increased production of upland rice farming, engaged in business ventures in the trading centers, and have acquired skills in record keeping and are actively participating in decision making at all levels.

1.2 Statement of Opportunity

Rice farmers in Kamwenge district are constantly faced with: lack of inputs (improved seed, herbicides, and sprayers), insufficient post-harvest equipment, limited markets, distorted market prices, and limited financial services. This is further aggravated by low bargaining power due to lack of collective action. These challenges constrain their production and consequently their profit.

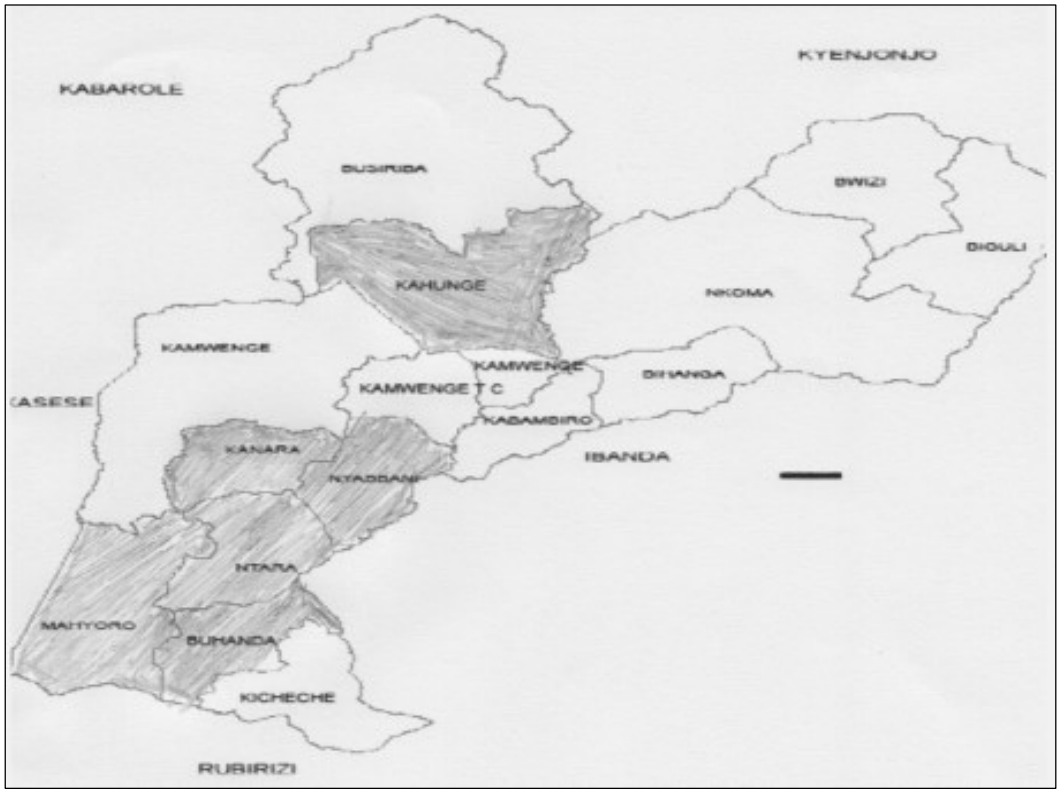
Cognizant of these challenges, COSIL with the support from aBi Trust is providing an opportunity for farmers to access; trainings on Good Agricultural Practices (GAAP), Post-Harvest Handling (PHH), Value Addition, Green growth and Gender awareness. Furthermore, COSIL is currently providing improved seed (NERICA-4) which can yield to a capacity of 2,500Kgs per acre much higher than the previous yields of 900Kg per acre. In addition, COSIL is optimistic that with completion of the rice milling unit, it will purchase rice from its members at a price higher (USh 1,200 to USh 1,400 per Kg of un-hulled rice) than the other traders who take advantage of farmers' lack of market information. With

these opportunities, rice farmers will be motivated to increase on the acreage under rice production from 0.83 acres to 1.4 acres by 2017.

1.3 Scope of the study

The baseline survey was conducted in project intervention areas which covered five parishes of Kitonzi, Kanyabikyere, Kyendangara, Mahyoro, and Nyakasura located at Mahyoro sub-county. The target participants included; household heads, producer groups, VSLA members and DLG officials. It also involved a review of project summary document and progress report.

Figure 1: Showing Kamwenge District sub-counties



Mahyoro Sub County is located south east of Kamwenge District

CHAPTER 2: METHODOLOGY

2.1 Study design

The study design consisted of both quantitative and qualitative techniques to collect primary and secondary data. Data was sequenced; quantitative data was initially collected, preliminary analysis done and validated by COSIL implementing partner stakeholders using focus group discussions and key informants to generate in-depth qualitative data.

2.2 Sampling

The study used both purposive and Lot Quality Assurance (LQAS) sampling techniques in identifying and selecting respondents. The study was conducted in Mahyoro sub-county, Kamwenge district. This sub-county was the only one that had grown rice under project support last season.

LQAS technique was used in sampling household respondents and which involved dividing COSIL operational priority areas into 5 (five) Supervision areas (parishes) which provided the required 95% confidence level using LQAS. The study parishes include: Kitonzi, Kanyabikyere, Kyendangara, Mahyoro, and Nyakasura. Using the list of registered beneficiaries at COSIL, 19 household respondents were randomly selected for interview in each of the supervision areas.

Household sample size determination using LQAS

The sample size of 19 per supervision area was taken and this provides a statistically acceptable 95% confidence level for representation of the benchmarked supervision units and samples larger than 19 have practically the same statistical precision as 19. They do not result in better information, and cost more. Little is added to the precision of the measure by using sample larger than 19, notwithstanding the level of coverage to be assessed. Total of 95 households were selected for interview in the entire study area (Table1).

Table 1: Total LQAS sample allocation

Study IPs	Supervision Unit(IPs operational area)	No of SA(Parishes)	Interviews per SA(Villages)	Intervention area (80% sample)	Control area (20% sample)	Total No. of Interviews
COSIL	1	**5**	19	76	19	95
		Kitonzi, Kanyabikyere, Kyendangara, Mahyoro, and Nyakasura				**95**

Selection of KIs and FGD members

Purposive sampling was adopted for selecting key informants for interview and focus group members. The three (3) KIs were selected on account of their knowledge about the rice value chains and COSIL operations. These were; 1- Sub-county Local Government, 1- Local trader/ processor, and 2-COSIL. Two (2) FGDs were conducted and these included; 1-(Mahyoro-Nyanga,), 1-Green Hill

2.3 Data collection

Primary and secondary data was collected using quantitative and qualitative data collection techniques. The methods for data collection employed include; Household survey, Key Informants Interviews (KIIs), Focus Group Discussions (FGDs) and Document Review.

Quantitative data was collected from 95 randomly sampled beneficiaries households and non-beneficiaries (in a ratio of 4:1) using a digital structured questionnaire uploaded on android tablets operated by ODK application. Qualitative data was collected from two (2) Focus Groups namely; Green Hill and Nyanga I Tutungukye group using a non-structured FGD guide. Each FGD consisted of ten (10) members.

Further qualitative data was collected from six (4) purposively selected key informants that included; 2 (Board member COSIL, and 1 manager COSIL), and 1(local government staff- LC III sub-county chairman) and 1(trader/ processor). Key informant interviews were conducted using key informant interview guides. Additional data was collected through review of relevant documents.

Data Processing:

Quantitative data was uploaded onto cloud computing account from the ODK collect, securely stored and accessed through website account by the consultants and authorized person for technical monitoring and downloading data.

2.4 Data Quality control:

Data quality control involved the design of the questionnaire and programming using the ODK platform for mobile devices (handheld devise). In addition, data capture forms were designed with inbuilt skips and validation keys to reduce on inconsistent entries and also to enforce that all questions were answered. It also involved data management and handling where by data was uploaded to the server on a daily basis by the consultant and the field supervisors. Data was checked for error relating to illogical and inconsistent entries. Any flagged queries were shared with the responsible interviewer/research assistant for action (that included consulting with the interviewer and possibly re-contacting the respondent). Data checking ensured 100% completeness and reduced inconsistent entries to less than 5%.

Further to that, training of Interviewers and close supervision was done. All interviewers were trained on how to use the android tablets to capture data in addition to a pre-test. Data capture and identification was done to ensure that the database for the questionnaire captured an individual respondent's unique identifier (ID) including that of the interviewer and the time of interview.

Re-interviews for quality control or data cleaning was done including conducting some re-interviews for a sub-sample of (2%) of the sampled respondents for purposes of quality control and data cleaning where necessary. Finally, completeness and consistence checks were again done for all collected data forms to be certain of the correct use of the question skips, consistence of codes and logic and results especially the flagged queries were shared with the research team.

2.5 Data transfer to STATA and logical data cleaning

Data was exported to STATA using STATA transfer software. Within STATA, another level of logical cleaning was done to ensure that there were no duplicates, no missing values and no values of out of range. After this stage, we generated the first descriptive statistics to explore the data sets, while identifying outliers and were discussed.

2.6 Data Analysis

The analysis was conducted to generate descriptive statistics; Frequency, Means and Percentages in line with project indicators. Series of descriptive statistics with specific disaggregation were generated in the LQAS standards tables, charts and graphs produced.

2.7 Qualitative data analysis

Qualitative data consisting of notes and stories generated from in-depth interviews with key informants and FGDs was read and re-read to identify responses that answered particular evaluation questions, as well as any emerging patterns of thinking, argument, and practice revealed by the study participants. These were transcribed, edited in line with the objectives of the study and typed out and analyzed using thematic and content analysis methods. This was also important for validating the quantitative data. Results from the qualitative data were triangulated with the quantitative data to enable meaningful interpretation. Some quotations from respondents were included in the report to bring out the voices of the participants but also to support explanations and findings put in the report.

2.8 Ethical Considerations

Strict adherence to ethical guidelines was observed in the execution of the baseline survey. Verbal consent was sought from the respondents before the interview. A consent form bearing assurance regarding risk or discomfort, likely benefits, rights, obligations and confidentiality of data was used. The data collected was only retrievable from the website address of the principle researchers.

CHAPTER 3: KEY FINDINGS

3.1 Demographic and social-economic characteristics

This section describes the demographic characteristics of the households (sex, household size, age, education).

Gender disaggregation

The household survey showed that a higher proportion of males (64.6%) participated in the study, which is far higher than the percentages quoted by the district report (50.3% males) UBOS, 2014)[1]. In addition, the project progress report 2015, shows that of the 2,456 members, 37% are males.

The key informant (KI) said that this disparity was due to the social structure in the area where men usually are responsible for responding to matters concerning household incomes. Women are allowed to take up the role in the absence of their husbands.

Household Size

The average household size was 6.9 members (2 parents, 4 children) which was higher than 4.6 average household size for kamwenge district (UBOS, 2014)[2].

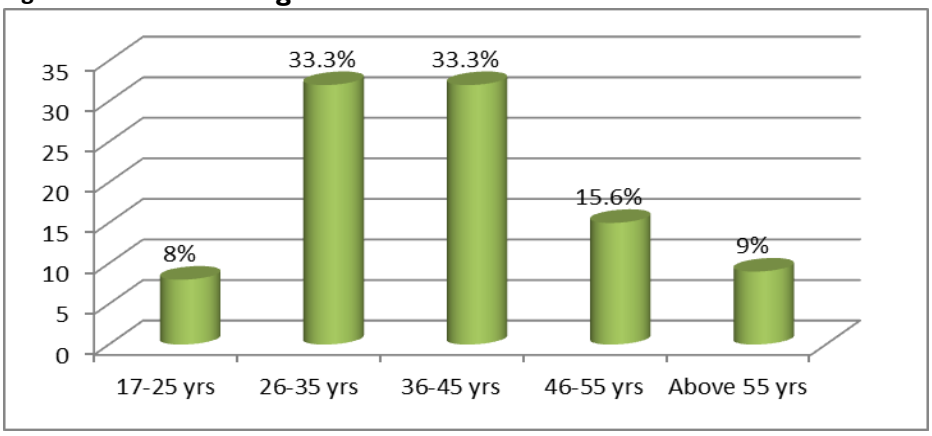
The discussion with the focus group revealed that much as bigger households present more consumption demands, they can help reduce on labor costs especially during planting, bird scaring, harvesting, and post-harvest practices.

Age structure of sampled population

Analysis of age by household composition showed that the majority 33.3% was within the age categories of (26-35 years and 36-45 years); followed by 15.6% (26-35 years) figure 2. These categories were within the economically active age group of 15-49 years. There was also a small proportion of population (12-17years) and > 55 years in the community who are in most cases dependents (children and the aged respectively). This finding is important in explaining the productive capacity (both economic and social construct) of the household with regard to human resources: in most cases, the more dependants a family has, the more constrained the labor is.

[1] UBOS, 2014: Population Census 2014
[2] UBOS, 2014: Population Census 2014

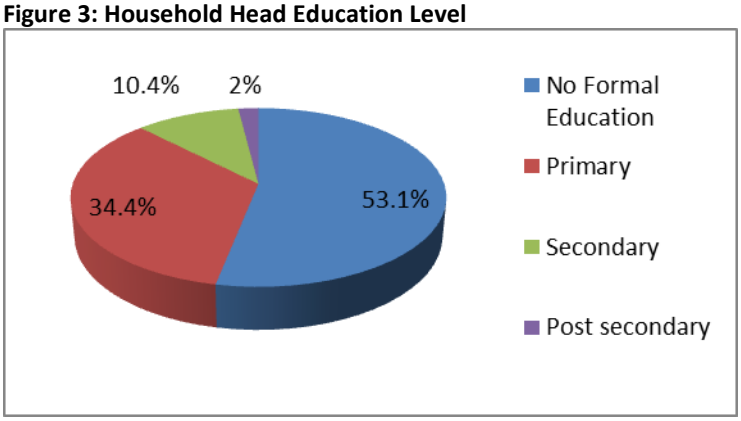
Figure 2: Household age structure



Household Head Education level

The study found out that majority of the household heads (53.1%) had no formal education, 34.4% had attained primary education, 10.4% secondary and a small portion having gone past secondary level (Figure 3). The education level of the household head usually explains the overall social status and is often used as an indicator in understanding the development patterns and the capacity of a household to take up critical development skills. The project needs to take into account this variable in designing appropriate trainings and technology transfer for this section of farmers.

Figure 3: Household Head Education Level



Main Occupation (Sources of livelihood)

The baseline results indicate that majority (95.8%) of the households depend on agriculture as their primary source of livelihood with just a small portion (3.2%) engaged in business, and 1% derived livelihood from other sources. These results are consistent with the national statistics on agriculture; 72% of the total population is employed in agriculture from where they derive income and sustenance (UBOS, 2014).

The results suggest that although the biggest population derive their sustenance from agricultural production, those farmers (4.2%) who supplement their agriculture production with business are more likely to neutralize their vulnerability to unexpected negative externalities associated with agriculture.

This could be a strategy the project can adopt in training farmers on income generation and diversification.

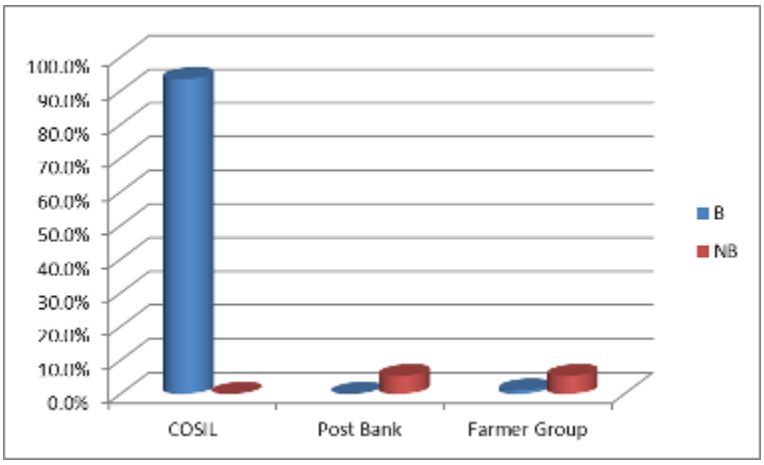
3.2 Market Trigger

This section describes the benchmark data on the market trigger (project interventions) or support through; post- harvest handling, storage, processing and marketing.

Support to agricultural enterprises

The study revealed that (79.2% BE, 15.8%NBE) of the respondents had received support (Figure 4) from: COSIL (93.5% BE, 0% NBE), Post Bank (0% BE, 5.3% NBE), and a Farmer group (1% BE, 5.3%NBE).

Figure 4: Sources of support



When further asked about the type of support received (Table:5), (80.6 % BE, 10.6% NBE) of the respondents said they received support in improved seed. Furthermore, (79.3% BE, 15.9% NBE) had received trainings, (27.3%BE, 0%NBE) hosted demonstration gardens, (14% BE, 15.9% NBE) received financial services, (9.1% BE, 0%NBE) received value addition equipment (tarpaulins), (6.5% BE, 0%NBE) received good market prices, (5.2% BE, 0%NBE) received support in market-led systems, (5.2% BE, 0% NBE) were taken on learning visits on research centers, (3.9% BE, 0%NBE) received fertilizers, and (1.3% BE, 0%NBE) access the collection unit.

Document review showed that COSIL has trained 75 groups on GAPs, PHH, gender, and VSLA. By the time of the baseline, 71 demonstration gardens were set up and equipped with; 5,270 Kg of upland rice improved seed (NERICA-4), 50 knap sack sprayers and 83 liters of herbicide (Butanil) in total. Furthermore, COSIL has trained 43 change agents (equipped them with bicycles and a facilitation) to train other farmers on GAPs, PHH, Gender, and VSLA methodology (COSIL)[3].

In addition, although COSIL has trained 150 VSLAs each equipped with a VSLA kit, only 75 VSLAs are functional and have been linked to one financial institution (Shores of Lake George SACCO) so far.

[3] Project Narrative Report for Quarter one

Furthermore, COSIL has purchased one weighing scale (type-Avery) and are yet to finish payment on 2 (two) grain pro-driers.

Explaining the support the KI (Nsaba Philemon) said COSIL is currently operating in 6 Sub Counties of Mahyoro, Ntara, Buhanda, Nyabane, Kanara, and Kahunge. However, for the last seasons, the organization has only supported rice farmers in Mahyoro Sub County where almost 60% of households are engaged in rice production as an income generating activity (IGA). Because rice is a high-income value crop, the organization is supporting all the 6 six sub counties mentioned above in rice growing this season.

Nsaba further revealed that the support given was in form of: extension services and trainings on (Good Agricultural Practices (GAP), Post- Harvest Handling (PHH), Gender awareness and Environmental management); provide improved seeds (NERICA-4); provide tarpaulins and herbicides (demonstration holders). He further said that the support was not enough since only two (2) agronomists are responsible for all the 6 sub-counties. In addition, COSIL is currently constructing a processing unit to help farmers with value addition.

Table 2: Type of support received

Type of support	BE (%)	NBE (%)
Improved Seed	80.6	10.6
Trainings	77.3	15.9
Demo. Garden	27.3	0
Financial Services	14	15.9
Value Addition Equipment	9.1	0
Good Market prices	6.5	0
Market-Led Systems	5.2	0
Learning Visits	5.2	0
Fertilizers	3.9	0
Access to collection center	1.3	0

3.3 Market Uptake

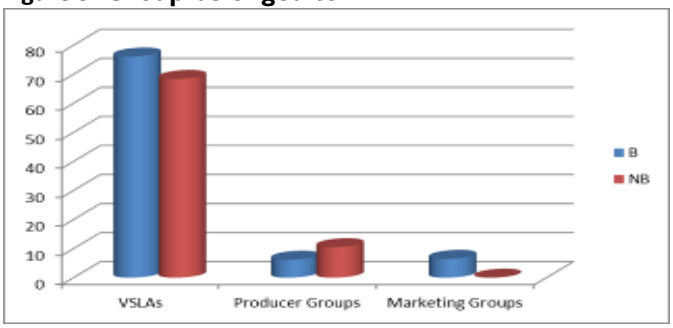
This section describes the current status of market uptake or adoption rates of technologies and practices that have been provided to small scale farmers through training in the study area including challenges.

Belonging to group

The study findings showed that (81.8% BE, 31.2% NBE) of household respondents in the study area had received training on group formation with 79.2% belonging to at least one group. Results further indicated that (76.1% B, 68.4% NBE) belonged to VSLAs, (6.2% BE, 10.5%NBE) belonged to producer groups, and (6.5% BE, 0%NBE) belonged to marketing groups (Figure 5). When further asked about the benefits derived from belonging to a group, the results showed that (74.1% BE, 63.4% NBE) obtained training, (59.8% B, 23.7% NBE) benefited financially, (32.5% BE, 26.4% NBE) marketed collectively, (20.8% BE, 0% NBE) obtained market information, and (3.9% BE, 0% NBE) accessed inputs.

Explaining the results, the FGD (Green Hill) revealed that most farmers belong to VSLAs because of the flexibility of the terms of joining and saving. Further discussions revealed that most of the producer groups operated as 'agricultural labor groups'- individuals in such groups; help one another with production hence reducing labor costs; they also earn income from providing group labor to whoever needs it.

Figure 5: Group belonged to



Collective marketing

The study also showed that although (BE 32.5%, NBE 26.4%) of the respondents reported collective marketing as a benefit derived from belonging to a group, only (BE 15.6%, NBE 5.3%) marketed collectively the previous season. The average volume sold in a group was (BE 712 Kg, NBE 400Kg) at an average price of USh 1,700 per Kg.

When further asked about the benefits from collective marketing, 13.4% said they received good price, 5% accessed markets, and only 2% benefiting from contracts.

Furthermore, the study revealed that most households 77% sold to traders/middlemen, 18.7% sold to COSIL, 3.1% sold to processors. When further asked the reason for selling to a particular buyer, 56.2% of the respondents said best price, 21.9% said the buyer was the nearest, 14.6% said the buyer was the only available, while 7.3% had a contractual agreement.

Information from the FGD revealed that even though collective marketing gave members better prices, the delayed transactions discouraged them from it. Furthermore, the group said that because most traders found them in their homes, they had no comparison price offers to hinge their bargaining and thus accepted any reasonable price offered. In addition, further discussions with the KI revealed that most of the households preferred having 'cash' to 'stored produce'.

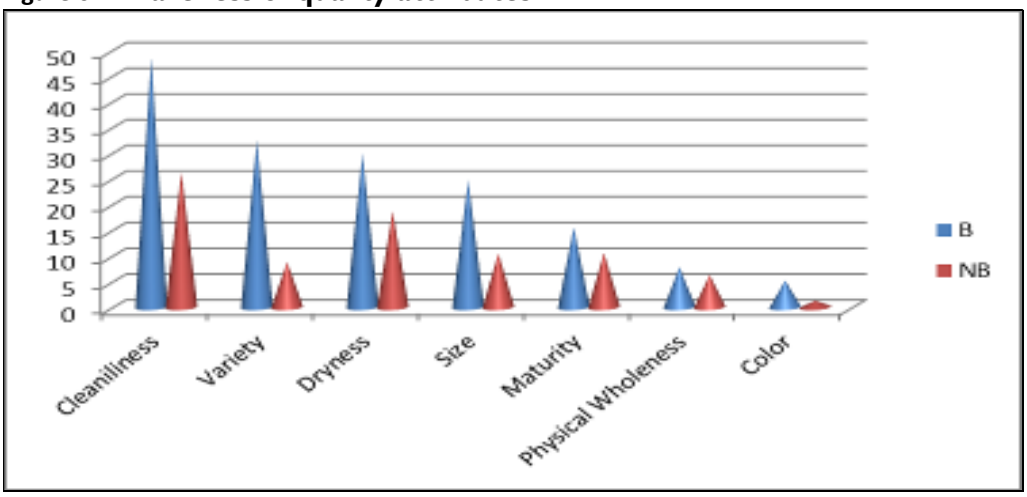
However, COSIL has started buying rice from its members at a better price (USh 1,200 to USh 1,400 per Kg of un-hulled rice depending on the season). This is encouraging farmers to bulk their produce for better prices. The discussion further qualified rice as a high demand crop that had ready market. In addition, some farmers when faced with financial constraints sell their standing crop to some traders and therefore obliged to sell/remit the harvested crop at a price set by the creditor.

Quality attributes

The study findings showed that 62.5% of the respondents were aware of the quality attributes required by rice buyers. When further asked about which attributes, (BE 48.6%, NBE 26.3%) were aware of cleanliness, (BE 32.5%, NBE 8.8%) aware of variety, (BE 29.9%, NBE 10.5%) were aware of right dryness, (BE 24.7%, NBE 5.3%) were aware of the size, (BE 15.6%, NBE 10.6%) were aware of maturity, (BE 7.8%, NBE 5.3%) aware of physical wholeness, and (BE 5.2%, NBE 1.3%) aware of colour (Figure 6). The results further indicated that 68.8% of the households rated themselves as meeting the quality standards.

Further discussions with the FGD revealed that most of the beneficiaries could easily tell the variety of the crop from observing the height of the plant (tall ones are of 'diluted' variety- that has been grown over again), and from the color of the seed (NERICA-4 is red, while Kawanda is white). In addition, dryness of the grain is tested by breaking the seed between one's teeth ('pops' with a sound when dry). Furthermore, most households dry their rice on tarpaulins to ensure cleanliness of the produce. Maturity is usually indicated by the fullness of the pod after drying.

Figure 6: Awareness of quality attributes



Joint planning and decision making

The study showed that (BE 46.9%, NBE 5.3%) of the households had been trained in joint planning and decision making. When further asked how many jointly planned and made decisions together, BE 87.5%, NBE 47.4% of the households did. The study further showed that of the households planning together, BE 33.3% enjoyed shared responsibility, and BE 21.9% obtained better results.

Discussions with the key informant (Nsamba Philemon) revealed that unlike other cash crops such as coffee, rice is a 'unifying' crop that engages all the household members (males, females and children). This argument was later validated by the FGD as true, although there are times when it becomes a point of conflict especially during sales. Furthermore, both the FGD and the key informant reported that COSIL has supported trainings on joint planning and is continuously sensitizing farmers to engage in the practice for both production and sales.

Agriculture production

Both literature review and interviews confirmed that households in Kamwenge district were largely farmers (86%). The district receives fairly well distributed bimodal annual rainfall averaging 1,200mm throughout the year. Rainfall is greatest in the areas of Kahunge, Ntara, Nyabane, and the greater part of Mahyoro which constituted the study area (UBOS, 2009)[4]. Furthermore, the study area is located within the escarpments of the great western rift valley and is greatly endowed with rich fertile soils.

In addition, the district is located at a relatively low altitude ranging from 1,300 - 3,800 meters above sea level with temperatures averaging between 20° to a maximum of 30°, which are favorable for crop production. However, in the recent years, there have been tendencies of erratic rains which negatively affect agricultural production. This might be attributed to poor environmental management especially the practice of swamp encroachment (in search of grounds not affected by droughts) and cutting down trees to destroy habitats for birds and baboons.

Acreage under production

Results from the baseline showed that the average acreage owned was (BE 1.5, NBE 1) acres. However, households hired averagely (BE 0.97, NBE 0.5) acres of land to supplement their own for production. *Information from the FGD (Nyanga 1Tutungukye and Green Hill) showed that most small scale farmers owned about an acre of land, which is usually divided to accommodate various agricultural enterprises. In addition, given the economic importance of rice, farmers are forced to hire land to supplement their small portions allotted to the crop and sometimes grow the rice entirely on the hired land. Furthermore, the discussion revealed that the landlords usually hike the rent (1 acre went for USh. 150,000 per season) due to the fact that rice is highly demanded and 'fetches' the farmer a lot of money. The interview with the KI (Tugume Robert) was consistent with the FGD information.*

Household trained and use of improved seeds

The baseline study results showed that although (BE 72.7%, NBE 30.3%) of the households said they had been trained in the use of improved seed, only (BE 57.2%, NBE 16.5%) had planted improved seed the previous season. The study further revealed that most of the farmers (BE 54.6%, NBE 0%) acquired improved seed from COSIL. When further probed for reasons of not using improved seed, farmers revealed that improved seeds were; unavailable (BE 39.7%, NBE 40.3%); markets were far (BE 18.7%); very expensive (BE 10.4%), and (BE 5.2%) had other reasons.

Interviews with the key informants and the FGD confirmed that although farmers desire to plant improved seed, it could only be bought from Ibanda, Kasese, and kamwenge trading center which are approximately 40km away from the study area. For this reason, most farmers rely on the implementing partner (COSIL) for provision of improved seed which is usually not enough leaving some farmers (21.9%) to store their own seed after harvest which they usually re-plant more than the recommended two times resulting into inferior varieties and low yields.

[4] Higher Local Government Statistical Abstract, Kamwenge District (UBOS, 2009).

Furthermore, the key informant said one needed about 30kgs of improved seed per acre which cost USh. 60,000. COSIL has started a seed bank where farmers who are given improved seed are to remit a percentage of their produce back to COSIL for propagation.

Household applied at least 3 GAPs

Results from the study showed that although (BE 83.1%, NBE 78.9%) of the respondents said they had been trained in GAPs, (BE 35.1%, NBE 13%) applied GAPs on their farms. When further asked on who trained them; (BE 70.1%, NBE 0%) by COSIL, (BE 9.1%, NBE 10.5%) by NAADS, (BE 2.6%, NBE 14.5%) by other farmer, (BE 2.6%, NBE 0%) by other NGO, (BE 2.6%, NBE 1.3%) by other farmers not in group, and (BE 1.3%, NBE 0%) by District Farmers Association (Table 2).

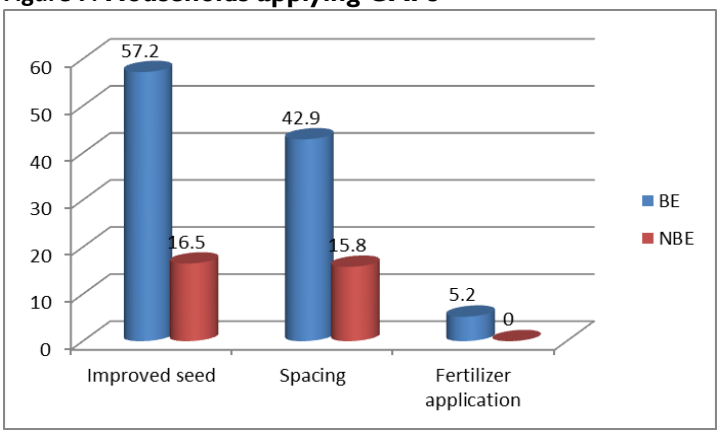
Table 3: Institutions that trained farmers in GAPs

Institution	BE	NBE
COSIL	70.1%	0.0%
NAADS	9.1%	10.5%
Farmer Group Members	2.6%	14.5%
Other NGO	2.6%	0.0%
Farmers not in group	2.6%	1.3%
District Farmers Association	1.3%	0.0%

When respondents were further probed on which GAPs they applied on their farms; (BE 57.2%, NBE 16.5%) improved seed, (BE 42.9%, NBE 15.8%) spacing, and (BE 5.2%, NBE 0%) fertilizer application (Figure 7). The results further revealed that those who applied GAPs, (BE 44.8%, NBE 26.3%) benefited from sustainable production followed by (BE18.8%, NBE 8.8%) benefiting from healthy workers, and (BE13.5%, NBE 5.3%) gained access to new markets.

To further understand the household results, the FGD revealed that most farmers adopt timely planting to maximize the short rains. In addition, weeds aggressively compete with rice and when not weeded in time, one could lose the crop more so, incur a lot in hiring labor to weed the crop. The discussion further revealed weeding as the most expensive agronomic practice in rice growing (about USh.200,000 per acre). Farmers have adopted the use of chemical spraying to kill the weeds. Spraying is followed with hand weeding to remove those stubborn weeds that remain. However, the herbicides are expensive (about USh.30,000 a bottle. 3 to 4 bottles are needed/acre depending on the weed intensity). Although COSIL provides herbicides to some farmers, they are not enough. The discussion also revealed that even though line planting is time consuming as compared to broad casting, weeding, and harvesting are made easier.

Figure 7: Households applying GAPs



Households applied PHH technologies

The baseline showed that even though (BE 74%, NBE 47.4%) respondents applied PHH, (BE 53.2%, NBE 52.6%) had been trained in PHH practices. When asked about from whom they received the training; (BE 87.1%, NBE 0%) said COSIL, (BE 5.2%, NBE 10.5%) by NAADS, BE 3.9% by other NGOs, (BE2.6%, NBE 5.3%) by farmers not in group, BE 1% from farmer group members, and BE 1% from District Farmers Association.

When respondents were further asked about the areas on which they had been trained, the study found out that; (BE64.3%, NBE52.9%) on use of tarpaulins, (BE 48.8%, NBE 0%) on improved storage, (BE37.4%, NBE15.9%) on storage pest control, and 1% on others (selective harvesting). Further probing of the respondents on the benefits derived from applying PHH practices revealed that; (BE 35.4.2%, NBE 36.8%) reduced loss, (BE 32.5%, NBE 10.5%) obtained good quality, 1% received good price, and 1% gained market access.

Explaining the results, both the KI and FGD said that because of the emphasis placed by most traders on cleanliness of the produce, most farmers have adapted the practice of harvesting and drying their rice on tarpaulins. These tarpaulins are either hired (at USh.500 per day) or owned by the farmer (price of a tarpaulin USh 35,000 to 45,000). Some of these tarpaulins are provided by the IP especially for those farmers that have demonstration plots. All the 3 KIs (COSIL and DLG) advised that there is need to provide PHH equipment (improved storage bags, tarpaulins) to farmers since PHH practices have a price implication.

Household that applied value addition technologies

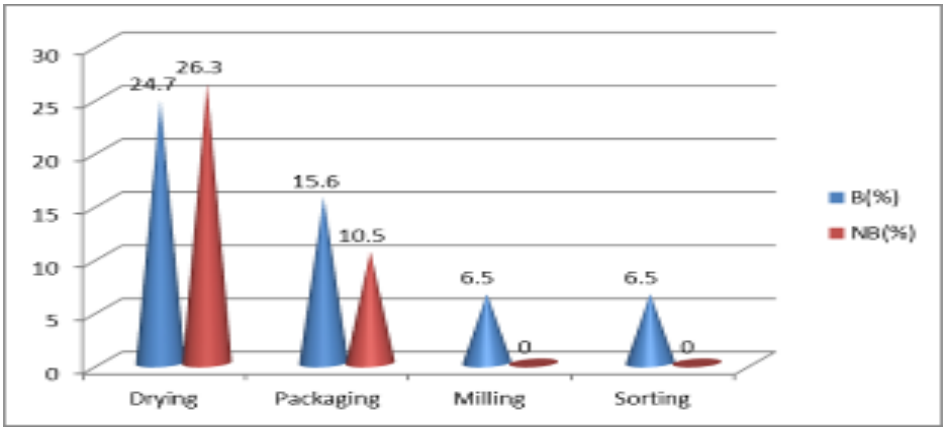
The study results showed that (BE 40.3%, NBE 36.8%) of the respondents were aware of value addition techniques. In addition, the respondents said they had been trained in; Storing (BE33.7%, NBE 15.8%), Packaging (BE 28.6%, NBE 10.5%), Processing/ Milling (BE 20.9%, NBE 16.9%), and Sorting (BE16.9%, NBE 0%). When asked whether they added value to their produce, (BE 24.7%, NBE 16.3%) said they added value in form of; Drying (B24.7%, NB 26.3%), Packaging (BE 15.6%, NBE 10.5%), Milling (BE 6.5%, NBE 0%), and Sorting (BE 6.5%, NBE 0%). See (Figure 8).

When further asked why they added value to their produce, (BE 19.5%, NBE 5.3%) said it was for better price/income while (BE 6.5%, NBE 5.8%) did it to meet quality standards. The study findings further revealed that on average, farmer's added value to (BE 742kg, NBE 357.9Kg) of the produce which was sold at an average price of (BE Ush 1,676.8, NB E Ush 1,480) per Kg.

Information from the KI revealed that some farmers are adopting the use of threshers for primary processing as compared to using clubs- which damage the wholeness of the seed. Most of these threshers are privately owned by businessmen in trading centers (Kyendangara and Kitonzi). The cost of threshing one bag of rice is USh 1,000 (generator powered thresher). In addition, some farmers hire the manual threshers at USh. 5,000.

Although most farmers wish to use threshers for primary processing, the long queues for the few threshers discourage them. Similarly, the KI and the FGD further shared that those farmers who stored their produce during the harvesting period fetched better prices (USh.1300 to USh.1700 per kilogram compared to USh.900 to USh.1, 000 offers during harvest). Furthermore, farmers who sold milled/processed rice fetched much better prices (USh.1800 to USh.2800 per kilogram). Both the KI and FGD were optimistic that with the current initiative by COSIL to establish a rice-processing plant in Mahyoro, more farmers will engage in both primary and secondary value addition and will consequently earn more money.

Figure 8: Forms of value addition



Household that applied environment conservation practices

Although (BE 81.8%, NBE 100%) respondents had heard of environment destruction/climate change effects, (BE 82.5%, NBE 89.5%) were engaged in conservation practices; (BE 64.5%, NBE 63.3%) planted trees, (BE 42.9%, NBE 10.6%) practiced proper measures of rubbish disposal, (BE 20.8%, NBE 15.8%) practice soil fertility, soil and water conservation, (BE 13.4%, NBE 10.5%) practice agro-forestry techniques, (BE 5.2%, NBE 0%) use tree fencing, and (BE 2.6%, NBE 5.3%) practice regeneration of tree stumps. Furthermore, while most respondents (BE 37.7%, NBE 15.8%) revealed that practicing environment conservation improved soil fertility. However, only (BE 16.9%, NBE 21.1%) understood the benefits derived from such interventions.

Observing the above results indicate that although many farmers were made aware and given seeds to plant, a few understood the benefits. The project needs to be aware of such findings since it is likely to be a vicious cycle of environmental degradation (plant, destroy).

Discussion with the KIs confirmed the above observation that environment conservation is still a problem in the area. Most farmers are encroaching on shore lines and destroying swamps in such of wet areas for rice production. Although, both National Environment Management Authority (NEMA) and USAID are creating awareness on the same, the compliance rate is still low. The KI further shared that the environment officer at the district could not handle all the sub counties in Kamwenge. Further discussions with the FGD revealed that most farmers cut down trees because they harbor pests (birds, baboons). Both the KI and the FGD foresaw future climatic problems especially due the current changing rainfall patterns.

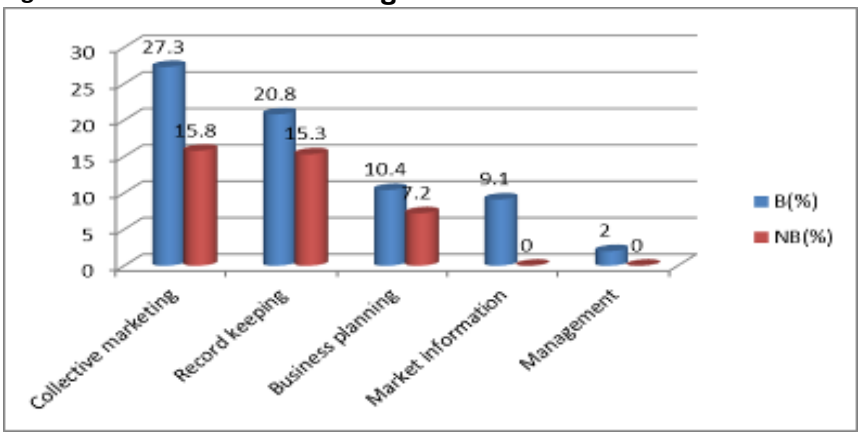
Household that applied farming business skills

The baseline study showed that although (BE 76.6%, NBE 57.9%) of the respondents engaged in farming as a business (FAAB), only (BE 29.9%, NBE 16.5%) had received training in such skills as; Collective marketing (BE 27.3%, NBE 15.8%), Record keeping (BE 20.8%, NBE 15.3%), Business Planning (BE 10.4, NBE 7.2%), Market information (BE 9.1%, NBE 0%), and Management (BE 2%, NBE 0%) see Figure 9.

Furthermore, the respondents revealed that they had received training from; COSIL (BE 31.2%, NBE 0%), NAADS (BE 4.1%, NBE5.3%), Other NGO (BE 2%, NBE 0%), Farmers not in group (BE 2%, NBE 1.3%), Farmer group members (BE 1.3%, NBE 5.3%), and District farmers association (1%). Whereas 60.4% of farmers engaged in FAAB for reasons of income stability, findings from the study showed that other benefits derived included; Better price (13.5%), Market access (8.3%), Better quality (6.2%), and Control of production (3.1%).

Explaining the results, the KI revealed that most farmers did not understand the concept of FAAB. This insight explained the reason as to why most of the farmers who claimed to have been engaged in FAAB did not have records when asked to produce them. This was further confirmed from the FGD who said they knew little on business planning, management, and record keeping.

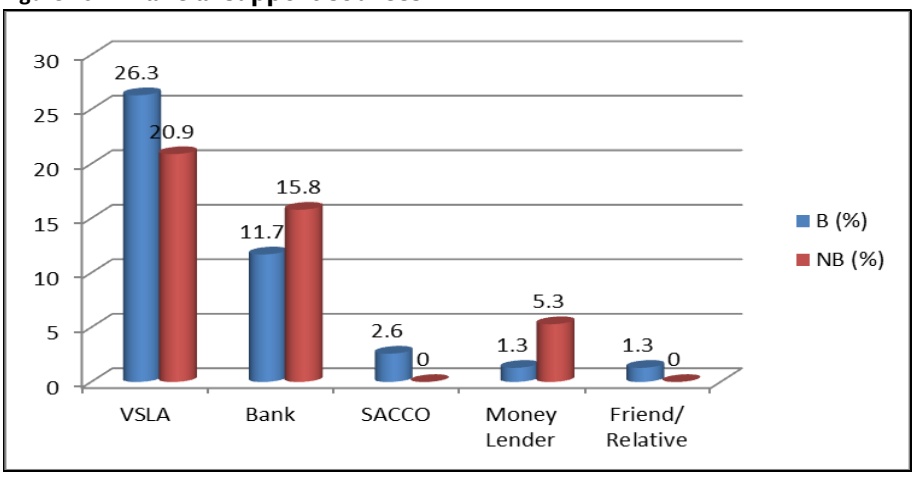
Figure 9: Business skill training areas



Household access to financial services

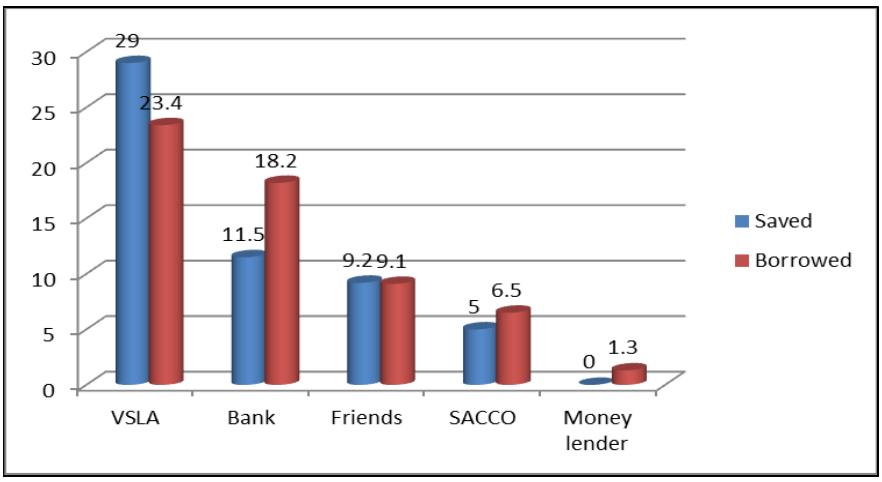
Results from the study showed that 39.6% of the respondents had received financial support last year from; VSLA (BE 26.3%, NBE 20.9%), Bank (BE 11.7%, NBE 15.8%), SACCO (BE 2.6%, NBE 0%), Money lender (BE 1.3%, NBE 5.3%), Friends/ relative (BE 1.3%, NBE 0%). See (Figure 10). The study further showed that the average distance (KM) from the respondent's home to the nearest financial institution was 11.6 KM.

Figure 10: Financial support sources



Furthermore, the results indicated that BE 62.5% of the respondents had saved money last year for such reasons as; Domestic use (BE 33%), School fees (BE 29%), Emergencies (BE 15.5%), Agricultural input (BE 14.5%), and House construction (BE 3%). The study also showed that most respondents (32.3%) saved weekly at; VSLA (29%), Bank (16.5%), House (12.4%), Friend/ relative's account (9.2%), SACCO (5%).The average annual savings were (BE USh 793,280.43). In addition, the study found out that 57.3% of the respondents had borrowed money last year from; Money lenders (26%), Bank (17.6%), SACCO (5.2%), Friend/ relative (2.1%), and Employer (1%). See figure 11.

Figure 11: Savings and Borrowing patterns for the beneficiaries



When further probed for reasons of borrowing, respondents said; Farming (43.6%), School fees (18.5%), Business expansion (7.2%), Medical consumption (5.1%), Household asset (2%), and consumption (1%). Those who borrowed money for farming used it to hire labour (30.8%), rent land (17.6%), and buy seeds (10.3%). The study results further showed that majority of the respondents (12.7%) borrowed on average of Ush. 100,000 each, which they revealed was insufficient (41.7%). The average amount borrowed last year was USh. 680,709.

To qualify the results, discussions with the KI indicated that due to lack of collateral, most farmers run to money lenders for 'quick loans' staking their standing crops as collateral. Similarly, farmers fear to borrow from the few financial institutions in the area that have 'agricultural loans' because monthly payments are difficult to execute by a farmer whose income is seasonal (after harvest). Many farmers end up defaulting and are harassed by their creditors. In both scenarios, the farmer is at a disadvantage. Furthermore, discussions with the FGD confirmed that most of these loans are for renting land and labour (especially weeding). Although accessing loans is easier with VSLA, the amount offered is usually less plus it takes some time to process the loan as compared to purchasing a loan from a money lender.

Land ownership

In the study area, 59.4% of the household respondents said that land was jointly owned by both the husband and wife. In addition, 88.5% of the respondents said that women have right and access to land/ property. The respondent 69.8% further revealed that women having rights and access increased production. The results are of great importance especially in Uganda, 77% of those employed in agricultural production are women (UBOS, 2014)[5], who sometimes have been marginalized especially when getting a 'share of their reward' for their efforts in production.

3.4 Enterprise Performance

Gross profit of enterprise

The study showed the average gross profit of rice produced was BE USh 124,881 per acre meaning for the average acreage of 0.83 acres, a household makes USh103,651 in profit. In addition, the current average production of rice is BE 1,387.3Kg per acre. Furthermore, farmers' lose on average 57.5Kg of rice per acre (4.1%) in post-harvest losses, valued at USh 70,684.8 (Table 3).

Information got from the KI (Tugume Robert) revealed that most farmers do not calculate the volume of rice lost in threshing, drying, and winnowing which consequently reduces their gross profit.

Table 4: Allocation of rice produced by the beneficiaries

Consumed (Kg)	Stored (Kg)	Lost (Kg)	Sold (USh)	Ave. Produced Kg/acre
115.5	86.7	57.5	1,127.6	1,387.3

[5] Uganda National Bureau of Statistics: Statistical Abstract, 2014

Results from the study further show that the average total cost of production was USh 1,261,277.7 per acre. The biggest share of this cost is on weeding (17.2%) followed by 2nd Ploughing (12.9%) while a small share was spent on fertilizer application (3.4%) and marketing (1.8%). See Table 4). Also, the study found out that the average seeding rate was 30Kg per acre, and the average selling price of un-hulled rice was USh 1,229.3 per Kg.

Discussion with the KI revealed that the prevalence of nut grass (Cyprus rotundas) - a weed that usually competes with rice and is very difficult to uproot with hands causes farmers to incur a high cost on casual laborers. However, COSIL sold herbicides (Butanil) which kills most of the weeds and reduces their population thus reducing on the cost of weeding. The cost of one bottle of Butanil is USh 30,000 and a farmer needs 2-3 bottles depending on the weed type and population. Also, the FGD revealed that currently, not many farmers are applying fertilizers because their land is still fertile.

Table 5: Profit and Loss Analysis

Activity	**Sales Kg/acre**	**Percentage**
Total sales 1,127.6 Kg/acre @ USh 1,229.3/Kg	1,386,158.7	
	Average Cost/ acre	
Seeds (USh 2,000/ Kg) NERICA 4	60,000.0	4.8
Land rent	100,000.0	7.9
Land Clearing	80,000.0	6.3
1st Ploughing	122,500.0	9.7
2nd Ploughing	162,500.0	12.9
Planting	88,500.0	7.0
Weeding	217,500.00	17.2
Spraying	120,000.00	9.5
Fertilizer application	43,000	3.4
Bird Scaring	100,000	7.9
Harvesting	100,000	7.9
Post-Harvest handling	44,500	3.5
Marketing	22,777.70	1.8
Total Cost	**1,261,277.7**	
Profit (Ush)	**124,881**	

Document review showed that COSIL agribusiness center made a gross profit of USh 68,760,000 from rice sales:

Total volume bought from farmers (Kg)	38,200
Price paid to farmer	1,200 (peak)
Price at which COSIL re-sales rice	3,000 (off peak)
Profit per Kg (USh)	1,800
Gross Profit (USh)	**68,760,000**

Rice Production per acre (Yield)

Results from the baseline show that the average yield for the beneficiaries was 1,387.3Kg per acre. These rice farmers own on average 1.5 acres of which (0.83) acres are allotted to rice production. This yield is still below the recommended 2,500Kg by NARO. The difference in yield is likely to be as a result of mixing varieties when planting (NERICA-4, Kawanda, and some other varieties the farmer might get to supplement the pure variety) and not adhering to the recommended GAPs.

Information from both the KI and FGD revealed that the main constraints to increased rice production were: lack or limited capital, limited access improved seed, lack or limited access to herbicides, pests (birds and baboons), lack of enough land, insufficient trainings on agronomic practices (there are few extension workers). Other constraints included; limited markets, lack of storage facilities, and limited processing plants.

Furthermore, the discussion revealed that due to lack of input markets within Mahyoro Sub County, most farmers have limited access to improved seed worse still; seed that is available is expensive (USh 2,000/Kg). Farmers therefore resort to growing whatever rice seed they can find to supplement the improved variety supplied by COSIL. This results into unequal germination rate and plant height (inferior varieties usually grow taller, weaken under strong winds and bend over) this was one of the reasons for reduced yield last season. The discussion further revealed that although farmers have enjoyed the benefit of planting rice in lines, some still broadcast it. This is because line planting is considered laborious and almost impossible for those farmers cultivating in swamps.

Markets Accessed

Results from the study showed that (BE 18.2%) of the respondents were aware of competitive markets (Ibanda, Kasese, Mobile traders, COSIL). Of those aware, (BE 14.3%) were accessing only 2 markets (Mobile traders and COSIL).

Information from the KI (COSIL) revealed that the organization purchased (38.2MT) of rice last season at a price of USh 1,200 per Kg in peak seasons and USh 1,400 per Kg off peak. Information from the FGD confirmed that COSIL was so far offering the best price of un-hulled rice to farmers. However, due to emergencies and loans on standing crops, most farmers sell their produce even when it is still in the garden or settle for the cheap price (USh 800-1,000 per Kg) offered by most mobile traders who find them in their homes. Furthermore, these traders usually have faulty weighing scales that cheat farmers of their actual volumes.

3.5 Sector growth

Total acreage under production

Baseline findings revealed that on average, respondents owned 1.5 acres of land, hired 0.97 acres, and used 0.83 acres for rice production. From the Project Narrative report for quarter one, 2016, only 1,587 of the 2,456 beneficiaries grew rice on an average of 0.83 acres per farmer.

Table 6: **Total production**

	Average acreage	Output per acre (MT)	Number of farmers	Total
Total acreage cultivated	0.83	1.3873	1,587	1,317.21acres
Total production	0.83	1.3873	1,587	1,317.21

The total volume produced

1,587 beneficiaries grew rice on an average of 0.83 acres per farmer and produced 1.3873MT per acre. The total volume produced was 1827.37MT.

3.6 Impact/ Poverty benchmarks

BE 22.1% said that there was an increment in their incomes as a result of applying improved technologies in rice production. These improved technologies were: use of improved seed (57.2%) and Value addition (19.5%). Results from the study showed that farmers earned cash income of (BE USh 1,150,511.7). On the other hand, income from the NBE was USh 204,354.7 (Table 6).

Information from the FGD revealed that this increase income was partly due to increased productivity as a result of many farmers using improved seed, applying GAPs, PHH, and Value addition. Also, the discussion showed that some farmers stored and sold to COSIL, which was offering a relatively good price (USh 1,200 per Kg in peak season and Ush 1,400 per Kg off season). However, there were concerns regarding income disparity within households.

Information from the KI indicated that in some households, fights emerge over use of the money after selling the produce, sometimes ending into temporary separation of the husband and wife. Furthermore, information indicated that most of the household's income is spent on school fees, buying land, purchasing small solar plates, construction of houses, food, and clothing.

Table 7: **Income from last season**

	Total sales for last season	Average acreage	Total income
BE	1,386,158.7	0.83	1,150,511.7
NBE	246,210.5	0.83	204,354.7

Net Employment

As a result of the project, COSIL is employing 3 permanent staff (2 agronomists, 1 gender officer), 2 Males and 1 Female. There are 2 seasonal operators, and 3 casual laborers at the processing facility.
According to KI, fulltime employees have employment contracts and are given incentives such as allowances, overtime, weekly allowance, NSSF and capacity building.

At farm level, the baseline data showed that 2.9 persons were employed per farm activity per day for the studied households. Total FTE for beneficiaries is 13.6 (4.8 M, 8.8 F) jobs in a year for the surveyed

households (Table 8).[6] The results show that more women are involved in rice production (a ratio of 1 man to 2 women); however, there is a big disparity when it comes to sales- a ratio of 1 man to 7 women. The disparity might be explained by the type of society (patriarchy) in the study area. The study also found a similar situation with the non-beneficiaries (NBE).

Table 8: Full Time Employment (FTE)

Farm Activity	Hours in a week	Proportion to FTE Hrs	No. of Casuals	FTE's
Land Clearing	10.00	0.29	4.00	1.14
1st ploughing	10.00	0.29	3.60	1.03
2nd ploughing	20.00	0.57	3.20	1.83
Planting	20.00	0.57	3.50	2.00
Weeding	15.00	0.43	6.70	2.87
Spraying	20.00	0.57	1.30	0.74
Fertilizer application	3.50	0.10	0.82	0.84
Harvesting	25.00	0.71	5.00	3.57
Post-harvest handling	15.00	0.43	0.77	0.33
Sales	15.00	0.43	0.00	0.00
TOTAL Full-Time Equivalents				**13.60**

3.7 Cross-cutting Issues

Green growth

Although 82.5% of the beneficiaries said they applied environment conservation practices, only 16.9% understood the importance of conserving the environment. Further probing revealed that most of them were beneficiaries of an agro-forestry enterprise supported by COSIL. Thus apart from creating awareness, most of them were given fruit seeds to plant along their gardens. However, observing the above results indicates a likelihood of a vicious cycle of environmental degradation (plant, destroy…) especially with most farmers looking at trees as a habitat for birds and baboons. The project needs to be aware of such findings and put in place ways to mitigate them.

Gender mainstreaming

The baseline study found out that COSIL has trained 43 change agents on gender related issues. These change agents act as TOTs and reach many more households. This is very important given that most women are marginalized in financial decisions which usually result in gender based violence. Furthermore, COSIL is promoting drama (plays and songs) that educate people on the same. In addition, COSIL has developed a gender policy to enhance their trainings.

Information from the KI (Local government) revealed that most gender based violence is reported during the time when households are harvesting and selling their rice sometimes resulting into jailing some of the men and divorces.

[6] Calculating FTE ((*No. of casual laborers x Total No. of days)/240*)

Human Rights Based Approach

The study found out that this approach is directed towards protecting children from child labor (bird scaring) at the cost of schooling and women who are discriminated against with regard to making financial decisions.

The KIIs (COSIL, Local government) revealed that this is an on-going process that involves a lot of sensitization

CHAPTER 4: CONCLUSION AND RECOMMENDATIONS

Conclusion

The study found out that rice growing households were supported through; Trainings in GAPs, PHH, Gender mainstreaming, VSLA methodology, farming as a business. Also, households received inputs: improved seed, tarpaulins, and some herbicides. Although the findings show that the enterprise performance is steadily progressing with regard to: price offered to farmers, acreage used, total production, and average yields, the gross profits for the farmers remain very low against the set target-currently the gross profit is only 10.7% of the target.

The study also found out that although there is a high percentage (82.5%) of farmers who said they were engaged in conservation practices, only 16.9% realized benefits from the practices. This is likely to result into a vicious cycle of adoption and dis-adoption especially with many farmers claiming that trees were habitats for pests (birds and baboons) hence the reason for cutting them down.

From the key findings, the study concludes that improvement in farmer livelihoods in the study area could be attributed partly to the interventions in the rice growing enterprise. Cognizant of these, the study also identified challenges such as: lack of input markets, gender disparities in income use, distorted markets and limited access to financial institutions, limited post-harvest equipment, and high labor costs which when addressed by the project could result into high enterprise growth.

Recommendations

- Support and farmer groups to invest in input supply business. Similarly, COSIL should stock an input supply shop as an income generating wing for the institution
- Strengthen and support VSLAs to a capacity that can enable members to access the capital needed to further production
- Establish a market information system
- Support SACCOs to promote a ware house receipt system

Appendix 1: List of KIs

Name	Sex	Title	Contact
Mr. Nsaba Philemon Batenda	M	Secretary- COSIL Board	0782/752 962922
Mr. Robert Tugume	M	LC III Chairman- Mahyoro Sub county	0782/753 525260
Mr. Amanya Allan	M	Programme Manager- COSIL	0751330345

Appendix 2: List of participants

Name	Sex	Village	Group Name	Contact
Barigye Hope	F	Nyakasura II	Green Hill	0759702807
Tumwine J	M	Nayakasura II	Green Hill	0773653562
Kakuru Joseph	M	Bulembo	Green Hill	0704769897
Kyomuhendo Elias	M	Lyengoma I	Green Hill	0778606783
Twinomugisha L	F	Nyanga I	Nyanga Tutungukye	0786128227
Kasenene Jackson	M	Nyanga I	Nyanga Tutungukye	0753272186
Kabanyoro Lydia	F	Nyanga I	Nyanga Tutungukye	0753601034
Irahuka Nathan	M	Nyanga I	Nyanga Tutungukye	0754960586
Kabagyenyi Scovia	F	Nyanga I	Nyanga Tutungukye	0755633755
Tumuheirwe Hope	F	Nyanga I	Nyanga Tutungukye	0700688064