

SIMLESA GOOD PRACTICES AND LESSONS LEARNT IN GENDER MAINSTREAMING



Young Girl from a SIMLESA participating household in Ethiopia preparing food



Conservation Agriculture Plot in Malawi



SIMLESA farmer in Kenya

Report And Case Studies



Isaiah Nyagumbo on trial field visit Mozambique



Rose Sakwera with farmer group in Tanzania

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Foreword

Acknowledgements

Undertaking this assignment was for me a part fulfilment of my personal goal; to be part of the development process in the world at large and more specifically to contribute to processes of poverty alleviation in Sub-Saharan Africa. I am, therefore, thankful that ASARECA gave me an opportunity to meet and learn from the communities in the region. This exercise would not have happened, except for the ASARECA executive leadership's, Dr. Seyfu Ketema and Dr. Fina Opio, firm belief in the benefits of gender mainstreaming in agricultural research. For this I applaud them.

I would like to thank the ASARECA staff starting with Forough Olinga who spearheaded the exercise of case studies development and later Yeshe Chiche who has kept the flame of gender mainstreaming process in the SIMLESA Programme alive. The journey would have been impossible without the support of the Policy Advocacy and Analysis programme staff led by Dr. Michael Waithaka. I am grateful to Miriam Kyotalimye, programme assistant PAAP, for the support and reviewing this document, her comments have to a large extent enriched this product. The advice, guidance and encouragement of the administrative officer PAAP, Ruth Nankinga, was of immense help in getting things in motion and keeping the process in focus, thank you Ruth.

I visited all the five SIMLESA participating countries and in this process I interfaced with a number of staff and communities. I would like to express my deep hearted appreciation to all the SIMLESA country staff and make particular mention of the Tanzania team that waited for me up to midnight when my flight got delayed and my luggage lost. I hope that through this document all the communities I visited in Ethiopia, Kenya, Malawi, Mozambique and Tanzania will learn of my gratitude and support of their efforts.

The longest journey during this exercise was travelling a distance of 745 km from Lilongwe in Malawi to Chimoio in Mozambique by road. This highlight of the assignment was gracefully facilitated by Dr. Isaiah Nyagumbo of CIMMYT and his colleague who kindly allowed me to 'hitch-hike' a lift with them and giving me the opportunity to witness some of the SIMLESA activities in Malawi. Thank you very much.

Last but not least, I would like to thank the partners in SIMLESA, CIMMYT and Australian government for the funding for this assignment. The list is inexhaustible, but suffice it to say that I am indebted to all those that played any role in this process.

Acronyms

ACIAR	Australian Centre for International Agricultural Research
ASARECA	The Association for Strengthening Agricultural Research in Eastern and Central Africa
CA	Conservation Agriculture
CIMMYT	International Maize and Wheat Improvement Centre
DA	Development Agent
DBAA	District Bureau of Agriculture and Administration
EPA	Extension Planning Area
FAO	Food and Agriculture Organisation
FHH	Female Headed Household
GDD	Gender Disaggregated Data
IDEAA	Initiative for development and Equity in African Agriculture
KARI	Kenya Agricultural Research Institute
M&E	Monitoring and Evaluation
MAEC	Melkassa Agricultural Research Center
MHH	Male headed household
MoA	Ministry of Agriculture
NARS	National Agricultural Research Systems
SIMLESA	The Sustainable intensification of Maize-legume cropping systems for food security in Eastern and Southern Africa
UN WOMEN	

Executive Summary

In December 2012, the Sustainable intensification of Maize-legume cropping systems for food security in Eastern and Southern Africa (SIMLESA) Programme commissioned a study to compile case studies of good practices in gender mainstreaming in the programme. This study was a result of an action point agreed on by participants at a Gender Mainstreaming Training in Morogoro, Tanzania. The compilation of the case studies of good practices was intended to take stock and show case the efforts of gender mainstreaming in the SIMLESA programme that had started three years ago.

The assignment had three major tasks; to review the case studies collected by the SIMLESA program staff to determine the potential for generation of gender responsive case studies, to conduct field visits to the five countries (Ethiopia, Kenya, Malawi, Mozambique, Tanzania) to collect additional gender data/information on the case studies to ensure that the case studies are comprehensive in demonstrating the gender concerns/issues from various countries and to compile at least five case studies for each country highlighting change/impact of the gender mainstreaming efforts of the SIMLESA program.

The Gender and Development (GAD) approach which focuses on the social, economic and political relations between men and women of all categories in the community was applied in the analysis of the case studies. Methods used to collect the case studies included interviews with farmers and SIMLESA staff, Focus Group Discussions of different categories of community members, discussions with key informants and observations of the program activities at farm level. During the collection of the case studies, efforts were made to identify cases that tended transform the existing gender relations into more equitable relations that improve the access of different members of the community to development opportunities provided by the programme. Twenty five case studies, five from each country, were identified. The case studies collected fall into six broad categories the relate to;

- **Labour:** The impact of Conservation Agriculture on gender divisions of labour is apparent in the crop-livestock interactions. There was an initial increase in labour and time for the women who feed the animals and young boys herd animals. These tend to spend more time and travel longer distances to herd and find feed for animals as stover is retained in the fields.
- **Fostering equitable representation:** Various categories of beneficiaries the youth, groups, polygamous families, female headed households, people with disabilities, the poor had different kinds of response to the programme. Their ability to benefit from the programme depends on the strategies put in place to address the various gender constraints relating to services like extension among others.
- **Gender and Technology:** Technology preferences were observed among different categories of persons with women, men, the elderly tending to adopt some technologies and not others.

- **Seed System:** Women tended to be the custodians of seed in the community.
- **Gender and Assets:** Matrilineal and patrilineal societies exhibited varying power relations in access to and control of assets as well decision making.
- **Data:** The SIMLESA baseline data sets have potential for in-depth analysis to support development of various interventions and extract Sex and Gender Disaggregated Data.

The case studies provide good practices and lessons learnt that the SIMLESA programme and any other programmes could consider in future programmes or during programme review. Many of these lessons are important in at the programme design stage and yet several are applicable even at the implementation and up scaling level of the programme.

1 Introduction

1.1 Background

1.1.1 SIMLESA Programme

The Sustainable Intensification of Maize-Legume cropping systems for food security in Eastern and Southern Africa (SIMLESA) is a multi-institution and multi-stakeholder regional collaborative research project led by the International Maize and Wheat Improvement Centre (CIMMYT), with donor support from the Australian Centre for International Agricultural Research (ACIAR). The SIMLESA program is implemented in Ethiopia, Kenya, Malawi, Mozambique, Tanzania and Australia and aims at increasing farm-level food security and productivity, in the context of climate risk and change.

The overall objective of the programme is to sustainably increase the productivity of selected maize-legume systems in eastern and southern Africa by 30% from the 2009 average for each target country by the year 2020 and at the same time reduce seasonal down-side risks by 30%. The programme is guided by five specific objectives;

Objective 1: To characterize maize-legume production and input and output value chain systems and impact pathways, and identify broad systemic constraints and options for field testing.

Objective 2: To test and develop productive, resilient and sustainable smallholder maize-legume cropping systems and innovation systems for local scaling out

Objective 3: To increase the range of maize and legume varieties available for smallholders through accelerated breeding, regional testing and release, and availability of performance data

Objective 4: To support the development of regional and local innovations systems

Objective 5: Capacity building to increase the efficiency of agricultural research today and in the future

1.1.2 The Association for Strengthening Agricultural Research in Eastern and Central Africa

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is a sub-regional not-for-profit association established in 1994 by ten member countries represented by their national agricultural research for development institutes. South Sudan has recently joined the 10 member countries: Burundi, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, and Uganda to make 11 member countries.

The formation of ASARECA was spurred by the need to address the challenges and opportunities in order to improve agriculture in the sub-region and the overriding need to promote their common welfare through collective action. The benefit of cost effective utilization of the available resources to produce technologies, knowledge and innovation systems that are sub-regional public goods that could be shared freely by all member countries and formation of an intergovernmental association for agricultural research, extension and agricultural training and education in the sub-region, would complement the activities of the national, pan-African and international research institutions in delivering more responsive services to stakeholders in the sub-region were major considerations.

ASARECA exists to enhance utilization of agricultural research for development innovations in eastern and central Africa by developing policies and programs aimed at deepening co-operation in agricultural research and policy among its member countries for the mutual benefit of all the stakeholders in the agricultural sector.

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is one of the collaborating partners in the SIMLESA program. ASARECA is tasked with the implementation of activities geared at attaining objective 4 which has three outputs; mainstreaming of gender sensitivity in research activities in the five primary program countries, monitoring and evaluation and, knowledge and technology transfers. This assignment is in relation to activities on gender mainstreaming in the SIMLESA program.

1.1.3 Gender Mainstreaming in SIMLESA Programme

Gender Mainstreaming in the SIMLESA programme is implemented under objective 4. Annex 4 to this objective provides additional explanatory notes on the role of ASARECA in the implementation of SIMLESA activities and details the outputs on Gender mainstreaming under 4.1 as;

Output 4.1: Gender mainstreaming

- ASARECA mainly to provide capacity building to the participating countries through training of local trainers and other NARS staff on gender mainstreaming and gender analysis.
- ASARECA to provide inputs on the instrument for socioeconomic surveys to gather information on the role of gender in maize-legume systems. Such socioeconomic farm level gender disaggregated data to be collected by countries and CIMMYT as part of Objective 1.
- ASARECA to backstop in analysis of this data to understand the role of gender in maize and legume systems.
- ASARECA to produce a policy brief on strategies to enhance the impact of maize-legume technologies for empowering women.

The log frame details the following activities under Gender Mainstreaming;

- Incorporation of gender-aspects in common M&E system
- Gender specialist works with and observes program activities in a sample of local innovation systems to assess program gender sensitivity

- Gender specialist trains eastern and southern African NARS scientists in gender issues based on ASARECA, PRGA and best practice experiences
- Reporting of gender outcomes in national research workshops

The process of gender mainstreaming in SIMLESA programme has been approached from two major aspects; building capacity of the NARS scientists in the participating countries and providing technical input to various processes of the programme.

Under capacity building, three training workshops were conducted. The first workshop was held in Arusha from 22 to 25th Feb 2011 for participants from NARS implementing the SIMLESA programme. The aim of the workshop was to strengthen gender mainstreaming skills in Agricultural Research Systems, and to enable the workshop participants to acquire knowledge, tools and skills in gender mainstreaming.

The second workshop took place in Morogoro, Tanzania 26th -29th July 2011 under the theme “towards building capacity for data collection”. The main objective of the workshop was enable participants acquire knowledge, tools and skills in generation and use of Gender Disaggregated Data (GDD). Participants had an opportunity for hands on training in the field and also developed the country level gender mainstreaming action plans. At the end of the workshop the participants proposed the documentation of case studies on gender mainstreaming in the SIMLESA programme. This proposal shaped the nature of the third workshop.

The third workshop whose theme was “harmonizing gender mainstreaming action plans and development of case study and lesson learned” was held in Addis Ababa on 23-27 July 2012. The broad objective of the training was to compile case studies on the gender mainstreaming activities and harmonise gender mainstreaming action plans from the five SIMLESA participating countries. More specifically the workshop was intended to familiarize the participants with the process of collecting gender mainstreaming case studies as well as create a deeper understanding on GDD analysis and interpretation through case studies.

1.1.4 Objectives of the Assignment

The objective of the assignment was to compile case studies of good practices in the gender mainstreaming activities from the five SIMLESA participating countries. In undertaking the assignment the consultant was expected to accomplish the following tasks.

- Review the case studies collected by the SIMLESA program staff to determine the potential for generation of gender responsive case studies.
- Conduct field visits to the five countries (Ethiopia, Kenya, Malawi, Mozambique, and Tanzania) to collect additional gender data/information on the case studies to ensure that the case studies are comprehensive in demonstrating the gender concerns/issues from various countries.
- Compile at least five case studies for each country highlighting change/impact of the gender mainstreaming efforts of the SIMLESA program ready for publishing. The

case studies will have concise descriptions of the persons/institutions involved and their locations with photographs were possible.

- Present the Draft compilation or the Case Studies “*SIMLESA Good Practices and Lessons Learnt in Gender Mainstreaming*” to a core group of stakeholders at a validation workshop for their comments
- Incorporate the comments/proposals from these stakeholders into the Final Draft

1.2 Definitions

1.2.1 Good Practices

Perhaps the best definition of a good practice that pertains to the activities of the SIMLESA program is derived from the FAO glossary that says;

“Good practices - any collection of specific methods that produce results that are in harmony with the values of the proponents of those practices. In agriculture, applies available knowledge to addressing environmental, economic and social sustainability for on-farm production and post-production processes resulting in safe and healthy food and non-food agricultural products”.

http://www.fao.org/ag/wfe2005/glossary_en.htm

1.2.2 Case Study

A case study analyzes an organization and describes how the organization benefited by implementing the preferred innovation. It details the organisations objectives, technical and problems or challenges, the innovation and how it benefited the intended beneficiaries. In the case of SIMLESA program, the compilation of case studies will inform other stakeholders by developing case studies of its gender mainstreaming efforts in the program. This could encourage other research entities in the region to embrace gender mainstreaming by providing them a means to identify with the case study client. Additionally, the case studies would inform potential researchers of the benefits of gender mainstreaming through demonstrated activities thus positioning the SIMLESA program partners as knowledgeable about the challenges of the farmers by giving a background on the available solutions. Considering the existing constraints in overcoming initial objections to gender mainstreaming, the case studies can motivate potential clients to investigate further. These case studies can be made available to partners, interested practitioners, experts and other stakeholders online or offline.

1.3 Gender mainstreaming theory and Conceptual Framework

1.3.1 Gender Mainstreaming

According to UN WOMEN, Gender Mainstreaming is a globally accepted strategy for promoting gender equality. Mainstreaming is not an end in itself but a strategy, an approach, a means to achieve the goal of gender equality. Mainstreaming involves ensuring that gender perspectives and attention to the goal of gender equality are central to all activities - policy

development, research, advocacy/ dialogue, legislation, resource allocation, and planning, implementation and monitoring of programmes and projects.

In the compilation of the case studies of good practices in Gender Mainstreaming in the SIMLESA program, the consultant will be looking out for those activities that promote gender equality. These activities may be in policy development, resource allocation and planning, implementation and monitoring of the program.

1.3.2 Gender and Development Conceptual Framework

The SIMLESA program document categories the anticipated impact in three broad areas of scientific, capacity and community. The impacts under the community are further broken down into economic, social and environmental impacts. In as much as gender plays an important role in the achievement of all these impacts, it is the social impacts that impact directly on the wellbeing of the households thus best illustrating the tangible benefits of gender mainstreaming efforts in the SIMLESA program.

The GAD approach focuses on both men and women of all categories in the community, their differences, inequalities, and similarities, and tries to provide solutions for the creation of a more equitable society. It focuses more on the social, economic and political relations between men and women and tries to address the inequities that may exist in order to transform these relations into more equitable ones, improve their access to development opportunities provided by projects.

In the collection of these case studies there was an attempt at establishing the level of gender equality by seeking responses to the questions; who has access to what and controls resources? Who does what, when and where? And; who benefits from what and how?

1.3.3 Agriculture as a way of life¹

According to Dr. Manyire, the way of life of the small holder and agriculture are very interlinked. Smallholders consume what they produce and the relationship between the seasons and activities in the household are closely linked. The norms of the community determine the kind of agriculture; for instance if the land is communally owned it may be allocated by the clan heads. In the smallholder agricultural practices, the knowledge is passed on through informal means; skills of agriculture are also passed on informally together with the other life skills necessary for propagation of lineage. Gender thus becomes interlinked with agriculture and socialisation is passed on subconsciously without thinking.

He argues that rural life has its own values which include being fairly self sufficient. Even in marriage the criteria for eligibility of a suitor often includes food sufficiency, hence the

¹ Dr. Henry Manyire: *Agriculture and Human Values: Why Gender matters in agricultural research*: paper presented at ASARECA training workshop on Gender Mainstreaming in Agricultural Research 25th – 30th April 2011

human values are all intertwined and these depend on the composition of the household. Credence was born to this argument when several farmers confessed that farming is their only way of life and they have been farming from as far back as they can recall because they used to go to the farm with their parents.

The different norms, cultures will influence the division of labour in the household. Different roles are assigned responsibilities and rights. For instance to cultivate you need land. The responsibilities also determine constraints for instance children must go to school so time becomes a constraint if you are relying on child labour. Reliance on family labour was a very common finding in all the 5 countries among the farmers participating in the SIMLESA programme.

The determination of entitlements of males and females in the household and beyond influence and determine the nature of human values in rural settings in general and within agricultural practices in particular. Men are expected to inherit since they propagate lineage. On the contrary women are expected to lead a very comfortable life when they are dependent, first as daughters, then as wives and seal it as a mother especially as a mother of boys. Therefore understanding the relationships between human values and agriculture is of critical importance in agricultural research because it brings out the importance of gender in the social, cultural and economic organisation of small holder rural farming practices. It was observed that Ngoni and Chewa communities in parts of Malawi and Mozambique which practiced matrilineal culture, where women inherited land and men matrilocated, the women had more authority in decisions taken on the fields and children take after the mother.

1.3.4 Agriculture, human values and Gender in Agricultural Research²

In his analysis of the framework for conceptualising the interactions between agriculture, human values and gender in agricultural research, Manyire suggests that gender interacts with other systems to produce different sets of opportunities and constraints that influence the abilities of different categories of men and women and boys and girls to participate in agricultural production, consumption and exchange. By virtue of being born male or female, one may have the access to assets like land, labour or agronomic knowledge. Women in most societies are not expected to interact with men, especially strangers so agronomic information will be given to men especially if extension officers are men. Also men are more mobile, so they are able to attend meetings.

He continues that even if women are knowledgeable, there are other gender constraints within the household conferred by the reproductive roles. Often women lack the confidence to seek out knowledge, technology etc. It takes more resources to reach women. Being gender sensitive means that women must be reached and this takes more time, finances, and human resources. Women however are not a homogenous group. In female headed households

² Dr. Henry Manyire: *Agriculture and Human Values: Why Gender matters in agricultural research*: paper presented at ASARECA training workshop on Gender Mainstreaming in Agricultural Research 25th – 30th April 2011

women have more power and entitlements than in male headed households. The reasons that lead to the situation of female headed households will also determine the entitlement. A divorced woman would most likely lose all her entitlements while a widow may maintain hers. Some households have multiple livelihoods (government worker, teacher, nurse) and patriarchy is less distinct than where the livelihoods are limited.

These case studies amplify the interactions suggested by Manyire and many of them show the differences among individuals of the same collection such as women, housewives, female headed households or even male headed households

1.3.5 Role of women in agriculture

Agricultural production in Sub-Saharan Africa is a predominantly small-scale farming system with more than 50% of the agricultural activity performed by women, producing about 60-70% of the food in this region. This system of production is characterised by distinct gender division of labour based on patriarchal norms that ascribe roles of around the household to the woman and cash income to the man. Stereotyping of this categorisation has greatly limited women's access to and control of vital production assets such as land, credit, extension services. On the other hand, political, economic, technological and other strategic inventions have imposed changes in gender roles with women increasingly taking over roles previously assigned to men without increase in resources for effective production. Even when men leave their rural homes to seek paid employment in towns or a woman loses a spouse, access to and control of resources principally remains in the hands of the male relatives.

According to the FAO 2011 State of Food and Agriculture report; if women farmers across the developing world had the same access to labour, fertilizer, extension services, and seeds as male farmers, yields would increase as much as 20-30 percent per household, and reduce hunger for 100-150 million people and; equal access to production resources for men and women would raise total agricultural output in developing countries by 2.5–4 percent, contributing to food security and economic growth. Further research in Kenya showed that if women were to apply the same volume and quality of inputs as used by men, women's yields could increase by 10.5%³ and if men's average input levels were transferred to women maize farmers, yields would increase by 9%⁴. These findings underscore the magnitude of the necessity to consider gender in the SIMLESA if the overall aim to increase food security and incomes at household and regional levels and economic development in eastern and southern Africa through improved productivity from more resilient and sustainable maize-based farming systems is to be obtained.

³ Mook, P. The Efficiency of Women as Farm Managers: Kenya. *American Journal of Agricultural Economics*, Vol. 58, No. 4

⁴Saito, K. *Raising the productivity of women farmers in Sub-Saharan Africa*. 1994. World Bank Discussion Papers, No. 230

In a households women, are responsible for planning, providing and preparing of food. In a majority of the homes, women determine which food crops will be grown in which garden while men concentrate on the cash crops. Gender division of labour has bestowed on women the roles of weeding and harvesting making them the lead gardeners. Depending on the availability either family or paid labour, women determine which gardens get weeded or harvested first. Selection of planting materials is primarily a role of women who in most cases preserve seed from the previous harvest. Women are more conversant with the productivity of seed on which land, a skill acquired through years of experience and knowledge passed down from mother to daughter. It is thus important that women are targeted for training as well as evaluations because they have they possess information on the fine management in subsistence agriculture.

The gender gap that exists in access to, control of assets, inputs and services as well as benefits in agricultural production does not only undermine the welfare of women and the households but impacts the effectiveness of agricultural innovations and growth of the agriculture sector and economy at large. Addressing the gender gaps in SIMLESA programme would thus accrue considerable benefits to the target households, the region that would spur economic development in and spur economic development in the eastern and southern Africa.

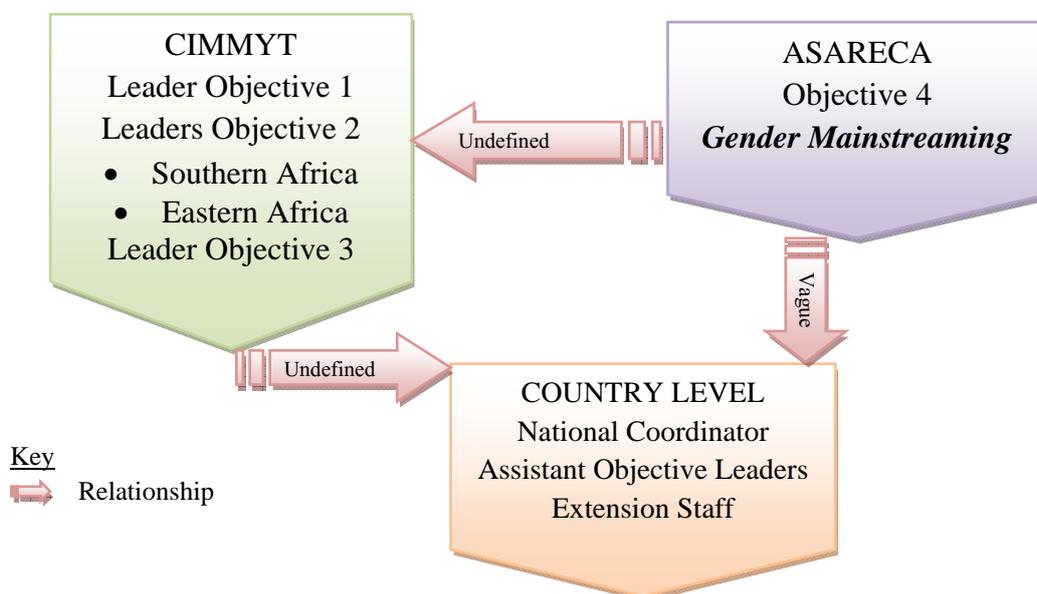
1.4 SIMLESA Processes and Guidelines

Under Objective 4, the programme document anticipated that Gender and M&E specialists within the NARS would participate in program activities in a sample of program target communities, and collect data on socioeconomic indicators and technological and socioeconomic advances from all communities and from the germplasm development activities conducted under the program. At the same time evidence of gender bias in the program activities would be assessed and opportunities to overcome these and increase the gender balance in all aspects of the program analyzed and discussed. There is need to align the responsibilities of these specialists within the NARS with those of the programme to ensure targeting of knowledge and skills development to directly benefit the programme.

1.4.1 Gender Mainstreaming Information Flow

The SIMLESA programme is a new model for providing funding to NARS. The technical backstopping is provided by CIMMYT through objective coordinators. The programme has 4 objective coordinators, one for each objective 1 & 3 and 2 for objective 2 (one Southern Africa, taking care of Malawi and Mozambique and the other for Eastern Africa superintending Ethiopia, Kenya and Tanzania). The programme activities in each country are a responsibility of the NARS who appoint a National Coordinator as the overall supervisor. Working with the National Coordinator are Assistant Objective leaders for each objective including objective 4 which covers gender mainstreaming. Each programme site has extension staff to assist the objective leaders in implementing activities. These extension staff interface more regularly with the community and are likely to be most conversant with the culture which makes them the best suited to identify key gender issues in the community.

The structure of information flow in SIMLESA in relation to gender mainstreaming is illustrated the diagram below.



Although the bulk of the SIMLESA activities are under objective 2, in some countries, there is very little interface of this objective with the gender mainstreaming activities. According to the SIMLESA programme document, under objective 2 output; *Functioning local innovation systems which engage 5,000 farmers each in at least ten maize-legume systems for local scaling out*, gender mainstreaming (Output 4.2) is supposed to support the local innovation systems. Since each NARS decides the activities undertaken including selection of the crops and budgetary allocation for activities, the degree of gender mainstreaming in the SIMLESA country projects can only be well determinable at the country level.

From the interactions with the national staff, it was difficult to extract a clear line of information flow on gender mainstreaming in the programme. In some countries the gender focal persons were not closely involved in the programme and yet the assistant objective leaders did not have the skills to undertake gender mainstreaming. There is need for the programme to clearly define the flow of information on gender mainstreaming and also ensure that the assistant objectives leaders have the requisite skills to ensure gender mainstreaming in the programme.

1.4.2 Farmer Selection for Implementing SIMLESA and Out-scaling Demonstrations⁵

SIMLESA has a set of guidelines for selection of farmers participating in its trials. These guidelines underscore the need to ensure that host farmers are carefully selected to minimise

⁵ This information was obtained from Dr. Isaiah Nyagumbo – Leader Objective 2 – Southern Africa

programme failures based on this factor. The same guidelines also describe the process of introducing the project in the selected communities.

The qualities suggested for selection of host farmers for the programme supported trials and guidelines for running community awareness meetings are outlined in the boxes below.

Desirable qualities in participating farmers

- *Accessibility (farmers, project staff, and researchers): Is there a road to the village?*
- *Innovative: farmers who are willing to try out new ideas in a dedicated manner*
- *Receptive to other community members: Farmers who host the trials must be willing to accept visits by other farmers from the neighbourhood to the field to monitor and observe effects of the tested options*
- *Committed to hosting the trial for at least 3 years: The host sites will be under these trials for at least 3 years without changing the field*
- *Openness: farmers who are critical and open to suggestions and criticism from others.*
- *Representativeness (soils, agriculture activities, culture)*
- *Honesty*
- *Friendly*
- *Willingness to learn new things*

It is important to note that female farmers who could meet these criteria have been disadvantaged by years of exclusion from development initiatives such that qualities like innovative, receptive to other community members, openness and or willingness to learn may be difficult to access compared to their male counterparts who are more visible.

Running Community awareness meetings

Participatory techniques should be used to introduce the project to the communities selected. The project should not impose itself on the communities without their buy in. Ideally the following steps should be used to achieve this:

a) Problem/Situation Analysis and Visioning

Analyse the situation and problems faced by the farmers in their activities by asking in a plenary session for example:

- (i) What are the major farming activities in the area?*
- (ii) What have been the key crop production constraints in your area in the last 10 years?*
- (iii) What strategies have you used to address these constraints and how effective have these been?*
- (iv) Address the question "If you died today and came after 100 years what changes would you like to see having taken place in your area?"*
- (v) Brain storm and summarize identified solutions and visualize these on flip charts*
- (vi) Briefly introduce the Concept of Conservation Agriculture and link it to identified problems and solutions:*
 - 1. Reduced soil disturbance: Serves to reduce soil degradation and hence improve soil organic matter, reduces labour for land preparation*
 - 2. Provision of soil cover: reduces loss of water by evaporation hence improved moisture conservation*
 - 3. Use of crop rotations: rotations of crops cereals and legumes helps to ensure pests and diseases are suppressed and also helps to maintain soil fertility*

b) Introduce the proposed protocols and emphasize that we all need to learn how this will work in this environment

In majority cultures in the sub-Saharan Africa women are not expected attend, and if they attend, do not speak at public meetings. Gender constrains should be recognised and addressed in these guidelines right from the invitation of community to problem identification. Men, women and youth often have different needs and priorities in agriculture production and yet the voices of the later two are very often subdued by the men at plenary session. Use of gender sensitive participatory methods should be applied in this process to improve the problem identification.

The programme aims at having 5 new communities per district with about 200 households per community and one or two learning centres with several CA options demonstrated to farmers while implementing the out-scaling demonstrations. Here lies a great opportunity for SIMLESA to ensure that various categories of people in the community are involved in the programme. Through identification of the different interests of men, women, youth, the programme will be able to have multiple targets for the CA options that are acceptable in the community without necessarily undermining the objectives or quality of the programme.

1.5 Methodology

The study employed a number of techniques in collection of the case studies. The selection of method used was influenced by the type of information to be collected.

1.5.1 Literature review:

A number of documents were reviewed to articulate gender issues in agriculture in general and agricultural research in particular. A detailed study of the SIMLESA Programme document and the annexes as well as reports to inform the programme were analysed for gender sensitivity.

1.5.2 Interviews

Interviews were conducted with individual farmer households to identify gender issues relevant to the programme. In households that had both spouses available, the man and woman were also interviewed separately. Interviews were also held with various staff involved with the SIMLESA programme such as the extension staff and assistant objective leaders, to share their views and experiences of the programme. Through these discussions some case studies were generated.

1.5.3 Discussions

Extensive discussions were held with the SIMLESA staff to identify possible case studies for further development. Discussions were also held with farmer groups at the SIMLESA programme sites. The discussions with farmers included separate Focus Group Discussions for various categories of farmers in the community.

1.5.4 Developing case studies

The initial plan of countries generating case studies that would be reviewed and compiled was not very successful. The identification and generation of majority of case studies was thus undertaken on the field visits. The Case Studies were identified from discussions with SIMLESA staff and the participating communities. In depth interviews were then conducted with the identified households/farmers for the details of the case duties. The SIMLESA staff were involved in reviewing the case studies before the analysis was done. This process was consumed more time than what was planned.

1.5.5 Site visits

Various farmer trial plots were visited to witness the technology implemented and also verify some of the statements in the interviews. Documentation in form of photographs was taken during these visits.

2 Case studies

2.1 Ethiopia

The SIMLESA programme has been implemented in Ethiopia since March 2010 with the aim of improving the productivity and management of maize and legume production in the project sites by improving soil fertility, improving land productivity and ensuring benefit sharing among the community members at household level. Gender issues were taken as a component of the intervention as it related to livestock feeding challenges and beans which are termed as women roles and crops relatively.

2.1.1 Encouraging Participation of Female Farmers

When the SIMLESA programme started, the first two years focused on participatory technology evaluation and validation to identify best technologies for further scaling up. The selection of farmers to participate in the programme was done in consultation with the District Bureau of Agriculture and Administration (DBAA) that has lists of all the farmers in the locality. The SIMLESA project staff discussed and explained the objectives of the project with the district officials who were then asked to propose names of farmers who would be willing to host the project. In this way the host farmers were identified.

The community members are invited through the Community Development workers and Administration officers. Although SIMLESA staff usually proposes inclusion of female and youth farmers in the invitations, this is often not adhered to. In most cases, community development workers convey messages or information at meetings. This method of information dissemination does not favour women, because most participants at such meetings are men. Due to time and resource constraints, the Community Development workers are often not able to traverse villages to pass information to women who are in most cases work around the homesteads.



Host farmer & extension workers explain to female farmers on the field day

Realising this constraint, the programme staff have tried to find ways of getting information to and generating interest among female farmers to participate and adopt SIMLESA technologies. On the 30th August 2012 a mini field day was organised in Badowacho district by the Hawasa national maize project targeting female headed households/farmers. The field day was held on Fatima's field, a female farmer participating in exploratory trial undertaking conservation

agriculture. The women discussed the new technology of conservation agriculture among other issues. The women expressed their views on the importance of this technology in

saving time and labour as well as expectation of higher yields and contribution to sustainable production.

The project is now undertaking technology scale out and information dissemination which offers a good opportunity for consideration of gender concerns. In Participatory Variety Evaluations, there is equal representation of men and women among the participants. This participation is purposefully done by ensuring that the invitation is sent to both the men and women specifically. The preferences shown by the men and women in these evaluations differ. While as men tend to opt for trials on high yield and drought resistance, women on the other hand choose early maturing and taste characteristics. At one participatory maize variety evaluation held in Dehra district attended by 15 men and 15 women, it was mentioned that one of the eight varieties in the PVS trial was quality protein variety, especially suited for children. During the evaluation, the women were very keen on the observations and asked facilitators to show them the variety with the quality protein. At the end of the session, most women were volunteering for this particular variety.

Good Practice

In order to promote the participation of women in the program activities it is important to design particular strategies to involve them. These may include specific ways to get information to women such as repeated visits to their homes to explain the program to them or organising meetings in places convenient to women to attend.

Lessons Learnt:

When women of Badowacho district were targeted and invited to a field day organised on another woman's farm, they full participated and contributed in the process. Men and women have different reasons for participating in research. Women are more interested in characteristics such as nutritional value and taste because they have a primary responsibility for ensuring household food security. Men on the other hand may be more interested in characteristics that promote market value. These reinforce the reality that decisions are taken in accordance to the traditional gender roles assigned by society.

2.1.2 Changing Gender Roles - Kabeto Wadiro



R-Fisseha Gizehe, SIMLESA Gender focal point, interviewing Kabeto-L, farmer

“My name is Kabeto Wadiro and I am 37 years old. I attended school up to 10th grade then stopped. I am married and have three children, two boys and one girl. My wife’s name is Sare Dolo and she is 22 years old. We make our living by producing maize and haricot beans. We also keep livestock mainly cattle to support the family. Our main source of food is the crops we grow, but the shortage of rain and decreasing land acreage is affecting our food availability.

The people are now many and we have to share the land so there is land

fragmentation. The prices of the produce are very low, so you have to sell a lot more to get money for other expenses and this leaves less food for household consumption.

The roles of men and women in the homes have changed. In the past, women used to spend a lot of time travelling long distances to fetch water, but now there is a water source that was built in the neighbourhood which has eased the problem. The problem of women milling flour using the traditional grinding stones which was time and energy consuming has been resolved. We are lucky, now a number of flour mills have been set up in the area. The women spend less time on these activities and instead engage in some petty trade which generates some income for the household. Now that the women can bring in some money, it gives motivation to all family members, including me, to participate in activities like fetching water using donkeys, food preparation, shopping, housekeeping, family health care, collecting and preparing fuel wood, and caring for the children.

My participation in the SIMLESA programme began about two years ago when I had a detailed discussion with the Development Agent (DA) of our area. Later on, the DA came to our community with a team of researchers to talk about the same programme. I was then given an opportunity to participate in a training organized by Melkassa Agricultural Research Centre (MAEC).

At the training, I learnt the importance of zero tillage/minimum tillage, inter cropping, crop rotation, and mulching in relation to shortage of rain, soil infertility and climate change. I then realized that these were the current problems that we were facing in our community. I realized that by intercropping I could grow two different crops on the same plot of land in one season without ploughing the farm and having to weed. I got a lot of knowledge and skills from this training because I was given the opportunity to practice.

After the researcher's demonstration on a 10x20 meter plot of land, I actually started to use the technology on a larger piece of land. During the demonstration I tried very much to understand the practice in my own way and the advantages to me as a farmer then apply on my piece of land. The following year, I decided to expand the practice to 1 hectare of land. I hired some labour to plough and with my wife, we sowed maize with 75cm between rows and 25cm between plants in a straight line using a rope. I dug the holes while my wife threw in the seeds and covered them with soil after me. After fifteen days we sowed the haricot beans between the rows of maize.

With this practice we are able to use the few oxen and family labour to farm and yet the production per hectare has improved. Through this process I have been able to increase my production from 24 quintal to 40 quintal of Melkasa-2 variety of maize per hectare on the same piece of land. For the Nasir variety of haricot bean I used to harvest 12 to 16 quintals per hectare of land but after the practice we are able to produce 20 - 24 quintal of haricot bean per hectare. My family income has increased because I have surplus produce which I sell. The other farmers in the area have now developed interest in trying out the practice because of the increased yields and reduced labour.

Not only has the labour requirement reduced, but also the time spent on farming activities. I now have time to do some other work. I know that women have a lot of work because after working in the gardens they go back home and cook food as well as look after the children. With the SIMLESA system of farming I am able to go home and help my wife with some household chores. I participate in work based on mutual understanding of the family members. I decide the important issues like using land and saving of income but we discuss with my wife. I learnt to do this from radio and the village administration."

Good Practice:

As Kabeto appreciated the contribution his wife made to household income, he started helping with tasks that were hitherto considered women's roles such as fetching water and bathing children.

Lesson Learnt:

The increase in household income and changes in technology influenced changes in traditional gender roles.

2.1.3 SIMLESA and Livestock based livelihoods - Gerbi Community



Discussion with Gerbi Community-SIMLESA Programme site

Gerbi community is located in Gerbi-wudina-boren Kebele administration, Adamitulu Judo Kombolcha district, Eastern Showa Rural Zone in Oromiya Region. The current Gerbi community moved into this village as a result of a resettlement program of expansion of commercial state farms during Military regime in the 1980s. By then, a significant part of the land was grazing land

covered with trees and forest. Livestock keeping is the major source of livelihood but over time crop farming has become a significant practice in the area. According to the farmers in this community, crops were cultivated on small plots of land, but the productivity was high and harvest was adequate to satisfy the family demands. Presently, although larger areas are cultivated, the crop yields are lower. This is attributed to soil fatigue due to depletion of the soils nutrients and rain shortage. With the increase in human population in the village, there has been a tendency for households to expand cultivated areas as they strive to provide adequate food for the family. The area for animal grazing has progressively shrunk resulting in reducing number of livestock kept per household.

The community acknowledges the new method of crop production, Conservation Agriculture (CA) that reduces frequency of ploughing. The new practice reduces production costs especially the cost of land preparation, therefore, it is very suitable for female and elderly farmers since it demands less labour. This practice also reduces weeds population and frequency of weeding. They understand that leaving plant residue on the farmland improves soil fertility and that soils should not be exploited without replenishment. They have observed the better performance of the crop on plots under CA where crop residue is retained in the field as compared to the existing practices.



Animals feeding on crop residue from gardens

Inasmuch as the community appreciates that the practice is good, they have some problems with it. Culturally, livestock keeping is a very important aspect of their lives especially to women who derive some income from sale of milk and ghee. Traditionally, after the harvest when the pastures have dried up, animals are fed on the crop residues. CA requires them to leave the entire crop residue on the farm which creates a problem of animal feed

shortage. This is a burden primarily for women and children since feeding of animals is their responsibility. To overcome this problem the women suggested leaving some or part of the residue but not all on the farm, then prepare compost and apply to the field.

Good Practice

Understanding the distribution of roles and benefits in the household informs gender-aware planning that takes into account the differential impact of the programme on women and men.

Lesson Learnt

Conservation Agriculture reduces labour requirements on the field, but it also deprives household of animal feed. This has increased the time and distance that women spend on searching for animal feed since feed animals is their responsibility.



2.1.4 Family labour - Mekuria Weshi Bone Household

Mekuria Weshi Bone is a 49 year old man. He was married to three women, but one passed on. Currently he has two wives and 16 children (8 girls and 8 boys). One of his children is married and another ekes a living

as a domestic worker in an Arab country. Mekuria is a former soldier of the Derg military who went to school up to 3rd grade. He owns 4 hectares of land which he has divided equally among the two families (2 hectares each). Each wife cultivates her land to get food for the family. Mekuria uses

communal land to graze his animals. Previously Mekuria owned over 20 animals, but these have been reduced to two oxen and three cows.

L-Derese Teshome of EIAR interviewing Mekuria -R

One day, as Mekuria worked on his land, he was approached by the local extension staff and asked if he would be willing to host demonstrations in collaboration with Melkasa Research Centre. The demonstrations were about new practices that included; inter-cropping of beans with maize, planting in rows, minimum tillage, chemical application for weed control, application of recommended fertilizers and mulching. Although Mekuria had been planting haricot beans before the SIMLESA project was introduced, there was a difference in the methods used. Prior to the SIMLESA programme he would till the land up to 3 or more times before planting and thereafter weed twice of more. He would till the land alone using oxen and his wives and children would join him in the weeding.





Bilcham Kasfa, Mekuria's 1st Wife

Bilcham Kasfa, Mekuria's elder wife, was informed about the project by her husband who had been contacted by the officials. The SIMLESA demonstration plot is located on Kasfa's land because it is more accessible. She works together with the co-wife and they both attend SIMLESA activities. (*Polygamy is a common practice in this area*).

Hawine Kuto, the second wife, has her own piece of land – 2 ha – but she helps on the demonstration plot. These days, land is a common property for both husband and wife. In the past though, land would be acquired through allocation, inheritance or lease/rent. There has however been no land distribution since the 1990's.

Kuto has participated in the SIMLESA activities. She has attended 2 field days and visited other model farmers where she observed that crops grown on unploughed land were doing well. With the experience she is getting through participation on Kasfa's plot, next planting season, she intends to implement the acquired knowledge on her piece of land.

Kuto appreciates the innovation of intercropping as they are able to harvest two crops (maize and haricot beans) from the same land.



Hawine Kuto, Mekuria's 2nd wife

Good Practice:

The major source of labour in the Mekuria household is family labour. Involving both wives in the SIMLESA activities ensures that the both women can practice the CA technology on their separate pieces of land and reap the benefits to sustain the large family.

Lesson Learnt:

Involvement of **all** members of the household in the SIMLESA activities enables the programme to target a larger number of people who acquire the skills thus increasing the opportunities of out-scaling.

2.1.5 Conservation Agriculture benefits to women and youth involvement

Women:

Fate Hirpo Figa is a 40 year old widow who lives on 3.5 ha piece of land. She has an all male family of 10, she being the only female. Fate practices minimum tillage and hand weeding. She is an exemplary farmer whose farm has in the past been selected to host field day and



experience learning activities because she endeavours to leave crop residue in her garden. Her case epitomises the benefits and challenges of women in adopting Conservation Agriculture.



Fate in her plot with crop residue while she was sick

Fate in her trial plot with crop residue

while she was sick

The SIMLESA promoted technologies have benefited women, especially those that did not have oxen and those with labour shortage. These women were often unable to complete the preparation of their gardens to plant as soon as the rains started and yet the rains are very short. With zero tillage the women are able to plant in time to benefit from whatever short rains.

The biggest challenge though, is the free range grazing of animals that stray into the gardens and eat up the crop residues. Apart from the free roaming animals, stover is an important source of fuel for cooking food and also feeding the animals.



Fate in front of heaps of crop residue for feeding animals

The farmer has learnt to minimize the removal of stover to retain moisture on the farm plots. She has experienced that the practice works and is ready to apply some of the technologies on her land. They have adopted the planting of beans in maize rows which was new to the community. The yields are so encouraging that they have established a bean production and marketing association in the area.

Youth:

Majority of the youth in the community are inactive participants in the programme who need to be advised on contribution to the farming activities in the household. The youth are given small plots of land usually about $\frac{1}{4}$ ha locally known as 'Olcha' by their families to cultivate. The produce from this land is supposed to cater for the youths personal needs such as education and asset accumulation. The female youth work on the family land with their parents. At family level, Fate hires labour to work on her land since 3 of her boys work on their own land and others are in school.

Majority of participants in the youth focus group had attained 10th grade level of education, but had no experience with agricultural research centres or invited to any training. The few youth who ever attended was not through conscious decision to invite them, but rather by default. The youth observed that the maize and bean intercropping and seed rate regulation/during plating were new in the community. They were, however, sceptical about the effectiveness of zero/minimum tillage on larger acreage contending that it was only good for small areas less than 1 ha.



Derese Teshome (2nd Right) of ELAR facilitating Male youth Focus Group Discussion

Good Practice

- Although removing the stover from the farm and putting it back may be time consuming, Fate is able to save it from being eaten by roaming animals.
- The youth are the most energetic category in family labour with the ability to accomplish more farm work in a shorter time. Targeting of the youth for knowledge and skills acquisition promotes sustainability of innovations.

Lessons Learnt

- Increased yields through CA have spurred other economic activities like cooperative for beans marketing.
- If deliberate efforts are not made to involve the youth in implementation of innovations, they are most likely to be left out since they often do not own land or have access to production assets.

2.2 Kenya

2.2.1 Embean 14 Bean: Improving Livelihood in SIMLESA Villages



Mr. & Mrs Nyaga at their home

Mr and Mrs Nyaga are retired teachers living in Kyeni division of Embu east district. They have been married since 1970 and have 7 children, 2 girls and 5 boys. All the children have completed school and with the exception of one who is at home, the rest are employed and live away from the division. Mrs. Nyaga is a member of the SIMLESA farmers group that was started in 2010 with the introduction of the SIMLESA programme.

“In 2010, some KARI and Ministry of Agriculture (MoA) staff came to our area looking for farmers to start and host the SIMLESA project exploratory trials. I called my husband and we listened to them. After discussions we showed them a shamba (garden), approximately ½ an acre for that purpose. They explained that the project would provide materials (seeds, fertilizer and herbicides) and we, the farmers, were expected to provide the land, labour and manure for the trials. They further explained that the main purpose of the trials was to demonstrate to other farmer’s better maize and beans production using conservation agriculture techniques. They indicated that all the produce from the plots would be retained by the farmer.

Later on in July of the same year, the KARI and MoA officers came around and we joined them in laying out four plots differing in tillage and weeding methods. The first plot was of zero tillage, the second plot had furrows/ridges prepared, the third plot was tilled conventionally using conventional tools, and the fourth plot was of farmer’s tillage method. Weed control in the first and second plots was achieved using herbicides while this was done conventionally using jembes (hoes) and pangas (cutlasses) in third and forth plots. All plots were intercropped with DK 8031 and Embean 14 maize and bean varieties, respectively.

At the end of the 1st season we got more maize and bean grains from the SIMLESA adapted intercropping system than the other methods. We therefore expanded the new method of cultivation in our 3 acres of land that was remaining. We never used to apply fertilizer in beans, but now we do. I am very proud of beans. I was given 1 gorogoro (a measure of about 2 kg) of Gachuma bean variety by my friend, planted it on about ¼ an acre of land and harvested 60 kg!



Maize & beans intercropping



The SIMLESA Embean14 yields about 2 times the other varieties that we have been planting. When planted alone, without intercropping, one can harvest over 6 bags of 90 kg of grains from one acre. On every plant of Embean14, there are about 30 pods compared to 8-15 on other varieties. The bean cooks very fast; thus providing quick meal to someone coming from the garden starving after hard work. The fast cooking also reduces the amount of firewood and labour that may be deviated to other household activities.

The Embean 14 bean seed earns more than the other varieties. In 2010 we sold over 500 kgs of beans in an exhibition event held in the division. The beans were sold at Kshs. 150 per kilogram. This was about 50% higher than the other beans. This season, due to heavy rains, I harvested 200 kgs of Embean 14 that I plan to sale and keep some for planting next season. The variety matures in about 90 days and does not require a lot of rain. I also grow other bean varieties to diversify what is cooked in the house.

Embean 14

From the sale of produce from the SIMLESA plots, I have bought one local goat. I have taken it to a better breed of male goat for mating. Therefore I expect it to produce a better breed that will be able to give me more milk.

The SIMLESA project has done good work of introducing appropriate crop varieties and tillage methods that have enabled farmers to get more crop yields than before. Besides the project trial farmers, other farmers have copied what they have seen from the demonstration plots and have started earning benefits.



Mrs. Nyaga with the goat she bought

Good Practice

SIMLESA programme provided a high yielding variety of seeds for the trials to increase productivity. Mrs. Nyaga decided to grow some of their traditional varieties of beans using the technology learnt from the programme as a mitigation measure against climate change.

Lessons learnt

Mrs. Nyaga grows different varieties of beans using different methods of cultivation for different purposes. She has also developed means of coping with climatic changes. Her interests and needs can, however, only be captured if gender issues are incorporated in setting the research agenda.

2.2.2 LIGANWA Farmers Group



Patricia, Christine, Rosemary - Group Members

The Liganwa farmers group located in Liganwa village, Kakumu Kombewa sub-location, Central Alego Location in Boro Division, Siaya County in Nyanza Province, was formed in 2007. The group started with 24 members, but now has 16 members after some civil servants, like teachers, were transferred to other areas and the business oriented ones opted out. The

group that started as an all-female entity with the intention of helping widows in the community to acquire some capital to engage in small scale business ventures now has 4 men and 12 women.

Initially the group activities revolved around raising funds and saving, so they focused on activities like “merry go round” once every fortnight and the “table banking” once a month. In the “merry go round” the women contributed Kshs 650 each at every meeting. The money is collected was given to one member to invest in a business of her choice. At first priority was given to the executive members of the group, starting with the chairperson. This method, however, soon failed because of some members’ inability to meet their commitments when their turns were due. It was then decided that funds would be given to whichever active member that has a need. Under the “table banking” each member contributes an initial sum of Kshs 1,000 per year. The group then meets once a month to advance loans to members who need them at an interest rate of 10% per month. In the beginning each member could only borrow the amount she contributed, but later the members could borrow more than their contribution if some members did not borrow. Interestingly, the interest accruing belongs to the individual member and not the group. At the end of each year the members meet to distribute the money and each member gets the amount deposited and the interest accruing from the borrowed funds. This encourages the women to take the risk and borrow money to invest.

In March 2010, the group joined the SIMLESA program after they learnt through a son of one of the members (Christine) that KARI was looking for a group in Siaya to participate in a new project on farming. Christine introduced the idea to the group and they accepted to meet with the researchers from KARI. One day four people from KARI went to meet the group, explained the project to the group, inspected the members’ land and left promising to return. When the KARI staff returned, they came to an understanding with the group and activities began. A group of 6 farmers was the first to participate in the project and they were involved in conservation agriculture. Later another group of seven members joined under the seed

evaluation activities. Two of the members were interviewed about their involvement in the project.

The group was taught land preparation with zero tillage, spraying of weeds instead of digging, fertilizer application and planting. This they said was different from the traditional way in which they would open up the land using tractors, ox-plough or hand hoes. They worked with the KARI staff on the 4 plots under experiment from which they observed that the zero tillage and plant cover under desmodium plots registered high yields. Subsequently the farmers applied a mixture of the skills learnt on their land.



Rosemary in her Desmodium cover plot

According to Rosemary, the Chairlady of the group, the members have realized a lot of benefits as a result. The women are now able to sell some maize to get money which they bring to the group. The amount of money that the women can now borrow has significantly increased from the initial Kshs.1,000 to between 3,000 and 5,000 with 100% repayment rates. Members who were previous constrained with payments are now in position to easily make their contributions at the ‘merry go round’.

It was interesting to note how men developed interest in the programme after observing the benefits accruing from participation in the SIMLESA programme. After the first harvest, a large number of men expressed interest to join Liganwa farmers group. The group members were, however, apprehensive of allowing a large number of men in the group as this could lead to diversion from the core objective of helping each other as women, especially the needy ones. In the spirit of working together, however, they decided to accept four men of good character in the group.

Good Practice

The identification of this women-only group to participate in the SIMLESA programme had positive results in terms of helping poor women to overcome their lack of self-confidence and the constraints in making socioeconomic change by concentrating on resolving problems that hinder their progress.

Lessons Learnt

Gender relations affected the extent to which women in this community enjoyed important advantages obtained by membership in groups, such as economic gains from collective marketing, agro-processing, or input supply.

2.2.3 Increased yields elicit family participation - case of Patricia Oyugi



Patricia with one of her sons with the Ox-plough

Patricia Oyugi the Assistant Secretary of the Liganwa Group was born in 1961. She is married with five children, 4 boys and 1 girl. Her husband is a retired public servant. When Patricia started with SIMLESA in March 2010, her husband was not interested and did not participate. But after seeing the bumper harvest of the first season, he was so excited that he decided to quit his job in October 2010 to work with her on the farm. Currently they employ one permanent worker and hire two temporary ones during

the peak seasons like harvesting. In her own words Patricia narrated the benefits of the programme as follows;

“After gaining the knowledge from the SIMLESA plots, I have expanded to 1½ acres of my own land. Although I do not practice zero-tillage but dig because I have an ox-plough. I do not spray because last season I bought fake Round-up that did not kill the weeds. The herbicides sold in Siaya are often counterfeit and to get genuine products we have to go to Kakamega which is a bit far.



Patricia with some of the harvest in her newly built house

The major skills I got from the SIMLESA training on the plots are the application of the right amounts of fertilizer and the selection of good seed. I am now using this knowledge to cultivate my own land. Before I started applying the knowledge on my land, I used to harvest only 1½ bags of maize, but after following the KARI instructions I am getting 14 bags of maize. I am very very happy with the KARI people, they taught me how to get plenty and plenty, pleeeenty of maize! I also belong to another group where I have managed to train 26 members to cultivate using the SIMLESA methods.



My family members have been very supportive. After seeing what KARI had done, my son offered to buy an ox-plough so that I cultivate a larger acreage. My husband was so excited about the bumper harvest that he decided to build a “KARI store” even before building me a better house. He built the house after two years of cultivating maize, beans and groundnuts.

Patricia, Rosemary and KARI staff outside the “KARI Store” *I now have food in the house throughout the year and I do not ask for money to buy meat and fish in the home. I also help my neighbours with some maize during the seasons of food shortage.*

Currently I am paying school fees for my daughter and I give her all her school requirements. She is the youngest and my only daughter. I am able to give her better support than I gave the older children so I expect her to perform much better in school. I always tell her that I want her to become a scientist like those people of KARI”.

Good Practice

Training of Patricia in different agricultural production techniques is a good practice that helped her to increase production thus ensuring food security and increased household income.

Lessons Learnt

Patricia belongs to multiple groups of different purposes and that play a very effective role in the out-scaling of the technology. When Patricia learnt of the CA technology and was convinced of its benefits, she was eager to adapt the learnt skills and train her peers in other groups. Increased yields are an incentive to adoption of Conservation Agriculture technology.

2.2.4 Disability is not Inability



Rosemary in front of her house

Rosemary Oganga is a 72 year old widow who lost her arm in a motor accident in 1982. Her husband passed on in 2011. Of the 10 children she produced, only six, five girls and one boy are surviving. All the children are working and are away from the home. In spite of her handicap, Mrs Oganga is a very active and progressive member of the Liganwa group where she is the Chairlady.

Rosemary is practicing the SIMLESA technologies on $\frac{3}{4}$ acre of her land on which she plants maize and beans. She ploughs and applies fertilizer using a bottle top as taught by the KARI staff and also chooses the right seeds. She said that before these technologies, the yields were not good. She would harvest only 2 bags of maize from this land, but she now harvests 6-8 bags of maize.

Rosemary said previously they used to remove crop residue from the garden to feed the animals, so there would be a lot of weeds. The planting was done in a ‘disorganized’ manner with no specific measure of fertilizer applied resulting in under or over application. This uneven application of fertiliser resulted in poor yields and high production costs due to fertiliser wastage.

In her own words Rosemary said *“We now eat and I help my relatives. In the African culture we were used to assisting our neighbours with food. I can now fulfil my cultural practices because I am in position to do that.”*

Asked what benefits she has so far got from the project, she said *“The benefits I get are from God and I feel happy, it encourages me to work better.”* She added that her status in the village had been accentuated. This, she continued was evidenced by the number of people who seek her opinion in the community and the many leadership positions she has been offered until she just had to turn some down. The increase in harvests has compelled Rosemary to build another structure to store the maize.



Some of the harvest from her plot



Worker cleaning maize outside Rosemary's new store

Good Practice

Working in a group enabled Rosemary to participate in the programme where she would otherwise not access information on the technology or be able to work on her own. Giving opportunity to groups that have vulnerable persons assists these households to work towards food sufficiency.

Lesson Learnt

Although she has a disability, Rosemary can participate in agricultural research and earn living because she has the right supporting social systems.

2.2.5 Nakhafu Farmers Group



Sharon, Patrick and Dorcas of Nakhafu Group

Dorcas Mumali, Sharon Wanyama and Patrick Kitui are the treasurer, secretary and member of Nakhafu Farmers Group respectively.

Nakhafu farmers group is found in Shekimulo village, Bumula Location, Sub-location and District in Bungoma County, Western Province. The group comprises of 20 energetic members (9 men, 11 women) with the oldest and youngest being 53 and 32 years respectively. It was formed in 2009 to promote unity, team work and to provide a collective voice to demand for services from government. They engage in agricultural production, cultivating crops like tomatoes, water melon, onions, and vegetables and also keep livestock such as goats, pigs, cattle and chicken. Each season, the members plant a common crop, synchronize the planting, harvesting and undertake collective marketing to get good market prices. The group collects contributions from members which they invest in livestock production. To reduce on labour costs, the livestock is entrusted with members rearing similar animals. When the animals are sold, the proceeds are deposited in the group fund.

The SIMLESA programme is not the first intervention for Nakhafu group. Previously they participated in a goat rearing project introduced by KARI. It is through this past experience that they were approached to host Conservation Agriculture demonstration plots. The programme was introduced in the second season, so only six members (3 women and 3 men) who had uncultivated land could participate.

The group was trained on zero tillage, the use of cover crop, residue retention and crop rotation. One important thing the farmers learnt and appreciate is the application of fertilizer. Prior to the training the farmers would apply about 100kg of fertilizer per acre, but the yields were still low. The fertilizer would be sprinkled in the entire line even where there was no seed, but with the SIMLESA training, they learnt that fertilizer is only applied in the hole

where the seed is put. This has tremendously decreased the amount of fertilizer applied to 50kg/ha and yet the yields are higher.

Using zero tillage, last year, Dorcas, one of the members, harvested 32 bags of maize and over 2 bags of beans from 2 acres of land. This was a marked increase from the 14-16 bags she would get before the introduction of the zero tillage method. Another farmer, Patrick planted maize and beans using the bottle top to measure fertilizer and he got 8 bags compared to the 4-5 bags he used to get previously. The differences in productivity were attributed to differences in land and soil types one being rocky and the other fallow.

The farmers' household incomes have considerably increased due to the surplus crop obtained by using the new farming methods. They are now able to sale the surplus crop to meet other household needs. In one household relations between the husband and wife have greatly improved. One of the women commented *"For a woman if you want the relationship to be bad; then be on the begging side. I am now a major producer, so even if my husband is to sell the produce, I am involved. There is peace; when there is food in the house there is no problem."*

The farmers are growing desmodium as cover crop. The cover crop is very good because it conserves moisture and also decomposes easily adding to soil fertility. The farmers' know that desmodium is very good animal feed that increases the milk yield, so at times, the desmodium is given to the livestock farmers in exchange for milk for the children. Unfortunately, because of this nutritional value to the animals, the desmodium is very susceptible to theft.

Despite the benefits of desmodium, its establishment is very labour intensive. It takes longer than maize to germinate, so planting at the same time makes it easy to damage during weeding. The farmers have discovered that propagating desmodium using the vines is easier with fewer losses.

The farmers recounted the benefits of the SIMLESA programme.

Dorcias: *The additional income that I now earn, I pay school fees for my children. I have nine children in school. Two are in Moi University and the youngest is in Standard 8. My husband helps on the plots by spraying the crops. I am now able to afford herbicides to use on my land which is not under the SIMLESA plots, I am really happy with the project.*

Patrick: *I pay school fees and buy herbicides to spray my horticulture. I have two children; the one in Form 2 has improved to the 1st position. Because the labour on the farm has decreased I have more time to engage in horticulture. My wife is not in the group so she supports me by cooking food for the workers.*

Sharon: *I pay school fees. I used to depend on my husband for everything. He was paying fees, now I help. I used to buy food, but now I have enough food. I pay for labour for planting and at times spraying if the acreage is large. I give some of the produce to the workers as payment for labour during harvesting.*

Women are the ones who suffer a lot when there is no money so when there is money there is peace in the home. Children get enough food and their school needs are paid so they do not get chased from school. The performance of my children in school has greatly improved. My son in Primary 4 has improved from 10th to the 1st position in his class, even the others have improved in their class positions.

Labour on the farm has reduced because of zero tillage. Even the weed germination is reduced because of spraying with herbicides, increased crop coverage and residue covering. I now have time to look after animals and also go to the market to sell fish. I spend more time on the horticulture which also brings in more income.

Good Practice:

Giving skills and production resources to the women in this group enabled them to venture into more innovative ways of improving family income. Instead of waiting for desmodium seeds, the women in Nakhafu Group found means of propagating desmodium and exchanging it for milk for the household.

Lessons Learnt:

When these women got income, it was primarily spent on the welfare of the whole family by ensuring food security, education and health of the children.

2.3 Malawi

2.3.1 Experiences of the Extension Staff in the SIMLESA programme



Mr. Chiotha Sikanadzie, Coordinator Mitundu EPA in his office

Mr. Chiotha Sikanadzie is the Coordinator for Mitundu Extension Planning Area (EPA). We interfaced with the coordinator and asked his experience with the SIMLESA programme and the participating farmers.

He informed us that the SIMLESA programme is implemented in Chiwiri Section which comprises 48 villages with 1,669 households of which 882 are

male headed and 787 female headed. The relatively high number of female headed households was attributed to the migration of most men to cities like Lilongwe and to Mozambique to work on tobacco farms. Polygamy is a very common practice in this area with the man sometimes having two or more wives in different sections. In this case the women have authority and make all the decisions in the household. They are therefore registered as the bona fide household heads.

In most cases, when the men return home, they do not bring back anything to support the family. The men have a tendency of going away to the city at the beginning of the rainy season when farming activities start and return after harvest to eat and leave again. They are also very quick to offer to transport the harvested crops to the market or auction as well as drawing budgets for expenditure. Eighty (80%) of the farmers are women. The women understand that they are the beneficiaries of improved farming because they have to ensure food security in the household.

In terms of extension programmes, continuity and sustainability is very possible because most of the members in farmers groups are women who are always available and easy to follow up, they can decide on suitable times for their meetings, most of which start at 2.00pm. On few occasions (once a month) when are to hold meeting at the extension offices, it is from 8 am to 11 am to enable them get back home early enough. The men on the other hand always find excuses, such as going to the market or other engagements, in order to absent themselves from the programme meetings.

In village banking, the women are able to contribute money for the agreed period then share the money without any problems. Whenever these women groups are joined by men, there are problems. The men tend to borrow and disappear while women have more responsibility. The women in Chiwiri section have proved that they are capable of undertaking any development venture. This is exemplified by a group of women who have excavated 8 fish ponds by themselves.



Chisamba Women's Group near one of their fish ponds

Good Practice

The recognition of women as the head of households even when they are married transcends most cultural norms. This classification and recognition by the extension coordinator enables the targeting of information and agricultural interventions to the women thus promoting their participation in various development initiatives.

Lesson Learnt

The limited mobility of these rural women made them very reliable partners in the implementation of many agricultural programmes. Because these rural women work in the gardens around their homes and are responsible for household food security, they committed time and energy to ensure the success

2.3.2 Conservation Agriculture, a beacon of hope for women in Mtunthama



Standing L-R: Lukhere, Christina with other farmers participating in CA on Christina's maize plot.

Christina Nyirenda is an example of how conservation Agriculture continues to improve the lives of women in Mtunthama. She recalls how the Agriculture extension worker for the area Mr Lukhere explained to her the concept of Conservation Agriculture and since then, she has never looked back. One of the objectives of SIMLESA is to test and develop productive, resilient and sustainable smallholder maize-legume cropping and innovation systems for local scaling out. SIMLESA is thus carrying out experimental studies in a number of districts including Kasungu district where the site is located in Mtunthama. Christina is one of the first six farmers taking part in these experimental studies and already boasts of a number of lessons from the study.

Christina cannot remember the year she was born but thinks she could be around 57 years of age. She however remembers that she got married in 1970 and that she was engaged in farming with her parents until 1973 when they gave her two acres of land. With the birth of her 15 children, 8 of whom are still living, the land was increased to 5 acres. As her children grew up, Christina shared part of the land among them and now retains 2 acres which she cultivates.

Gender disparities are a reality in Malawi. There are marked differences between men and women in terms of access to and control over agriculture production resources such as land, credit, extension services and farm implements. The participation of women in decision making in the agriculture sector is limited in comparison to men. Women, especially widows are the main victims of agricultural related property grabbing including land, oxen, ploughs

and inputs. They also have limited access to agricultural markets due to lack of transport, technology and price negotiation skills. These disparities reduce the efficient use of resources and the fair distribution of benefits among various categories of people. Like many women in Malawi, Christina remembers how she used to be overburdened by the triple roles⁶.



Christina in her traditional robe of governance

Christina however stands in a class of her own since she is one of the few local leaders in her area. She is the Group Village Headwoman in Chingwalu. This means that apart from farming, which is her main source of livelihood, she has to take care of her family as well as attend to development meetings as the group village headwoman.

Christina explains that CA has come in handy because she has been able to save some time to attend to her many duties. She recalls that before she started CA, she would spend up to ten hours in the garden and this took a serious toll on the care given to her family as well as the service rendered to her subjects. She now tells a different story as she believes CA is labour saving and because of that, she can now attend to a number of activities without compromising the yields from her garden.

Apart from her maize garden, she is now able to work in her groundnut and soya bean gardens. She says the crop yields have risen tremendously and she is able to sell some of the maize. Before she started practicing conservation agriculture, she would harvest 2 oxcart from her two acres of land, but now she harvests 2 oxcart from ½ an acre and is able to grow other crops on the same piece of land.

Because she spends less time at the farm, she is now able to keep some goats, something that seemed very difficult before she went into CA. Apart from the five demonstration plots that are under study, Christina has another garden where she is practicing maize growing with residues, does hand weeding but does not apply any chemicals. She now has time to participate in the village savings and loan group in the area, something that has also increased her income base.

Christina believes as a woman, she has a great role to play in ensuring that women practice labour saving technologies such as CA to help improve their living standards. Since inception, 14 other farmers have been encouraged to started practicing CA in her village. Eight of these are male and six are female. Despite the challenge that she faces with mice

⁶ Triples roles in gender refer to productive, reproductive and community roles that normally women perform.

hunters⁷ who destroy the mulching in the gardens, she has hope that with awareness meetings in her community the situation will improve.

Christina is convinced that the commitment she has in achieving goals, and the confidence the people in her community placed in her when they chose her as a host farmer for the trials will make it possible for farmers engaging in CA to succeed in their endeavours without causing conflicts with other members of the community who want to feed the maize stover to livestock and the mice hunters.



Group Village Headwoman Chingwalu and the extension worker addressing her subjects

Good Practice:

Adoption of zero or minimum tillage agriculture, weed control through cover crop/mulching or use of herbicides critically reduced labour demands at peak seasons of land preparation and weeding.

Lesson Learnt:

Apart from the household chores like cooking and looking after children and the sick, Christina has traditionally defined roles in agriculture production which include planting, weeding, harvesting, and postharvest activities such as threshing, winnowing, and grinding. The time and energy spent on performing these roles was greatly reduced by changing farming practices to CA that enabled her take up other opportunities in leadership roles among others.

⁷ Mice are a delicacy among the Chewa tribe. As people hunt mice, they dig up the gardens and destroy the mulching.

2.3.3 Achieving sustainable Agriculture through SIMLESA in Malawi: a Case of Adoni Nankhwani

Location: Chiwiri Section, Chisamba village, Traditional Authority Chadza Lilongwe



Adoni and her husband in front of their house

As far as Adoni can recall she has been farming since she was 5 years of age, for her it is just part of growing up. When she got married at the age of 16 years, she was given 2 acres of land by her mother. Her husband also received about 1 acre from his mother. In the Chewa tribe, a husband lives with the wife's family as such Adoni and her husband mostly farm on her 2 acres because of proximity. Her husband's land is quite a distance and cultivating it necessitates sleeping over away from home.

Adoni has been participating in the SIMLESA programme for the last three years. She narrated that in the past they used to construct ridges in the maize fields and then apply manure, a practice that was not only labour intensive but also expensive because the manure had to be transported to the fields. The SIMLESA technique on the other hand is very manageable because it only requires mulching and then you wait for the rains to plant. The only challenge is the inadequacy of stalks for mulching which at times have to be transported from some other farms.



Traditional planting of soybean and cassava on ridges

Adoni got involved in SIMLESA when the village heads called for a meeting and the people selected the hard working farmers. Although other farmers volunteered to host the trials, they could not meet the criteria such as farmer commitment and proximity of the plot to the road. The first year she joined SIMLESA, Adoni harvested a lot more crop than the previous years when she used the conventional farming system.

After observing the good performance of the SIMLESA plots, Adoni decided to expand the CA techniques on her land expanding to 1½ acres under CA. She applies less fertilizer than before because she practices the 1x1 planting as compared to the 3x3 planting which takes more fertilizer. Her yields have also increased from 1 to six carts. Adoni is particularly captivated by the use of less fertilizer and increased yields that have accrued from engaging in SIMLESA activities.

The family's current food reserves will last February⁸, a great improvement from preceding years when food it would be depleted by the month of June of the previous year. Before SIMLESA programme, the entire harvest could be transported on a bicycle, but she now has yields enough to dry, treat and store in bags in the house.

She is now able to sell some soya beans and maize which has improved the household income. With the improved income she can now access medical services from private clinics. She has also procured iron sheets and is planning construct a brick house.

The couple has seven children and 5 of them are able to in the fields. Adoni's husband only helps on the farm when his bicycle on which he trades firewood in the nearby town is broken down. Occasionally, in times of critical labour shortage, he contributes money from his business to hire labour. The Chewa culture of having a husband live with the family of the wife curtails occasions of the woman facing domestic violence because she is surrounded by her relatives. Decision making is also more consultative among the couple.



⁸ This is the month we

*(L) Adoni interviewed by Panji (m) and Sondo (R) Extension Staff from
SIMLESA*

Good Practice:

Inheriting and control over land, a major production asset, conferred upon Adoni some degree of authority that enabled her to participate in decision making processes and allowed more consultation with the male partner.

Lesson Learnt

Adoni does not draw differences between farming activities and her rural life, therefore understanding how gender differences affect agricultural production in relation to asset ownership and decision making is critical to the success of any innovation.

2.3.4 Recognising Women's Potential - Mrs. Chalendewa



(L)Panji, SIMLESA Extension Staff, (R) Sondo, Extension staff interviewing Mrs Chalendewa, SIMLESA Farmer(M)

Mrs. Chalendewa a mother of seven children lives in Kamgumbwe village located in Mitundu, Lilongwe district. Her husband, Dominic Chalendewa works with the Lilongwe University of Agriculture and Natural Resources formerly called Bunda College of Agriculture. When she got married in 1981, her mother in-law gave her a small portion of land for farming, and as she produced more children, the mother in law kept adding more land to cater for the growing family. Mrs Chalendewa acquired more land when her sister in law (husband's sister) got married and moved away from home, and even more upon the death of her brother in-law. She eventually took over all the land when her mother in-law passed on. The same land will be shared out to her children when they grow up.



Mr & Mrs Chalendwa in front of the SIMLESA trail plots for soybean and maize

At a community meeting called by the village heads and facilitated by the extension workers from Mitundu EPA, they were informed of a new project (SIMLESA) which was looking for farmers to host its trials. Mrs. Chalendewa volunteered and despite stiff competition was chosen as one of the direct beneficiaries because she was very hard working. Apart from the

many benefits of the project, Mrs. Chalendewa was also very happy that she now had the

chance to try the new technology on the witch weed (*Striga asiatica*) which was negatively affecting her crop yields.

Mrs. Chalendewa does not only practice conservation agriculture on the SIMLESA plots, but is gradually expanding it to her land in the vicinity of the plots. Inadequacy of mulching material is the major limiting factor to up-scaling of the CA technology. The amount of stover from the crops on the field is not enough to cover all the ground, necessitating the collection of stover from other people's fields a process which is highly labour intensive.

She is encouraged to expand the CA system because it is ultimately both labour and time saving which enables her to perform other activities in the home and field. Due to the reduced time spent on cultivation using the CA system, she is able to spend more time on other fields growing crops like groundnuts whose sales go to support the children's education.



Mr. Chalendewa explaining the expanded fields to Boaz Mandula and Ellen Sondo



Mr. Chalendewa next to the grannery

On the improve seed varieties, Mrs Chalendewa recommends the maize variety MH 26 for the high yields and very good for preparing nsima⁹. Chalendewa could not estimate the difference in improvement of the yields in her farm but she noted that in the past the harvest would get exhausted before the next harvest, but now it takes them through the usual food shortage months of February until the next harvest without running out of food.

⁹ Nsima is the staple food made from maize flour.

Good Practice:

The identification of Mrs. Chalendewa as an individual who was hard working is a good practice that goes beyond the stereotype of the husband as the head of the household and provider.

Lessons Learnt:

The availability of time and improved food security gave Mrs.Chalendewa the confidence to venture into cultivation of groundnuts to supplement household income that improved children's welfare.

2.3.5 Generating SDD and GDD to Evaluate Farmer Performance in the SIMLESA Program

A study was undertaken by Amon Kabuli¹⁰, Boaz Mandula¹¹ and Pilirani Ngwale¹² in September 2012 on the SIMLESA programme in Malawi to understand the socio-economic characteristics of the households participating in the SIMLESA trials and how the various gender variables affected performance. The study looked at age, marital status, sex of household head, level of education, average household size, labour, average land holding per household, selection of members participating in SIMLESA, asset ownership, types of houses, ownership and access to agricultural implements, decision making, food security, livestock ownership and, source of credit. The study produced a mixture of data that included general, sex and gender disaggregated data. Nonetheless, the information collected can further be processed to generate a valuable resource to the program. Some of the findings of the study are summarised below;

Age: The individual's age influenced the amount of labour allocated to production of a particular crop, knowledge uptake and decision making. Households of the age group 25- 35 seemed to perform better than the other age groups; this was followed by the households in the age of 35-46 category then those between 56-65 years of age.

Marital Status: The higher performers were found among the married 61.4% followed by the single 10.2% then separated 8.4% and lastly the polygamists 2.8%.

Sex: In the study male headed households seemed to have much higher performance (33.6%) in the trials than the female headed household (14%). While 25% of the MHH were rated as good by the extension staff, 19.6% of the FHH fell in the same category.

¹⁰ Amon Kabuli is an Agricultural Economist/Socio-Economist with the Sustainable Land Management Programme, Ministry of Environment and Climate Change Management, Lilongwe Malawi. E-mail: amonmw@yahoo.com

¹¹ Boaz Mandula is a Gender Focal Point the SIMLESA programme in Malawi

¹² Pilirani Ngwale is a Research Officer with Kirk Development Research and Training Centre, Lilongwe, Malawi

Education: The majority of the respondents (61.1%) had only attained primary level, 22.2 % secondary school level, 13.9% had never been to school and could neither read nor write. A minority of 2.8% reported that they have never been to school but could read and write.

Labour: Household size influenced availability of labour for agricultural activities. With the exception of two districts (Mchinji and Salima) which had an average of six (6) members per household, more than half of the households in the other districts had an average of seven (7) members per households.

Land Ownership and Size of the Gardens: The average total land holding per household was found to be 0.6ha for MHH and 0.008ha for FHH.

Participation in SIMLESA trials: The attributes for selection of farmers who participated in the programme ranked as hardworking (27%), closeness of farm to the road (22%), trust (22%), interest in agriculture (14%), ability to understand and experience in agriculture 12% and finally food insecurity 3%.

Income: The income of the household determined the kind of inputs and investments to venture into. About 19.6% of the MHH farmers were involved in business to earn a living. 13.9 % stated to have had experience in petty trading, 2.8% were engaged in art and craft and 2.8% stated to have been engaging themselves in other self-employment activities.

Asset ownership: The most goods owned by these households, were bicycles 61.6% (MHH) and 16.8% (FHH), followed by radios 53.2% (MHH) and 14% (FHH). About a third owned cell phones 47.6% (MHH) and 19.6% (FHH). The female-headed households had the lowest rate of ownership of assets compared to their male headed households which had the highest rate of ownership. This was an indication of higher poverty rates amongst the female headed households than their male counterparts. This may also have translated into low levels of investment in SIMLESA trials than their male counterparts.

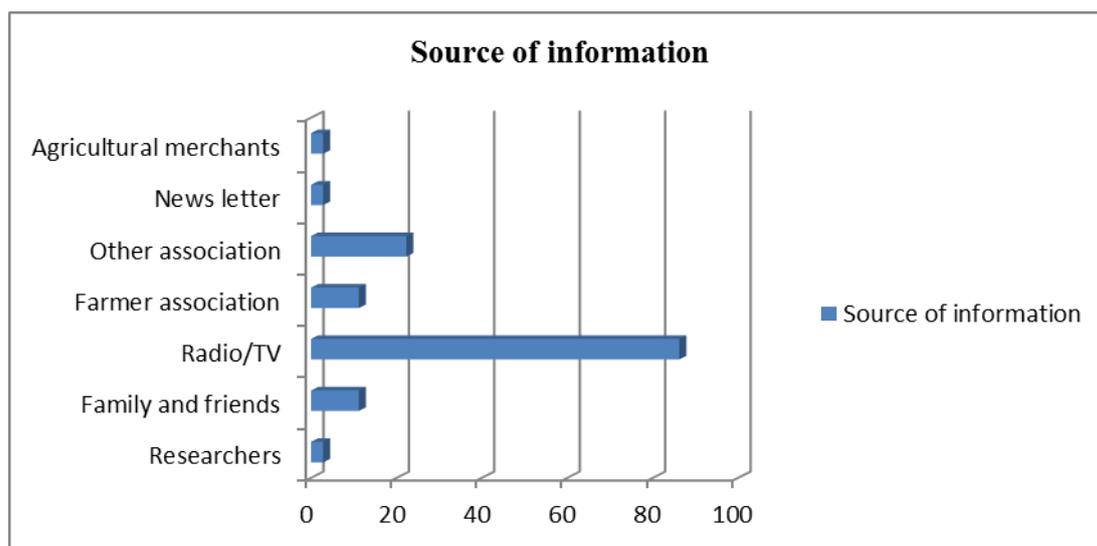
Ownership and access to key agricultural implements: The most common implement owned was the hoe followed by the panga, knife, the axe, the shovel, the sickle, the sprayer (owners were very good (3) and only (1) for average performance) and the wheel burrow, all of which were owned by more than half of the households. The rain gauge and the oxcart were owned by about two fifths while the treadle pump was owned by very few. An important point is that many of the households did not have access to large agricultural equipments i.e. Plough, tractors, Carts and the harrow because majority of respondents were small holder farmers hence not be able to buy farm machinery.

Culture: Malawian culture view women as second class people in the society whereby they should not take active role in development and decision making process. In most households, decisions on agricultural equipment use were mainly done by both (41.7%) husband and wife while husband alone (36.1%) and wife (16.7%).

Food Security: Food is one of the most important basic needs of a human being. The majority of the households (47.2%) had food lasting from seven to twelve months, 38.6% from five to six months, and 11.1% each for three to four months and one to two months. The MHH seemed to use their harvests for a longer period than the FHH whereby about 61.6% of male headed households tend to run out of food in the 5 – 6 months after harvesting while 16.8% of female headed households do the same in similar period. This was due to the fact the MHH had more land holdings than the FHH. From the study, it was found those households with better food security had better performance 89.6%.

Credit: Credit is a source of capital for purchasing farm inputs and paying for labour among other things. The major source of credit was informal group and credit for both MHH (14.0%) and only for MHH (2.8%), other sources for MHH were relatives and friends (11.2%), bank or microfinance (5.6%) and finally NGO/church (2.8%). The MHH (66.7%) has had a higher percentage to credit access than the FHH (33.3%)

Source of Information: The major sources of market information were Radio/TV (87.2%), other association (22.4%), family and friends and farmer association (11.2%) and finally both News letter and Agricultural merchants (2.8%).



Good Practice

Sex and Gender Disaggregated Data is important in improving programme/project targeting, maximizes resource allocation and increases programme performance. Such information is best when collected at baseline survey level, but it can also be collected in the process of the project. Although the data collected in this case study was not entirely SDD and GDD, it has a lot of potential for transformation.

Lesson Learnt

The collection of SDD and GDD can be possible with an improvement in the data tools to include gender variables. The SIMLESA Programme can conduct country specific studies to understand the factors that can affect the participation in trials as well as the out-scaling of the technologies.

2.4 Mozambique

2.4.1 Gendered division of knowledge – Abelha Farmers Group



*Some Abelha IDEEA Association members in front of one of the maize trials on their land
R-L: Ernesto Chimoro, Argentina de Glória Celano, Gloria Tazenda, Rosa Leus*

The Abelha-IDEAA association found in Macate village, Gondola district, Manica Province in central Mozambique was formed in 2006. The association which started as a group of farmers involved in the cultivation of sunflower was later, on the advice of IDEAA, registered as a formal body. Current membership comprises 22 people (8 women and 14 men). The Association started cultivation on borrowed land, but later 10 members contributed 1,200 MT (USD 40) each to purchase 2 ha of land. Each paid up member was allocated a plot from the land. The proximity of this land to a river makes it ideal for growing vegetables which have a ready market. In the dry season they plant maize because it is on high demand.

The group plans the cropping season together. They contribute funds to purchase seeds and fertilisers and maintain a vegetable nursery from which they all get seedlings. Unless there is a demand for large amounts of vegetables, the farmers usually sell their vegetables individually.

The association is involved in SIMLESA trials for maize and soybean established on the association land. The SIMLESA programme supplies several varieties of maize seeds such as *Tsangano*, *Dimba* and *Olipa*. The farmers showed differential preference of these seed varieties depending on their needs. For example *dimba* variety was favoured because of early maturity (planted in October and harvested in December) which assures the farmers of food during the critical food shortage months. Due to the observed growing demand for seed in the community, the association members expressed the interest to multiply maize seeds from the SIMLESA project for the local market. According to them, dependency on external sources

for seed supply often leads to late procurement of seeds, long after the season has started, which results in poor germination rates and harvests. The confidence in seed production is reinforced by the fact that the community observes the good performance of the varieties on the trial plots.

The farmers in the community are willing to purchase this seed. There is an informal seed sector in the village where farmers with seed in their silos sell to other farmers. Although these are local seed varieties of lower quality, the availability on the local market at the right time of planting gives it an edge over the certified seed which are more expensive and not supplied in time for early planting. They believe that if farmers are aware that there are silos



like
Argentina's
with
seed, they
would
come to
buy.

Argentina's Silos; The seed Silo is hoisted high on pillars and also serves as a kitchen so the smoke from the fire acts as a preservative against weevils as well as ensuring low moisture content.

When asked about the variety the association would like to multiply for seed, the farmers had different views.

Gloria Tazenda was born in 1972 and did not go to a formal school but attended adult literacy classes so she knows how to read and write. She is married with 8 children, the oldest is 25 years and married. She prefers Dimba variety because it has a short maturity period. Although it has a small cob, it provides food for the family in times of crisis. Dimba is resistant to drought and I am sure people will like it because food scarcity and drought are common problems.

Ernesto Chimoro is 49 years old and husband to Tazenda. He works on the farm with his wife and the two own a stall in the market where they sell their farm produce. Tazenda and Chimoro grow maize, banana, sorghum, vegetables and soybeans. Although they own 5 ha of land, they can only cultivate 3ha and they do not have a title to the land. He prefers the Tsangano variety of maize because it is resistant to weevils, produces a lot hence good for commercial production. You can also eat it. It is good for selling fresh because of the big cob.

Rosa Leus is 50 years old, married with 8 children who have all left home. Rose owns 2 ha of land on which she grows maize, tomatoes, onions, cabbage, beans, lettuce and soybean. She also owns a plot on the association land. Rosa prefers ZM variety because it has a big cob and big grains. "This seed helped me a lot last season when my silo burnt. ZM gave me food in less than 3 months. With cultivation on small piece of land, I was able to get enough food because of the high yields".

SIMLESA has taught them a lot, with trials that have very high yields. In some cases the production on the trial plots are equivalent to the yields on the larger acreage. The knowledge of plant spacing, seed and fertiliser application is very useful. Seed multiplication is a good idea that could augment the association members' income as well as yields of other farmers in the community.



Gloria and Rosa hold a Maize cob from Celano's seed silo

Good Practice

Encouraging the farmers to form linkages from the SIMLESA activities to supply inputs like seed ensures timely supply of good quality seed to farmers.

Lesson Learnt

The role of seed selection from the harvested crop and storage is a woman's role. Involving women in research technologies such as trials of crop varieties would result in more sustainable propagation as they are more likely to preserve and share seed within the community.

2.4.2 Gender and Culture - Fidelis Zacarias



Fidelis in red coat with Samuel-translator

Fidelis Zacarias is 58 years old, married to Mailosi Aligeta and lives in Kabango village, Ngonia district. They have 6 children, 3 girls and 3 boys. The eldest and youngest are both boys aged 30 and 16 years respectively. Together, Fidelis and his wife own gardens, two of which belong to his wife. Before marriage the couple entered into a pre-nuptial arrangement for the couple to live with and support Fidelis parents who were deemed very poor. This is in contrast to the cultural norm where men do not pay lobola¹³ but leave their homes to settle in with the wife's family.

Fidelis has been working with SIMLESA for three years on a 15x20 metre plot. Mailosi and three of the children help Fidelis on the field. During peak seasons, the married children come to help on the farm. They are youthful and energetic so they work fast and often finish their own gardens quickly.

After implementing the SIMLESA CA technology, Fidelis harvests at least 2-2½ ox carts of maize instead of the 1 ox cart before SIMLESA. He plans to up-scale the SIMLESA CA technology. His plans to expand the acreage in the previous year were hampered by payment for treatment of his sick children. He hopes that since the government distributed mosquito nets, the malaria incidents will reduce and his children will not fall sick.

He plans to use the income from the increased yield to pay lobola for his sons when need arises. He pays school fees of 3,000 MT for his son in Standard 7. Fidelis supplements his income by moulding bricks off season after harvesting the crops.

¹³ *In the Ngoni culture a man does not pay lobola, on marriage he moves to live with the wife's family*

Good Practice

The ability to overcome cultural constraint of matrilocation to provide labour to help the poorer family in order to improve their lives

Lesson Learnt

Culture has a big influence on the movement of family labour which impacts on its availability for agricultural production.

2.4.3 Technology Adoption and Adaption - Maria Goleti Luis and Xavier Bifolo



Xavier Bifolo

Bifolo of Chiphole, Angonia district has been married to Anna Maria Goleti for 28 years and they have 5 children (3 girls and 2 boys) the oldest is 20 years old, married but still lives with him. Their main source of livelihood is agriculture. They grow soybeans and maize some of which they sell. Bifolo got 3 acres of land from his mother and Anna Maria also got ½ an acre from her mother. Bifolo lives on Anna Maria's land.

In the Ngoni culture, men do not pay lobola (bride price) in marriage. When a man marries, he goes and lives with the wife's family. The children produced in this marriage belong to the wife. This is a matrilineal culture which is the opposite of the patrilineal culture in which the woman relocates on marriage.

Today was the first time Bifolo had attended the SIMLESA farmers meetings and it is only because Anna Maria had to attend to a sick child at home. Bifolo works with Anna in the gardens, but when they return home Anna continues to cook food and other duties while he does some light work around the home as he waits for the food to get ready. During the rainy season, there is a lot of work so he helps with some household chores like fetching water. Anna takes the children with her to the garden.

Bifolo says they have expanded the SIMLESA technology to another plot of 30 x 20 metres. They have been able to expand because they got some substantial harvest from the SIMLESA plot. They are however using manure instead of fertiliser. He says the manure is better and costs 1,500 MT per ox cart. He says they now harvest at least 3 ox carts of maize crop from the SIMLESA plot up from the 1 ox cart they used to harvest before the project.

When the crops are harvested, Bifolo sells and brings the money to Anna who makes the budget for family. From the proceeds they purchased a goat and 2 chickens. Most importantly they are no longer in the critical condition when they would spend a lot of time looking for food instead of preparing gardens in readiness for planting. Since 2011, there has been no

food shortage. They now have food for the months of February to March, a period associated with severe food shortage.

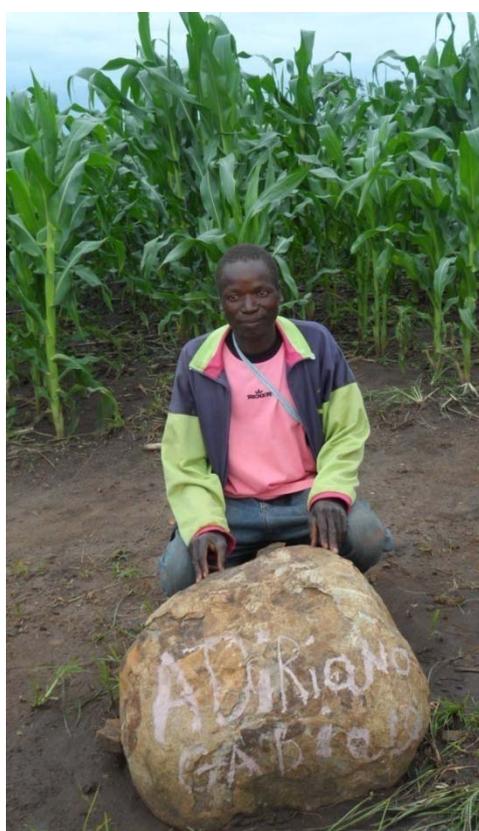
Good Practice

The use of manure instead of fertilisers by the Bifolo family to expand the SIMLESA technology on other pieces of land is a good practice.

Lesson Learnt

Poor farmers are able to integrate new and old knowledge and improvise to make the technology affordable.

2.4.4 Gender division of labour - Adriano Gabriel



Gabriel in front of his trial plot – Stone post with his name.

Adriano Gabriel is a 35 year old married male from Chipole in Angonia district with 5 children, 3 girls and 2 boys. The first borne is 12 years and the last is 1½ years. Two of his children go to school. Gabriel owns 3ha of land. Since he normally works alone, he has only been able to cultivate 2 ha. When his wife goes with him to the farm, they leave at 5.00 am and return at 11.00 am to prepare some food for the children then return to the gardens from 2.00 pm to 5.00 pm. In most cases the children are left at home alone.

Adriano grows maize, groundnuts and pigeon peas on plots of about 20m x 10 m. Apart from the SIMLESA plots he has expanded to grow maize and beans on another plot of about 20 x 60 m. Adriano says prior to employing SIMLESA technology he would harvest less than an ox cart of crop, but now, from the same land he is able to harvest at least 3 ox carts.

As a result of the improved income, Gabriel is able to hire at least 2 labourers to help him on the farm so the wife only goes to the farm during harvesting. She now concentrates on ensuring good storage for the grain. After building the bamboo silo, Gabriel leaves the control to his wife to avoid temptation of selling of the produce. Even when he sells the produce he gives the money to his wife to keep. Gabriel has bought a radio, bicycle and a pig which has produced 5 piglets that are now 2 months old. Adriano plans to sell produce in April 2013 to buy some clothes for his children as well as purchase fertiliser to expand the SIMLESA CA technology to another plot of 50 x 70 ft.

Good Practice

The welfare of children in poor households is often compromised by the need of the parents to search and provide food for them. Prioritising the child care role of women in agriculture by hiring labour were possible promotes children's welfare.

Lesson Learnt

2.4.5 Seed preservation – Argentina de Glória Celano

Argentina de Glória Celano is a 60 year old widow who lost her husband in 2003. Argentina dropped out of primary school in fourth grade. She produced 6 children, four are alive. Farming has always been the core activity of the family. Although she used to hire labourers to do most of the work, she cannot afford many of them anymore.



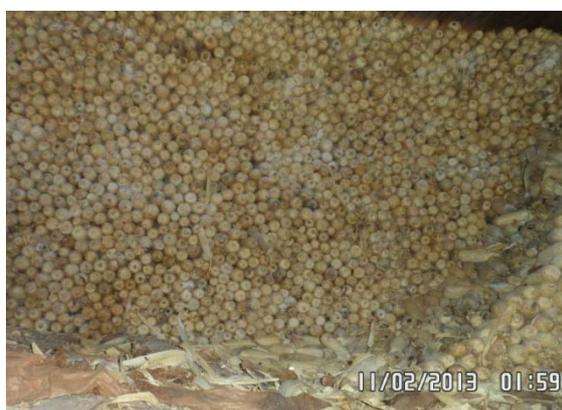
Ernesto in Celano's SIMLESA Soybean trial plot

Argentina and her husband used to own 100 ha of land, but most of the land has been taken over by people formerly displaced by the war that ravaged the county. Although she has a land title and still pays government dues on the land, she can only access 30 ha for cultivation.

Celano grows a wide range of crops; beans, maize and sunflower but the yields are very low. The low maize productivity (0.6 – 0.9 tonnes)/ha has compelled her to change to soybean which is on demand to manufacture feed for the growing animal sector.

Argentina is a member of the Abelha IDEEA group that started working with SIMLESA two years ago. The group welcomed the participation in SIMLESA as an opportunity to improve crop yields as well as access to new varieties. The group is hosting trials for maize (PAN 53, ZM 523) and Soybean (H7, H17, H19, Soprano, TGX) varieties.

According to Argentina, the new varieties of maize are easy to cook, but very vulnerable to pest attack when in storage. In the 2012/2013 season, Argentina did not have access to seed because of the high prices (90 MT/kg \approx US\$ 3). Argentina earns her livelihood from the farm. Argentina says she has to farm because it is what she knows to do and nothing else. She looks after 7 orphans aged 7 to 16 years who live with her and they help with the cultivation when not in school.



Seed storage: Maize cobs inside Argentina's Silo



(L) Angela Machinji, SIMLESA Gender and M&E Focal person with and (R) Argentina, SIMLESA farmer near the Maize silo

Good Practice

In the SIMLESA programme all the harvest that is collected from the trial plots is left with the farmer. While this motivates the farmer to continue with the programme activities, it also gives the farmer access to quality seed for multiplication and planting in the next season.

Lessons Learnt:

Poor households, most of which are female-headed households like Argentina's, are easily affected by high prices of seed at planting time. Without storage of seed from previous season they can fail to cultivate. Involvement of poorer women with a knowledge and passion for agriculture in the programme taps into the indigenous knowledge such as the seed preservation techniques.

2.5 Tanzania

2.5.1 Participation in SIMLESA Activities – Eastern Zone Tanzania



*Elisha Mkandya - Assistant Objective 1
Leader Eastern Zone*

The SIMLESA project in Tanzania was launched in 2010, with effective on-farm implementation in 2011 cropping season. In the Eastern zone, the programme is implemented in three districts of Gairo, Mvomero and Kilosa in Morogoro region. Six communities that comprise farmer research groups are participating in the programme. The selection of the site within the region and district was based on the existing potential for maize-legume system as determined by the team lead by NARS scientist together with district and village extension officers.

The criteria for host farmer selection, collectively set at a meeting include; the ownership of a field/farm of not less than one acre, willingness to offer the field/ farm for at least four consecutive years and accessibility to the farm. Following these guidelines, the village extension officer selects the farmers to host demonstration plots in the community. The table below shows the number of host farmers in the eastern zone by sex.

Zone	District	Community	No. of host farmers	Male	Female	Youth
Eastern	Gairo	Msingisi	8	6	2	0
	Mvomero	Makuyu	6	2	4	0
		Milama	3	0	3	0
		Vitonga	5	3	2	0
	Kilosa	Dodoma Isanga	5	2	3	0
		Mandela	7	5	2	0
Total			34	18	16	0

Although not implicitly prioritised in the criteria, the programme has almost equal number of female and male represented among the host farmers. During the evaluation of demonstration plots there were efforts to ensure equal participation of men and women.

The host farmers are expected to make a contribution in form of grain equivalent to the cost of inputs to an agreed fund or community activity. The cost of inputs is predetermined, before planting, and so is the equivalent amount of grain to be contributed at the end of the season. These costs will include the cost of weeding if the farmer is not able to do so in time.

The programme has seven extension officers (3 male and 4 female) working in the Eastern zone. Six of the extension officers are based at the sites and one at the district (female). The extension officers supervise the overall activities of SIMLESA at village level. The extension staff has undergone some training in socio-economic data collection. Only the staff based at the district has undergone some training in gender mainstreaming. It is hoped that since training is continuously, integrating gender aspects in the training will be considered.

Good Practice:

There is almost equal participation of male and female farmers in the SIMLESA activities in the Eastern Zone.

Lessons Learnt

The SIMLESA programme can strive for equal representation of all categories of people benefiting from the programme. The youth are not participating in the programme activities.

2.5.2 Livestock and crop farmer conflicts

The SIMLESA programme is implemented in the villages of Rhotia kati, Kilimatembo and Bashay in Karatu District council. A conflict arose between the livestock and crop farmers at this programme site stemming from the Conservation Agriculture practice of using crop residues to mulch the fields. Studies¹⁴ on pastoralism have shown that no pastoral group is entirely self-sufficient; instead it tied in relations of interdependency and reciprocity to sedentary communities in adjacent areas. The pastoral adaptation presupposes the presence of sedentary communities and access to their products. Relationship between crop and livestock farmers used to exist with the later grazing animals after the crops had been harvested and the former would benefit from animal droppings that would serve as manure for the soils.

With the introduction of conservation agriculture, the crop farmers have put restrictions to grazing on the land because the crop residue is left to cover the soils. Consequently the livestock keepers have resorted to stealing the crop residues at night away from the watch of the crop farmers. In turn the crop farmers have resorted to poisoning the crop residues that resulted in the death of animals.

In an attempt to resolve this conflict, a survey was conducted in which both livestock and crop farmers were interviewed. The results of the investigation suggested the escalation of the conflict was primarily due to poor implementation of the byelaws by the village government. There was lack of awareness on proper land use for both livestock and crop farmers practicing CA. In the face of diminishing agricultural resources such as soil fertility and increasing population pressure necessitating the cultivation of more food, there is need to plan resource allocation to attain sustainable development with minimum conflicts. There is a need for the district council and central government to identify best land use practices.

The recommendations of the investigation included conducting of a proper study to provide a lasting solution to the problem. Other recommendations included training of village councils on land management and environmental aspects and advocacy among both livestock and crop farmers on proper land use and well as strict enforcement of byelaws by the village councils.

Good Practices

Resource based conflicts between livestock and crop farmers are common in communities. A comprehensive study of the conflict is necessary for crafting long-lasting solutions. A participatory approach involving all stakeholders in conflict resolution is a good practice by authorities

Lessons Learnt

When new practices are introduced in a community, they could destabilize traditional linkages in farming systems and relations in the community.

¹⁴ Dawn Chatty (2006) *Nomadis of the Middle East and North Africa facing the 21st Century*

2.5.3 Sharing of farm benefits – Youth Vitonga Community



Farmers Focus Group Discussion

Vitonga village was founded in 2009 by immigrants from other areas. The village derives its name from the large number of Mtonga trees that populated the area. The first migrant to come to Vitonga was Fabian Malewa who came to work for a white man. Knowing that the land in Mgeta where he hailed from was exhausted, he invited people from his community to come to Vitonga where land was still fertile. The people of Vitonga are principally crop farmers growing mostly maize, pigeon peas and tomatoes.

Since the introduction of the SIMLESA programme, there has been an observable improvement in food security evidenced by surplus produce for sale. The income generated is used to buy other household necessities, such that children are better fed and have school requirements.



Ashura Saidi, Village Secretary leads the Women FGD

The women observed that with the SIMLESA CA technology, there was a big difference in the herbicide treated plots that requires less capital to cultivate. In addition to saving money for labour, the technology also saves time enabling them to perform other duties such as gathering firewood and fetching water for the household. They were anxious to see the SIMLESA programme expanding to cover more acreage and particularly requested for

training in herbicide usage. They noted that the delivery of inputs was not synchronised, sometimes the seeds were delivered late when the rains were about to end and at times the herbicides are delivered without seeds. The women were determined to find means of

financing the purchase of herbicides and seeds at the end of the project. According to the women, the biggest disincentive to the innovations was the low prices of produce and yet the seeds price at planting season is very high.

The men focus group appreciated the reduction in labour and harvesting of at least two crops from the same land in CA practice. Previously the men spent 6-8 hours each day for about three days on land preparation. The men apply fertilisers and herbicides, but women fetch the water used.



Rose Sakwera - Gender Focal Point facilitating the Men FGD

Labour demand for harvesting has increased as a result of the improved crop yields, so they hire labour. Women are preferred when hiring labour because they are said to be careful workers and trustworthy. These women are paid 3,000= per day.

The women and men groups had different views on lack of youth involvement. The women said the youth do not like digging, but preferred odd jobs or migrated to the urban centres in search for good life only to return to the village when they fail. On the other hand the men blamed the lack of youth involvement in agriculture on lack of land. Most youth were expected to provide labour on the family land and yet all the benefits accruing are under control of the family head with no direct share to them. Apart from feeding, the youth have unmet needs, so they seek employment elsewhere to fulfill these needs. Youth tend to get involved in farming when they are allocated their share of the land to own and manage. Another constraint is the mode of delivering information. For instance, information about the programme at this site was given to people found working at a school bridge. Those who were present and interested were asked to register. This method tends to exclude those not at the site, especially women who do not usually participate in such community projects. The youth need more information and some convincing if they are to get interested in agriculture.

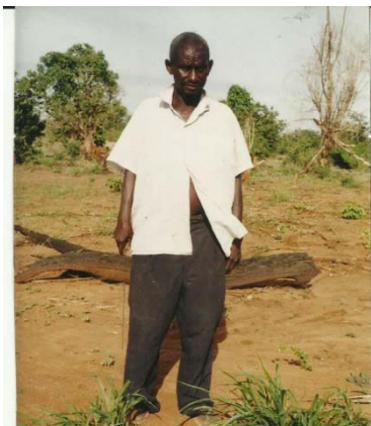
Good Practice

Specific targeting of the youth through information dissemination and invitation to meetings to discuss their participation encourages youth participation in agricultural innovations for improved productivity.

Lesson Learnt

The youth can contribute to agricultural production if they are given the production assets and equitable share of the benefits.

2.5.4 Community approach – Makuyu Village



Ramadhani Gogo - SIMLESA Host Farmer

Makuyu village in Mvomero district, Morogoro Region is one of the villages where the SIMLESA program is implemented. Previously, this village was the highest producer of maize crop in the Mvomero Ward. Recently, however, the farmers yields have been adversely affected by activities of cattle farmers in search for dry season grazing.

In 2012, when crops were ready for harvesting, Mr Ramadhani Gogo, one of the SIMLESA host farmers was shocked to find his maize plot grazed by a herd of cattle.

Gogo decided to take the case to the courts of law, an act that was disputed by some of the community members. The cattle owner was fined Tzshs. 200,000= (≈ US\$ 125), a stiff penalty to deter any other cattle owners from grazing their animals on the SIMLESA plots. The livestock farmer was strongly warned that a repeat action would attract stiffer penalty including imprisonment.

The pastoral community has different values and to them livestock is the more important than crops, even though they get grain from crop farmers. Due to the rampant cases of this nature, the authorities have decided to resolve such matters in the courts of law. During discussion with the pastoral community, they regretted the grazing of animals on cultivated land, but also confessed that they do not have any skills other than those of livestock keeping. They did suggest that the pastoralists should be given crop cultivation skills to enable them grow crops. They proposed that they should be involved in farmer training as well as participation in farmers field days to enable them change their beliefs and production roles.

Livestock Farmer: *“Government should recognise cattle keeping as a means of livelihood in the community. As farmers we are just learning, we do not know anything about crop cultivation. We are thinking and we see the effects of climate change, but we need government intervention. Even if it is adopting agriculture – we need time to learn. How can they expect us to survive without cattle or education?”*

Good Practice

As human population and climate change threaten the livestock keeping as means of livelihood, the pastoralists need to be equipped with skills to cope with reducing animal populations. All categories of persons in the community should be given information on new technologies.

Lessons Learnt

Gender analysis to understand the needs of all categories of people in the community is important for the sustainability of technology, impact on investment and adoption of innovations.

2.5.5 Gender and appropriate technology – Gaetano Alfonse Kurinyago



Gaetano explains to Sakwera how he gets firewood

Gaetano Alfonse Kurinyago is an old man who migrated from Mgeta village to Vitonga over 10 years ago leaving his wife and children behind. Mgeta area is very hilly and densely populated which has put pressure on the land. When Kurinyago moved to Vitonga he was able to get land for cultivation. Later two of his sons followed him and they also got farmland.

Gaetano participates in the SIMLESA project and decided to adopt the technologies on his land because of the three anticipated benefits of food, sauce and firewood. He gets sauce from the pigeon peas and food from the maize. He narrated that after harvesting the pigeon peas; he strips the leaves off the stalks retaining them in the garden and uses the woody part as firewood. According to Gaetano, too many stalks in the field make it difficult to put the rope for line planting, a reason he gives for removing the pigeon pea stalks from the garden.

Gaetano appreciates the skills he gained in fertiliser and herbicide usage without disturbing the soil. Using CA, he is able to plant a large acreage, up to (3-5 acres), as compared to $\frac{1}{4}$ acre when using a hand hoe. Better still he does not have to bend as he does when using a hand hoe.

Good Practice

Provision of appropriate technology for cultivation facilitated Gaetano's participation in CA innovation.

Lesson Learnt

Using CA technology with appropriate inputs saves time and reduces drudgery enabling even the elderly and weak to cultivate enough food to meet the needs of their households.

Annex 1: Gender Differences in Rural Populations

Gender differences	Major Factors
Higher information paucity for and among women compared to men	Rural women face narrow choices of information and low perceptions of the value of indigenous knowledge. The negative effects of this poverty of information in terms of health, agriculture and livestock farming systems, harvesting and marketing, and environmental resource management put the typical rural woman at a distinct disadvantage.
Women's relative lower access to and control over resources	Lack of access to and control over land, water, and energy resources is a key factor of economic poverty, social exclusion, political subordination, and cultural marginalization. Relative to men, women are more likely to suffer the consequence of systemic loss of control over resources, and this also applies to their control over ICT assets.
Imbalances in education and training between men and women	Rural girls and women face a challenging set of circumstances in which the school system and the social structure reinforce each other and work against women's equal access to training, from primary education to higher qualifications to lifelong learning.
Lack of balance in representation of women's and men's needs and interests	Whether through intermediary agencies, local government bodies, and farmers, associations, microcredit institutions, or capacity-building organizations, rural women lack a voice in determining or negotiating their strategic needs, and again, compared to men, are more likely to be left behind in articulating their specific interests. Communication media also play a dual role in reinforcing and challenging gender stereotypes.
Different gender roles in food production	In many regions of the world, women play a vital, if under recognized and unsupported, role in food production. They have less access to extension training, affordable credit, and loans than do men. This works against their access to ICTs as well. By implication, women have less opportunity to articulate, negotiate, or act upon their concerns in the food production sector at the policy level. At the same time, research indicates that women make up to 65 percent of day-to-day on-farm decisions and 80 percent of marketing decisions.
Women's greater dependence on environmental income	Rural women derive a significant portion of their total income from ecosystem goods and services (forests, grasslands, lakes, and marine waters provide resources, such as building materials, fuel, fish, medicinal plants) and from small-scale agriculture. Because of this dependence on environmental income, the poor are especially vulnerable to ecosystem

Source: Gender and Agriculture Source Book (2009) Pg.392

Annex 2: Gender Based Differences in Agriculture

Land Land title and tenure tend to be vested in men, either by legal condition or by socio-cultural norms. Land reform and resettlement have tended to reinforce this bias against tenure for women. Land shortage is common among women. Women farm smaller and more dispersed plots than men and are less likely to hold title, secure tenure, or the same rights to use, improve, or dispose of land.

Extension Women farmers have less contact with extension services than men, especially where male-female contact is culturally restricted. Extension is often provided by men agents to men farmers on the erroneous assumption that the message will trickle “across” to women. In fact, agricultural knowledge is transferred inefficiently or not at all from husband to wife. Also, the message tends to ignore the unique workload, responsibilities, and constraints facing women farmers.

Technology Women generally use lower levels of technology because of difficulties in access, cultural restrictions on use, or regard for women’s crops and livestock as low research priorities.

Finance Women have less access to formal financial services because of high transaction costs, limited education and mobility, social and cultural barriers, the nature of their businesses, and collateral requirements, such as land title, they can’t meet.

Time Women face far greater time constraints than men. They may spend less time on farm work but work longer total hours on productive and household work and paid and unpaid work, due to gender-based division of labour in child care and household responsibilities.

Mobility Women are less mobile than men, both because of their child care and household responsibilities and because of sociocultural norms that limit their mobility.

Education and Training Women are less educated in parts of Africa, Asia, and the Middle East. Illiteracy hampers their access to and ability to understand technical information. Worldwide, women have less access to education and training in agriculture.

Source: The World Bank. World Development Report 2008: Agriculture for Development. Washington DC: The World Bank, October 2007.

Read on..

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¹ Saito, K. *Raising the productivity of women farmers in Sub-Saharan Africa*. 1994. World Bank Discussion Papers, No. 230