Annual Report

Program	**Sustainable Intensification of Maize-Legume-Based Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA)**
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SIMLESA Program target and spillover countries

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Appreciation

CIMMYT SIMLESA Program would like to extend its great appreciation and gratitude to a number of partners who generously availed scarce resources to make SIMLESA work a great success. AUSAID and Fullbright availed funding towards scholarships for SIMLESA NARS staff to study for their PhDs in Australia. ACIAR again availed in-country capacity building grants that have seen a good number of NARS staff not eligible for AUSAID and fullbright enrolling for MSc and PhD studies in their home countries. ACIAR management provided additional resources for a number of important capacity building workshops for NARS staff. ACIAR also provided a lot of technical guidance in terms of program implementation issues. Crawford Fund also availed funding for the Climate Risk Analysis course in Morogoro, Tanzania. IRRI and ACIAR collaborated with financial resources for capacity building of some NARS staff in Impact Assessment training in Manilla, Phillipines. SIMLESA Program would also like to express gratitude to the ACIAR commissioners for the continued financial support towards program implementation. The CIMMYT PMC and Program PSC provided much needed programme oversight during the reporting period. NARS partners also worked tirelessly towards the fulfilment of program goals and objectives. ACAIR once again availed funding for selected researchers from Tanzania, Kenya, Ethiopia and Mozambique and from spillover countries (Botswana, Uganda, South Sudan and Rwanda) to participate in the 5th World Congress on Conservation Agriculture in Brisbane, Australia.

Acronyms

ACIAR	Australian Center for International Agriculture Research
AGRA	Alliance for a Green Revolution for Africa
AIFSC	Australian International Centre for Food Security
APSIM	Agricultural Production Systems Simulator
APSFarm	Agriculture Production Systems Simulation model for the Whole farm System
ARARI	Amhara Regional Agricultural Research Institute
ARC	Agricultural Research Council-South Africa
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
ASSMAG	Association of Smallholder Seed Multiplication Action Group
BARC	Bako Agricultural Research Center
BMGF	Bill & Melinda Gates Foundation
BNF	Biological nitrogen fixation
CA	Conservation agriculture
CIMMYT	International Maize and Wheat Improvement Center
CIRAD	Centre de Cooperation Internationale en Recherche Agronomique pour le Development (Agricultural Research for Development, France)
CORAF	Conference of the Agricultural Research Leaders in West and Central Africa
CRS	Center for Rhizobia Studies (Murdoch University)
CSIRO	Commonwealth Scientific and Industrial Research Organization
DALDO	District Agricultural and Livestock Development Officer
DEEDI	Department of Employment, Economic Development and Innovation, Queensland
DTMA	Drought Tolerant Maize for Africa Project
EGS	Effective Grain Storage Project
EIAR	Ethiopian Institute of Agricultural Research
EPA	Extension planning area
FARA	Forum for Agricultural Research in Africa
HARC	Hawassa Agricultural Research Center
IARC	International Agricultural Research Center
ICARDA	International Center for Agricultural Research in the Dry Areas
ICIPE	International Center of Insect Physiology and Ecology
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDEAA-CA	Associação dos Produtores de Oleaginosas
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Cooperation
IFPRI	International Food Policy Research Institute
IIAM	Instituto de Investigaçao Agraria de Mozambique
IMAS	Improved Maize for African Soils Project
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IRRI	International Rice Research Institute
KARI	Kenya Agricultural Research Institute
LER	Land Equivalent ratio
MARC	Melkassa Agricultural Research Center
MASA	Malawi Seed Alliance
M&E	Monitoring and evaluation
NARES	National Agricultural Research and Extension System
NARI	National Agricultural Research Institute
NARS	National Agricultural Research Systems
NGO	Non-Governmental Organization
OPV	Open pollinated variety
PARC	Pawe Agricultural Research Center
PASS	Program for Africa's Seed Systems
PVS	Participatory variety selection
QAAFI	Queensland Alliance for Agriculture and Food Innovation
SIMLESA	Sustainable Intensification of Maize and Legume Cropping Systems for food security in Eastern and Southern Africa Project
TLII, TL-2	Tropical Legumes II Project
WECARD	West and Central African Council for Agriculture Research Department

1.0 Progress summary

SIMLESA is a four-year (July 2010-December 2013) program funded by the Australian Centre for International Agricultural Research (ACIAR). The aim of SIMLESA program is to improve farm-level food security, in the context of climate risk and change, through the development of more resilient, profitable and sustainable farming systems that overcome food insecurity for significant numbers of farm families in eastern and southern Africa. SIMLESA promotes the use of adapted maize-legume technologies as well as improved varieties and develops comprehensive agronomic packages that increase productivity of maize-legume intercropping systems at farm level. The key focus areas of the project are farmer and stakeholder participation and economic evaluation of the new technologies. The program has an identical set of activities in Ethiopia, Kenya, Malawi, Mozambique and Tanzania. SIMLESA program is being managed by the International Maize and Wheat Improvement Center (CIMMYT) - as the commissioned organization - in collaboration with the National Agricultural Research Systems (NARS) and private seed companies from the five SIMLESA implementing countries, the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Queensland Alliance for Agriculture and Food Innovation (QAAFI) in association with Queensland Department of Employment, Economic Development and Innovation,(QDEEDI/QAAFI-Australia), and Murdoch University in Western Australia. Technical support for national agencies is provided by partner institutions (CIMMYT, ACIAR, ASARECA, ARC-SA, ICRISAT, QAAFI and Murdoch University).

Three baseline survey reports for Kenya, Ethiopia and Tanzania have been produced and writing of reports for Malawi and Mozambique is almost complete. Eight posters and eight scientific papers were developed and presented at the second SIMLESA Annual Review and Planning Meeting (ARPM) in March 2012 in Arusha, Tanzania. Draft farm typologies have been developed for Tanzania and Kenya.

The program mounted 30 on-farms exploratory and 22 on-station trials, and 19 field days that were attended by 5948 participants, as planned under Objective 2. Yield increases from CA exploratory trials have varied from one region to another with increases ranging between zero and 30% over convectional farming practice. Yield increases within CA exploratory on-farm and on-station trials increased on average between 0 and 30% over the true farmer practice. Yields vary according to the seasonal rainfall distribution, soil type and farmer management practice. Local innovation platforms have been strengthened in the five countries to help farmer groups and partners exchange experiences and share knowledge among themselves and key stakeholders.

Under Objective 3, the program established 50 sets of regional trials and mother baby trials (MBT) in collaboration with active 10 partner institutions. In addition, 19 maize and 18 legumes on station trials were conducted in the five SIMLESA countries. Materials under evaluation include drought tolerant varieties dispatched to SIMLESA target countries. ICRISAT supplied 104 medium, 245 long, and 37 short duration varieties of pigeonpea to Kenya, Malawi, Tanzania and Mozambique. Seed road maps were developed for each country with the active participation of local seed companies and public partners.

Under Objective 4, the ASARECA-SIMLESA team conducted a gender mainstreaming training workshop in Arusha, Tanzania. The monitoring and evaluation (M&E) activities centred on further development of the M&E frameworks which included the results framework, the performance monitoring plan, the performance measurement framework and populating it with data from the field. Twenty-three NARS scientists participated in the M&E framework development workshop in Nairobi, facilitated by ASARECA. The technology inventory and knowledge transfers as well as spillover enabling conditions study was carried out.

Under capacity building of Objective 5, a total of 77 NARS researchers participated in an ARC-SA coordinated and facilitated capacity building that targeted at three modules**:** Biometry; CA principles; Soil Science and

Innovation Platforms for five days. Two NARS scientists from Mozambique and Tanzania attended an IRRI coordinated workshop held in Manila, Philippines in July-August 2011. An additional 4WD double cabin all-terrain vehicle was procured for the Mozambique SIMLESA country team. Various pieces of research equipment have already been purchased for the country teams and more are being procured. Six PhD candidates have been awarded the AusAID and ACIAR scholarships for 2012 while 30 candidates have enrolled for MSc and three for PhD in local universities under SIMLESA.

2. Achievement against activities and outputs/milestones: July 2011-June 2012

Table 2.1 gives a general summary of the attainment of SIMLESA program milestones in percentage terms in the target countries[1] while Table 2.1 gives a summary of implementation status of milestones under Objective 1

Table 2.1. Percentage of milestone achieved across objectives and countries in 2011/12 seasons.

	SIMLESA % milestone achievement for 2011						
	Ethiopia	**Kenya**	**Tanzania**	**Malawi**	**Mozambique**	**Regional Mean**	**Comments**
Objective 1	90	90	90	85	85	88	Delays in finalizing agribusiness opportunity surveys. Draft baseline survey reports are ready for sharing with stakeholders.
Objective 2	85	70	70	80	80	80	Innovation platforms have kicked off in most countries though participation of NGOs is still very low. Numbers of exploratory trials not expanding as well as number of adopters.
Objective 3	80	80	80	80	80	88	More participatory variety selection (PVS) and on-farm trials to be undertaken to promote newly released varieties .
Objective 4	85	80	85	85	85	84	Spillover study has been concluded. Draft M&E framework is in place. Gender mainstreaming training for frontline staff still to take place.
Objective 5	80	80	70	50	70	70	Additional project vehicle bought for Mozambique. A second group of Ethiopian and Mozambican scientists won PhD scholarships to study in Australia for 2012/3.

[1] For a detailed milestone achievement analysis refer to Annex 3 of this document.

2.1. Objective 01: Socioeconomic analysis, markets and value chains analysis

Table 2.2. Summary of milestones achievement according to agreed work plans under Objective 01

Output	Milestones	Due Date	Status
1.1: Initial characterization of 10 maize-legume farming systems and selection of 30 research sites/communities	1.1.1: Program communities and sites selected and adjoining control or counterfactual villages identified; and first approximation of socioeconomic profile of the communities within each target zone developed to identify and target hot spots	June 2011	Done
	1.1.2: Indicative opportunities for agribusiness and market development in maize-legume systems identified	June 2012	To be done except for Tanzania
	1.1.3: Socioeconomic and biophysical area profiles developed for selected farming systems	June 2011	Done
1.2: Understanding farmers' maize, legume, livestock and fodder/forage production constraints and potential solutions, opportunities, crop and livestock interactions, risk and risk management strategies, resource use patterns, profitability, technology preferences and market access in the 10 farming systems	1.2.1: Instruments, tools and protocols for survey data collection standardized for all participating countries	June 2011	Done
	1.2.2: Villages and household types identified through household surveys and participating farmers and collaborators engaged	June 2011	Done
	1.2.3: Farm case studies identified and current farmers' decision on resource allocation and their consequences quantified in terms of productivity - risk environmental consequences	June 2011	Ongoing
	1.2.4: Improved understanding of the viability of rain-fed maize-legume systems in Queensland	June 2011	Done
	1.2.5a Research reports for 3 countries completed and shared with partners	Dec 2011	Done ready for sharing
	1.2.5 b Research reports for 2 countries completed and shared with partners	March 2012	To be completed August 2012
1.3 Understanding maize, legume and livestock fodder/forage input and output markets and value chains including chain constraints and opportunities, costs and pricing patterns associated with the 10 farming systems.	1.3.1a Standardized seed and fertilizer market survey tools developed.	June 2011	Done
	1.3.1b Input market chain data and maps for seeds, fertilizer, equipment, pesticides and information gathered for selected markets/countries	Dec 2011	Data for producers completed and report generated along with the baseline survey. Data collection for other actors in the chain will be coordinated together with DTMA project market survey and will be completed end of September.
	1.3.2a Standardized output market survey tools developed.	October 2011	Done.
	1.3.2b Output market chain data and maps (maps, legumes, crop residues-including market shares, costs, price variability, role of grain quality) developed for selected markets.	March 2012	Data for producer completed. Data for other actors will be collected in collaboration with DTMA project market survey.
	1.3.3 Country reports developed on market imperfections and value chain opportunities in seed and fertilizer supply systems.	May 2012	Producer report generated along with the baseline survey report for Kenya, Tanzania and Malawi. Other actors report will be completed by December.
1.4 Farm-household maize-legume-fodder/forage system options identified that are risk reducing and productivity enhancing for testing in the 16 farming systems.	1.4.1a Farm Household typology developed and case studies identified based on household survey data (link to 1.2)	May 2012	Draft report ~~for~~ Kenya and Tanzania completed.
	1.4.1b Existing farmer resource allocation decisions and their consequences on risk-productivity-environment quantified.	May 2012	
	1.4.1c Opportunities for improvement and research questions identified and discussed with the participating farmers and value chain research team.	May 2012	

1.5 Effective adoption and impact pathways assessed for 16 maize-legume and maize-legume-fodder/forage systems	1.5.1a Evaluation criteria, indicators and monitoring processes selected by the team.	Year 1-4	Done and Performance Management plan in place and Adoption monitoring survey instrument developed and survey in all countries will be initiated in August.
	1.5.1b Evaluation criteria and feedback processes implemented on changes in productivity, risk, income at multiple scales.		To be done.
	1.5.1 New opportunities identified from linkages with other programs and local, regional activities (e.g new products, generation of inter-regional and inter-country spillovers)		Survey on potential opportunities for spillover done and first validation workshop done.

The specific country and partner achievements of outputs and milestones for the reporting period (July 2011-June 2012) are presented below:

Ethiopia

SIMLESA program is being implemented in two farming systems based on their maize-legume production systems and agricultural potentials; Hawassa, Meskan, Shalla, Adami tulu, and Dugda districts characterized by low agricultural potential and maize-bean framing system covered by Hawassa Agricultural Research Center (HARC)and Melkassa Agricultural Research Center (MARC). The second farming system is characterized by maize-soyabean production systems, adequate moisture, and high agricultural potential. Bako, Tibe, Gobu seyou, and Pawe districts are categorized under this domain. The SIMLESA team is now working with 58 farmers hosting project exploratory trials selected from 12 farming systems in sub-humid Bako and the Central Rift Valley farming systems. During the reporting period the following activities are accomplished.

- Baseline survey data analysis and report write up is on progress
- Input and output market and value chain survey instruments developed.
- Producers (farmers) input and output market and value chain survey completed. Other actors survey will be carried out end of August together with the DTMA project market survey
- Typology-specific data was collected and typology development is in progress.
- Adoption monitoring survey instrument developed to estimates number of SIMLESA technologies adopters and number of farmer aware of SIMLESA activities. The survey will end on August.
- Three posters produced based on the baseline survey and presented at the SIMLESA second annual review and planning meeting
- The following scientific papers produced using baseline survey data
    - On the joint estimation of multiple adoption decisions: The case of sustainable agricultural technologies and practices in Ethiopia. Contributed paper presented at the 28th Triennial Conference of the International Association of Agricultural Economists (IAAE) in Brazil from August 18 to 24, 2012.
    - Adoption of bio-diversification, conservation tillage and modern seed: Welfare and environmental implications. Contributed paper presented at the19th Annual Conference of the European Association of Environmental and Resource Economists (EAERE) in Prague, Czech Republic, 27 - 30 June 2012.

Kenya

SIMLESA is covering two maize-legume farming systems; Western Kenya highlands (medium elevation of 1,100-1,600 metres above sea level): has good potential for agriculture with deep, well drained soils and relatively high-medium rainfall (1,200-1,800mm per year), that falls under the jurisdiction of Kenya Agricultural Research Institute (KARI)-Kakamega Research Center. The areas have two crop growing rainy seasons. The second zone is the central Kenya highlands, where KARI-Embu Reserach Centre is located characterized by multiple crops, with maize and beans being the most important food crops. In the lower areas of this zone, drought tolerant legumes, mainly pigeon peas are grown.

In Kenya the socio-economist team has achieved the following activities between July 2011 and June 2012.

- Workshops (one in Embu and one in Kakamega) to validate baseline survey results carried out and the report was well received by the participants with minor comments. An agreement reached to extract basic information for SIMLESA team members and extension agents
- Input and output market and value chain survey instruments developed
- Producers (farmers) input and output market and value chain survey was done while survey tools for other actors have been developed. Other actors survey will be began end of August together with the DTMA project market survey
- A draft typology analysis and report for the farming communities produced
- Adoption monitoring survey instrument developed to estimates number of SIMLESA technologies adopters and number of farmer aware of SIMLESA activities. The survey will end on August.
- The socioeconomics team continued with participatory farmer variety evaluation and data collection on labour, herbicides, price and yield for calculating gross margins on different varieties and other technologies.
- Trained extension agents working in SIMLESA sites on partial budget analysis and data collection
- Two posters (one on gender and technology adoption and one on typology) produced based on baseline survey data and presented at the SIMLESA second annual regional review and planning meeting
- The following scientific papers produced using the baseline data
  a) Analysis of Farmers' Preferences in Choice and Adoption of Maize and Bean Varieties in Kenya. Paper accepted for presentation and publication in KARI conference proceedings October 2012
  b) Determinants of Food Security in Kenya, a Gender Perspective. Contributed paper presented at the 86th Agricultural Economics Society(AES) annual conference held at Warwick university from 16 to 18, 2012, UK.
  c) Adoption of Agricultural Technologies in Kenya: How Does Gender Matter. Contributed paper accepted for presentation at the 28th Triennial Conference of the International Association of Agricultural Economists (IAAE) in Brazil from August 18 to 24, 2012.
  d) Tradeoffs in Crop Residue Utilization in Mixed Crop-Livestock Systems and Implications for Conservation Agriculture and Sustainable Land Management. Contributed paper accepted for presentation at the 28th Triennial Conference of the International Association of Agricultural Economists (IAAE) in Brazil from August 18 to 24, 2012

Tanzania

SIMLESA program in Tanzania is being implemented in two maize-legume farming systems; the eastern zone low agricultural potential farming system characterized by maize and pigeonpea and the northern zone high agricultural potential farming system (Karatu and Mbulu) characterized by maize-pigeonpea. In the eastern zone farming system, the project is being implemented in two districts (Kilosa and Mvomero). Baseline survey report to be circulated to stakeholders for their comment and feedback

- The rapid rural appraisals for identifying agribusiness and market opportunities in maize-legume systems completed along with secondary data collection and literature review.
- Input and output market and value chain survey instruments developed
- Producers (farmers) input and output market and value chain survey was done while survey tools for other actors have been developed. Other actors survey will be initiated end of August together with the DTMA project market survey
- Adoption monitoring survey instrument developed to estimates number of SIMLESA technologies adopters and number of farmer aware of SIMLESA activities. The survey will be started on August.
- The socioeconomics team revised the data collection sheet of objective 2 and continued with participatory farmer variety evaluation and data collection on labour, herbicides, price and yield for calculating gross margins on different varieties and other technologies.
- A draft typology analysis and report for the farming communities produced
- Training for extension staff on experimental data analysis and data collection provided

- Fourteen posters produced using SIMLESA baseline survey data and presented at the SIMLESA second annual review and planning meeting.
- Three papers produced based on the baseline survey
  - Seed Market Liberalization, Hybrid Maize Adoption and Impacts On Smallholder Farmers In Tanzania. Visual contributed paper accepted for presentation at at the 28th Triennial Conference of the International Association of Agricultural Economists (IAAE) in Brazil from August 18 to 24, 2012.
  - Improved Maize Technologies and Welfare Outcomes In Smallholder Systems: Evidence From Application of Parametric and Non-Parametric Approaches. Contributed paper accepted for presentation at the 28th Triennial Conference of the International Association of Agricultural Economists (IAAE) in Brazil from August 18 to 24, 2012.
  - Interdependence in Farmer Technology Adoption Decisions in Smallholder Systems: Joint Estimation of Investments in Sustainable Agricultural Practices in Rural Tanzania. Contributed paper accepted for presentation at the 28th Triennial Conference of the International Association of Agricultural Economists (IAAE) in Brazil from August 18 to 24, 2012.

Malawi

The program is being undertaken in two maize-legume farming systems; the high potential farming system in Lilongwe, Mchinji and Kasungu districts that is characterized by maize and soyabean intercropping; and the low potential farming system in Balaka, Salima and Ntcheu districts, characterized by maize and groundnuts or pigeonpea intercropping.

The following activities accomplished/ongoing:

- The baseline survey report is under revision
- Market and value chain surveys instruments were developed and circulated to stakeholders for comments
- Producers (farmers) input and output market and value chain survey was done while other actors survey will be started end of August together with the DTMA project market survey
- Adoption monitoring survey instrument developed to estimates number of SIMLESA technologies adopters and number of farmer aware of SIMLESA activities. The survey will be started on August.

Two posters were developed for the annual review meeting, based on community survey results as follows:

- Farmer participatory research: a tool for enhancing uptake of CA maize-legume based technologies in Malawi;
- Characterisation of Maize-legume Cropping Systems and Farm Households in Malawi.

Socio-economic secondary data collected helped to map out food security and population density among others (see SIMLESA website

Mozambique

SIMLESA is covering two maize-legume farming systems: Manica-Tete farming system in Angonia, Manica and Sussundenga districts, characterized by maize-groundnuts-beans intercropping; and Sofala farming system in Gorongossa district, characterized by maize-beans-groundnuts intercropping. The socioeconomics team has undertaken the following activities during the reporting period.

- Baseline survey data analysis will be completed end of July 2012
- Input and output market and value chain survey instruments developed
- Producers (farmers) input and output market and value chain survey was done while other actors survey will be started end of August together with the DTMA project market survey
- Seven posters using baseline survey and field experiences were developed for the second SIMLESA ARPM.

- Adoption monitoring survey instrument developed to estimates number of SIMLESA technologies adopters and number of farmer aware of SIMLESA activities. The survey will be started on August.

Australia

In Queensland SIMLESA is being pioneered in two distinct farming systems; the north eastern farming system characterized by summer dominant rainfall; and the Darling Downs farming system in Toowoomba, Goondiwindi, South Downs and Western Downs characterized by fertile agriculture areas. Data on population, crop production, simulated yield gaps, and grain requirement per person were integrated in a cluster analysis and used to identify regions of potentially high return for investment in research, development and economic projects across southern and eastern Africa. QAAFI and DEEDI have completed the exploratory visits to the target areas, visits to communities, and participated in the selection of sites in collaboration with the African partners. GIS maps and socioeconomic, climatic and biophysical area profiles are available from http://apsrunet.apsim.info/simlesa. As of 10th January 2012, QAAFI had received baseline data set from CIMMYT to develop the analysis of typologies for only Tanzania. Data for other countries is expected anytime, once it is ready for distribution.

A preliminary analysis of typologies for Tanzania were presented at the second SIMLESA ARPM in Arusha where feedback was received from CIMMYT and partners and the final version will be produced by the end of 2012. This analysis will be repeated after feedback from CIMMYT's and Tanzanian team of Socio-economists. Generic household models are being developed by linking the Agriculture Production Systems Simulation model for the Whole farm System (APSFarm) (Rodriguez et al., 2011) and LivSim (Ruffino et al., 2008) models, in collaboration with African partners and ILRI.

The integration of population, production, simulated yield gap, and grain requirement per person in a cluster contributed towards the identification of regions of potentially high return for investment in research, development and economic projects across eastern and southern Africa. 'Dr Rodriquez and his team facilitated a five-days Climate Risk Analysis course in Morogoro for 20 scientists from the five SIMLESA countries to prepare them for climate risks and changes that was funded by the Crawford Foundation.

To gain an understanding of maize-legume production systems and their constraints, DEEDI scientists visited a range of villages and farmers across Ethiopia, Kenya, Malawi, Mozambique and Tanzania. Travel reports were produced along with an initial description of farmers' allocation of resources, including the key issues they faced in intensifying food production. These visits also helped the team to envisage the type of information that would be required to describe smallholder farms in the Agricultural Production Systems Simulator (APSIM) and (APSFarm) simulation models. A number of farming systems have been described and DEEDI scientists are working to create a number of templates for the virtual representations of these smallholder farms in APSFarm.

2.2. Objective 02: To Develop productive, resilient and sustainable smallholder maize-legume cropping systems and innovation systems for local scaling out

A number of outputs based on the proposed milestones were targeted for the reporting period (Table 2.3)

Table 2.3. Summary for relevant outputs and their achievement under Objective 02 during the period July 2011-June 2012.

Output	Milestone	Date due	Status/ Comments
2.1. Identified options for systems intensification and diversification, that reduce risk in the 10 farming systems using systems modeling	2.1.1: Lists of potential technologies prepared for the target farming systems/agro-ecosystems in each of the project countries	December 2010	Done
	2.1.2: Potential systems, practices and risk management strategies identified for the sustainable increase of maize system productivity and legume options for system diversification	December 2010	Done & ongoing
2.2. Functioning local innovation systems developed in each of 16 maize-legume and maize-legume-livestock farming systems to help overcome system limitations and enhance scaling out of technologies	2.2.1: Diverse set of potential innovation system members invited to participate in field visits and efforts to increase the productivity of maize-legume systems in each of the 10 agro-ecologies; and initial innovation systems formed in each agro-ecology	June 2011	Ongoing
	2.2.2: At least one field visit with the innovation system members conducted during the crop season in each target maize-legume system and visiting at least half of the target communities; and post-harvest visit of the innovation system members to each target maize-legume system to discuss results, problems and limitations and measures to overcome them	June 2011	Done
	2.2.3: Telephone and/or email network established between members of each local innovation system, and electronic newsletter initiated and circulated to all members of the local innovation systems in each country at least twice per year	June 2011	Not done
	2.2.4 Innovation system members working on solutions to observed problems and limitations in the local maize-legume systems.	January 2011	Ongoing
	2.2.5 Documentation of most effective innovation processes and reasons for their success	2011, 2012	Not done
2.3. Evaluated exploratory trials of current best options for maize-legume smallholder systems, including systems involving livestock, evaluated for different farm types with 5-6 cooperating farmers in each of 30 research sites/communities	2.3.1: Community awareness meeting held in each target community informed by the results from Activity 1.2	June 2011	Done
	2.3.2: Farmer groups, and 5-6 field sites established in each community	June 2011	Done
	2.3.3 Basic soil, climate, land use, topography and cropping history data available for each of the exploratory trial sites.	Dec 2011	Done
	2.3.5 Data available on qualitative and quantitative evaluations of exploratory trials by farmers and other members of the local innovation platforms	August 2011	Ongoing
2.4 Adjustments to the maize-legume-livestock systems tested in the exploratory trials and farmer experiments developed with farm and soil quality, system productivity and disease, pest and weed dynamics.	2.4.1 On-farm research program defined in each country after the first season of trial plots, ex ante technology analysis and analysis of household data.	October 2011	Ongoing
	2.4.2 Data to enable the adequate parameterization of the APSIM and APSFarm models available from on-farm research and case study sites	October 2011	Ongoing
	2.4.3 At least four trials established on representative sites in each agro-ecology.	Jan 2012	Ongoing
	2.4.4 Precise data on crop productivity and water dynamics available for crop/soil simulation model validation	July 2011	Ongoing
	2.4.4 Data available on the effects and potential effects of principal technological interventions addressed by the project on soil quality, BNF, and disease, pest and weed dynamics	July 2012	Ongoing
	2.4.6 Improved understanding of eco-physiological traits to improve maize adaption to different environments and management practices.	December 2011	Ongoing
	2.4.8 Annual Evaluation &Planning Meetings held in each country each year during the period between crop cycles to evaluate results and incorporate them into plans for the following season.	2011, 2012, 2013	Done & ongoing
2.6 Lessons from active farmer experimentation with CA-oriented systems incorporated into on-farm research trials in each of the 30 research communities.	2.6.1 Farmers installing or who plan to install maize/legume CA-based experiments on their own fields identified.	December 2011	Ongoing
2.7. Members of the innovation platform share experience through annual and bi-annual facilitated visits and consultations among the 16 targeted communities in each of the five countries.	2.7.1 Communities with similar conditions to the target communities identified	Annually	On going
	2.7.2 Farmer to farmer networking for scaling out of knowledge and technological innovations.	March 2012	Done and on going

A number of inception community awareness raising meetings were conducted where potential technologies were identified by technocrats, extension staff, community members and CIMMYT researchers. For example in Southern Africa for Mozambique 4 CA options were identified each in the high and low rainfall areas while in Malawi 3 CA options were identified for the mid-altitude areas with 4 for low altitude area. Details of specific country and partner outputs and milestones achievements towards Objective 02 are as follows:

Ethiopia

Field days and monitoring visits were undertaken by NARS, NGO partners, CIMMYT scientists and SIMLESA Program Management Committee (PMC) members during the season.

MARC researchers undertook site and farmer selection in the scaling out communities, trainings, awareness creation, input and other logistical preparation for planting as well as planting, soil sampling, pre-planting herbicide application and on-farm exploratory trials planting for the second season. The researchers and partners participated in local innovation platform meetings to chart the way forward.

Maize-bean intercropping and rotation under CA were identified as best-bet technologies to be scaled out in 24 communities in the four target districts (Boset, Meki, Adami Tulu and Shalla). Besides, every district bureau of agriculture has assigned one SIMLESA focal person to facilitate and follow-up activities implemented in the selected communities. In the 2012 cropping season, more than 200 farmers are expected to plant maize-legume intercropping under minimum tillage (one pass during planting) as a part of the scaling out of CA based cropping systems. Four treatments (sole maize, maize-legume intercropping, bean-maize rotation under CA; and sole maize and conventional tillage practice under farmers practice) including CA options and conventional practices were still being used for the exploratory trials. The crop varieties used for the exploratory trials was for maize Melkassa-II with common bean varieties are Nassir and Awash-1(red and white seeded variety respectively and commonly grown for commercial purposes). The trials are planted on 22 farmers' fields in four communities across two zones (east Shoa and west Arsi) in the Central Rift Valley. The names of the communities managed under MARC are Awara-Gama, Gerbi-Widena-Boromo, Jewe-Bofa and Sara. Maize was planted at Shalla and Adami Tulu while bean was only planted at Shalla. Data collection for the critical early stages is underway as planned.

In addition, the agricultural mechanization department has planned to evaluate some CA implements (including Jab planter) on three farmers' field each at two districts (Adami Tulu and Boset) as part of the adjustment to be made on observed problems of CA based maize-legume farming in the intervention areas.

HARC is continuing with work from of the previous season where 16 farmers from Badwacho, Meskan and Hawassa Zuria districts have managed to apply pre-emergence herbicide, prepared inputs and fenced their fields to execute the on-farm exploratory trials. The treatments will be CA sole maize, CA sole haricot bean, CA haricot bean after maize rotation, CA maize-haricot bean intercropping and conventional practice. As at the time of reporting, trials had been planted at Hawassa Zuria and Badwacho districts. Meskan district had not yet received effective rainfall for planting. However, in Hawassa Zuria District most of the maize and beans intercropping plots didn't grow very well due to a month-long dry spell after planting.

In order to promote scaling out of CA based maize-bean intercropping (the best performing technologies) 100 farmers from Badwacho and Meskan and 139 farmers from Hawassa Zuria districts were provided with the required inputs (herbicides, fertilizers and seeds) for their 20m X 20m plots. Accordingly, basic CA training was provided for development/extension agents of the respective communities.

Exploratory trials at Bako Agricultural Research Center (BARC) consisted of six treatments each, planted on 10 farmers' fields in Bako Tibe and Gobu Sayo districts (five per district). A maize hybrid variety (BH543), common bean variety (Anger) and soybean variety (Dedessa) were used for the study. Additional 30 farmers were selected to implement some promising CA technologies combined with either (Maize-Legume rotation or maize-legume intercropping under CA conditions). Pre-planting herbicide, Round-up was used on all on-farm exploratory trial plots, including the newly added 30 scaling out farmers, and planting commenced in June 2012 due to late rains. As at the time of reporting, planting had been done on 14 farmers' fields from Gobu Sayo and Bako Tibe districts.

At Pawe Agricultural Research Center (PARC), exploratory trials with treatments similar to BARC were planted in Pawe and Guangua districts except for the CA sole legume that is not included in PARC treatments. The maize varieties being used in PARC are BH-540 and BH-660 at Pawe and Guangua, respectively and the same soybean variety, Belessa-95, was used in both districts on 10 farmers' fields. Planting of the trials was delayed because of the late rainfall. However, the necessary pre-planting activities such as application of pre-planting herbicide (Glyphosate at 3l/ha), soil sampling and installing rain gauges in representative areas (one per a community) in Pawe and Guangua has already been done. In order to promote the scale out of CA based best-bet technologies (maize-soyabean intercropping), 30 farmers were selected from four additional districts (Pawe, Dibate, Mandura and Addis-Alem) and together with their extension staff were trained in principles and management of CA based cropping systems. A Jab planter was also demonstrated to the trainees and most farmers have showed great interest for the implement. Eight on-station and 55 on-farm trials were established with the active participation of other partner institutions. Nine field days were facilitated over the reporting period.

Kenya

The team established 56 on-farm exploratory trials in eastern Kenya and 50 in western Kenya. Forty nine conservation agriculture (CA) based trials are in their 3rd year of implementation among four communities. Neighboring farmers to those hosting exploratory trials have started implementing some of the CA components that are being tested with the one on minimum soil disturbance and also furrow and ridges with herbicide application being the most popular. An APSIM simulation model for predicting crop performance closely reproduced the actual maize yield upon testing. Innovation platforms were established and used for several functions including evaluation of technologies being developed and results presented in planning meetings. Six field days were conducted in both eastern and western Kenya, attracting 1,850 and 2,234 participants respectively (see Table 2.4) The Kyeni field day in December had the least number of people because it was held on a Saturday when many people were out participating in weddings, burials and other socio events.

Table 2.4: Site, number of exhibitors and demonstrations conducted in field days in eastern Kenya

When	Site	No. Exhibitors	No. of Participants
July 2011	Kyeni	6	243
December 2011	Kyeni	12	162
July 2011	Mweru	22	555
March 2012	Kyeni	96	1248
TOTAL		**130**	**2234**

Exchange visits were held for extension staff and farmers hosting exploratory trials in Kyeni, Mweru, Mariani and Mworoga project sites. The farmers were exposed to the project promoted maize-bean cropping systems under CA approaches that can be of great benefit towards improving adequate food to their families. For instance, *on* 26th January 2012, 15 male and 14 female farmers drawn from three sites toured Mrs. Purity Wanjiku's farm in Embu North District. It is only Kyeni site that had more female than male farmers participating in the tours.

Tanzania

For the 2012 cropping the team established 19 exploratory field trials in Mbulu District at Masqaroda, Bargish Uwa and Daudi and 13 in Karatu District at Rhotia and Bashai in the Northern zone. A further 44 exploratory trials were establishes in Dodoma Isanga and Mandela in Kilosa District, Makuyu and Milama in Mvomero District and Msingisi in Gairo District in the Eastern zone.

Two farmers' field visits were facilitated for Mbulu and Mvomero during mid- cropping season. Another visit is planned for Karatu and Kilosa in the second half of 2012. A poster on the profitability of CA over other technologies was presented during the Annual Review and Planning meeting in Arusha

Geo-referencing for on farm and on station sites was done both for the Northern and Eastern zones. Soil sampling and collection of biophysical data from all sites for exploratory trials and long term trial on station has been done. Soil sampling for moisture determination and soil nutrient status at different crop development stages was conducted.

A telephone network was developed among innovation platform (IP) members in the five districts to ease and encourage IP members were to communicate with other participating parties on progress and problems. Brochures are already developed for distribution in Mbulu, Karatu, Kilosa, Gairo and Mvomero.

Mozambique

Community awareness meetings in targeted communities are continuing so as to scale up SIMLESA work and increase both exploratory trials and impact on the ground. The Instituto de Investigaçao Agraria de Mozambique (IIAM) SIMLESA team facilitated the planting of 40 CA exploratory trials with best bet treatments in seven sites. A fifth location in Gondola District is being run by an innovation partner, (IDEAA-CA) to upscale SIMLESA activities in the country. IPs were established in each location to add to one already in place in three sites. Prior to the start of the second season, community level planning meetings were conducted in July – August 2011 with local innovation platform members during which farmers had the opportunity to critique SIMLESA's activities as well as input into the next season's planning. These meetings provided forums for exchange of ideas among farmers as well as linkages across objectives since all objective team members were involved. Outputs from these community meetings were fed into the national evaluation and planning meeting held in September 2011 in Chimoio. Farmer training prior to planting was conducted in each community by the Mozambican team enabling farmers to get a better appreciation of the CA principles and techniques involved.

Six long term trials covering different studies were established at the Instituto Superior Politecnico de Manica (ISPM), N'tengo-Umodzi Agronomic Station and Sussundenga Research Station (1:12 treatments with different CA options; 1 for termite control options and 1 for weed control options) and Angonia Research Station (12 options and crop intensification trial well as a weed management strategy trial). Four on-farm trials with CA, two in Angonia and another 2 in Sussundenga were selected for APSIM data collection. Combined field tours by CIMMYT-SIMLESA, Malawi SIMLESA and local partner staff were conducted in Manica-Tete and Sussundenga Province in February 2012 to learn and share experiences on CA. Local innovation platform members (IDEAA-CA, Dengo Commercial and International Fund for Agricultural Development (IFDC), local agrodealers and extension staff) participated in the field tours. Participants visited long-term researcher-managed trial sites at N'tengomodzi Research Station in Angonia, Tete Province and at the ISPM in Chimoio.

Pre-harvest training was conducted with the technicians at ISPM to equip them with skills for harvesting the on-farm trials as well as the new on-station trials. Field data books were developed and translated into Portuguese for use by the field staff in data collection. APSIM soil samples were collected from the on-station trials and sent to Harare for analysis.

Malawi

Community awareness raising meetings to introduce the SIMLESA project and CA techniques were conducted in all the neighboring communities to promote the concept of CA. A training workshop on CA techniques was conducted for 32 officers (extension staff, researchers and staff from partner institutions). On-farm sites were found to be well laid-out, within the principles of experimentation. In cases where the layout was not properly done, adjustments were made by farmers, in collaboration with the research team. Combined field tours by CIMMYT SIMLESA Harare, SIMLESA Ethiopia and IFAD-funded CA program were carried out in Balaka, Lemu, Ntcheu, Lemu and Salima districts. Study tours and exchange visits for extension staff and farmers staff from Balaka (Rivirivi EPA) were also conducted to enable the extension staff to get an appreciation of the massive upscaling activities in Mitundu (Lilongwe district) where four farmers and seven extension workers participated in the exchange visit. The team visited the fields of the farmers in Chiwiri Section under Group Village Headman Chitsamba. Field days were also held in Mtundu, Mchnji, Kasungu and Ntcheu districts where farmers witnessed CA implemented with excellence. .

On the 25th of April 2012, a total number of 62 farmers, 34 male and 28 females from Ntcheu and Balaka districts took their time of their fields to share their experiences with CA with farmers doing the farming system in Lemu area. The farmers were accompanied by officials from CIMMYT, Chitedze Research Station, Balaka Agricultural District Office, Machinga Agricultural District Office as well as their frontline extension staff. The chairlady then requested one of the hosting farmers to briefly give the audience the background of their new farming system of "*Ntayamakasu*" in the local language, meaning "throwing out the hoe". The farmers exchange visit process can result in radical changes in farmers' mental maps of their role in the process of technology generation and diffusion. Through involvement in the project, farmers realize that they are capable of experimenting, offering solutions, communicating and transmitting technological options to others. It is a process that builds enthusiasm, self-confidence, pride and hope for the future for farmers. Motivation grows as creative capacities are tapped, and the attitude of dependency on external actors diminishes as farmers begin to identify themselves as experimenters. The crucial fact is that farmers involved in the project view it as a way to break the monopolization of the technology-development process by agricultural professionals. Thus the organized farmers exchange visit has a lot to bring if successful scaling up of technologies is to be a reality.

On 27th April 2012 SIMLESA participating farmers from Tembwe EPA of Salima District went on an exchange visit to see how their counterpart farmers in Nkotakota are practising CA. The visitors were composed of 13 men and 15 women who included the exploratory trials implementing farmers, members of the research committee, community leadership (village headmen) and other interested participants as well as 2 extension officers from Tembwe. The objective of the visit was to enable the visiting farmers to share and learn from experiences on CA with their relatively more experienced farmers in Nkotakota to witness some of the CIMMYT-TLC initiatives on CA where farmers have gathered experience over the last seven years.Farmers from Nkotakota have been implementing CA studies through support from Total Land Care and CIMMYT over the last 6 years and funded by the International Fund for Agricultural Development (IFAD). The visit was facilitated by staff from Chitedze Research Station; the CIMMYT Regional Agronomist for Objective 2 and two staff members from the Department of Agricultural Communications. It was apparent that all CA plots had good residue cover and the crops under CA looked very impressive. Weed control was also very good and the farmer indicated that they had used herbicides on the CA plots. Major benefits noted by the farmers included labour savings from land preparation and weeding in CA plots through use of herbicides, reduced striga weed incidence in CA plots and lower termite damage in the CA plots.

Work on the promotion and strengthening of local innovation platforms is ongoing. Extension staff members are using an innovation data sheet indicating total number of potential and relevant stakeholders who wish to be involved in working with innovation platforms in different agro-ecologies and farming communities. One student was hired to collect soil moisture data in three districts: Lilongwe, Kasungu (where over 45 farmers are implementing CA trials) and Mchinji (where over 30 farmers are practising CA on their own) using the TDR300 probe. Four extension staff members participated in an ARC-South Africa facilitated training covering Conservation Agriculture, Biometry Principles, Soil Health and Innovation Platforms. Some of the prospective stakeholders identified to participate in the innovation platforms within the project sites were: Total Land Care, Save the Children, the United Nations Children's Fund (UNICEF), N2 Africa, World Vision, agro-dealers, input suppliers and ICRISAT.

Pre-harvest training sessions were conducted by CIMMYT staff on 30 March in Salima to equip all the field staff with skills to harvest the trials and to recap on correcting errors encountered last season. New protocols for on-station trials were developed by the CIMMYT Objective 2 agronomist and new data collection methods were developed to improve data collection from the on-farm trials through updated field data books visit checklists.

Community workshops were also conducted in Mitundu of SIMLESA farmers in line with CA2Africa studies to identify key drivers for CA adoption and up-scaling among farmers in Malawi. Over 70 farmers have started implementing CA on their own in Mitundu.

Equipment purchased included automatic weather stations for both Chitala (Malawi) and another two for Mozambique (N'tengomodzi and ISPM).

Queensland Alliance for Agriculture and Food Innovation (QAAFI) in association with Queensland Department of Employment, Economic Development and Innovation (QDEEDI)

The team achieved the following during the reporting period:

- QAAFI and DEEDI provided training on soil sampling and data collection at an Addis meeting (funded by Crawford Fund).
- Supplementary documentation on plant, soil and climate data collection for APSIM provided to CIMMYT in November and EIAR scientist in December.
- DEEDI assisted KARI scientists to obtain farmer input on trial design at meetings in Kenya in June – Desmodium intercrop too difficult to manage, staggered planting of Desmodium to be tested, better bean cultivar for intercropping needed.
- QAAFI and DEEDI initiated a fertilizer trial for Mandela, Tanzania in 2012 to help farmers learn more about using fertilizer for crop production.
- QAAFI and DEEDI formulated climate risk management and agronomy recommendations with NARS scientists at training workshop in Tanzania in November and circulated to farmers at Mandela in local language.
- QAAFI and DEEDI assisted NARS scientists to develop a sampling strategy for APSIM data sets (two on-farm trials per agro-ecology, all on-station trials) at Addis meeting in March and helped select target villages at the annual planning meetings in Malawi, Mozambique, Tanzania and Kenya during September to December.
- QAAFI and DEEDI initiated collaboration with ILRI to develop the livestock component in APSFarm in September, followed by data exchange and code development beginning in December.

- QAAFI and DEEDI supported CIMMYT and NARS in developing protocols for long term system trials and weed control trials in Malawi and Mozambique, and crop intensification trials in Mozambique and Kenya during September to December.
- DEEDI has initiated collaboration with CIMMYT and the French Agricultural Research Centre for International Development (CIRAD) scientists in September to simulate long term CA trials in Zimbabwe and Zambia with extensive crop and soil response data. Preliminary APSIM analysis has identified data quality/interpretation issues and a modeling workshop is planned for July 2012 to progress evaluation of model performance in CA systems.
- QAAFI and DEEDI extensively contributed towards developing protocols for the researcher managed trials, supporting their implementation, and analysis of results. A second advanced training course on the use of APSIM is being prepared for the second half of 2012, contingent to Crawford Funding. The objective of this training is to support the NARS to use simulation tools to simulate their own data. This will be crucial for the NARS to produce more complete and integrative journal publications and to acquire advanced skills in the use of systems modeling technologies.
- Preliminary analysis of maize-mungbean intercropping in Queensland, Australia presented at the 5th World Congress on Conservation Agriculture.
- Enhanced capacity to scale out research via the parameterization and validation of APSIM model for replacement maize and mungbean intercropping system.
- Identification of novel multi-crop systems with potential to fill niches in mechanized cropping systems practiced in Queensland. Systems were identified in consultation with farmers, agribusiness and researchers in the Darling Downs, South Eastern Queensland, Western Downs Maranoa and Central Queensland regions.
- Establishment of two on-station field trials during the 2011-2012 summer that explore novel multi-crop systems identified in consultation with industry. These experiments explore the potential for temporally and spatially offsetting interspecific and interspecific competition.
- Monitoring commercial sole crops for opportunities to relay or intercrop and assisting with on-farm multi-crop trials.
- Preliminary evaluation of APSIM to simulate maize-legume systems in Africa was presented at the 5th World Congress on Conservation Agriculture and is on-going in 2012 with more detailed evaluations.
- Assessment of double cropping options in higher rainfall environments and seasons in western Kenya presented at the 5th World Congress on Conservation Agriculture.
- Conducted model analysis of maize-bean intercropping systems response to N fertilization and crop intensification strategies at Angonia, Mozambique.
- Provided APSIM training and modeling support to CIMMYT scientist to examine land allocation thresholds to achieve food security at varying levels of N fertilization (October-December).

Murdoch University

In strengthening the capacity of NARS under Objective 02, Murdoch University conducted a course on nitrogen fixation at the University of Wageningen in the Netherlands from 18 to 22 October 2010 where two SIMLESA scientists attended. Murdoch University identified the countries best suited to initiate BNF research through SIMLESA (Ethiopia and Tanzania). Murdoch University identified the potential role players and suitable research facilities in Ethiopia. Another training course on biological nitrogen fixation is planned for mid-July 2011 in Nairobi.

2.3. Objective 03: To increase the range of maize and legume varieties available for smallholders through accelerated breeding, regional testing and release, and availability of performance data

Table 2.5. Summary of achievements and outputs under Objective 03 during the period July 2011-June 2012.

Output	Milestone	Date due	Status/ comments
3.1. Ten to 15 stress tolerant maize varieties,10 higher yielding legume varieties and five appropriately adapted fodder/forage species available to farmers in the selected farming systems through farmer- and seed company-participatory variety evaluation and release **(Output 3.1 and 3.2 merged under the new proposal)**	3.1.1: Per farming system, identification of four pre-release or newly-released hybrids and OPVs with potential suitability for the targeted farming system for use by Objective 2 and use in farmer-participatory evaluation	June 2011	Done
	3.1.2: Per farming system, 1-2 potential legume species and two varieties each for the target communities identified	June 2011	Done
	3.1.3: Seed for farmer-participatory maize and legume variety evaluation	June 2011	Done and On going
	3.2.1: Regional nursery (maize) or bi-directional exchange (legume)	June 2011	Ongoing
	3.2.2: Test cross progeny for southern Africa	June 2011	Not done
	3.2.7: Irrigation for nurseries, contribution to cold room maintenance	June 2011	On going
	3.2.8: MoU for germplasm exchange established	June 2011	Done in some countries

In all the partner countries, NARS, CIMMYT, ICRISAT and QAAFI-University of Queensland breeders have identified maize and legume verities for on-farm mother-baby trials, PVS and seed production initiatives. Table 2.5 above gives an overview of milestones that were to be achieved by June 2012. The specific country and partner achievements in terms of outputs and milestones towards meeting Objective 03 are outlined below.

Ethiopia

Several on-farm and on-station PVS trials of pre-release and released maize and legume varieties have been conducted in different communities.

Melkassa Agricultural Research Center (MARC) is testing one set of maize PVS trial containing 10 genotypes (six elite pre-release and four released varieties) on eight farmers' fields in two communities (Boset and Adami Tulu). Five maize varieties were identified for potential release in each target area. These were then used in farmers' PVS trials. Six potential legume species were identified for PVS and intercropping compatibility with maize. Ten maize hybrids and OPVs and eight legume varieties of different species with potential suitability for the targeted farming system are being scaled at Awassa, Bako and Melkassa research centers. A total of 200 maize inbred lines and 80 legume genotypes were planted for seed production at different centers. Four field days were organized at Adami Tulu, Shala, Guagua, Dare Bafano Tibe and Gobu Seyo where a total of 338 males and 101 females participated.

Three PVS trials with eight common bean varieties (Awash-1, Awash Melka, Nasir, Dinkinesh, Deme, GLP-2, ECAB-0081 and ECAB-0056) were evaluated at Shala, Bulbula and Bofa locations in the Central Rift Valley. Farmers preferred small red bean (Nasir, Dinknesh and Deme) at Shala, and small white bean varieties (Awash-1 and Awash Melka) at the Bulbula and Bofa locations. Similarly, three more PVS bean-maize intercrop trials were conducted with eight common bean varieties (at 50% of the recommended density) with one maize variety

(Melkassa 2 at 100% density). Beans were intercropped when the maize reached knee-height stage (30-35 DAS). Analysis of data on grain yield and yield components revealed a greater than 5% yield increment when Melkasa2 was intercropped with Deme, Dinknesh and GLP-2 as compared with sole cropping. Similarly, higher numbers of cobs were obtained when Melkassa2 was intercropped with Dinknesh, GLP-2 and ECAB-0056 compared to a sole crop of similar maize varieties. Among the bean varieties evaluated for their compatibility, Deme, Awash Melka and Batu gave high yields under intercropping.

The land equivalent ration (LER) for the maize component was 0.9-1.1 and with the bean component ranging from 0.08 to 0.13. The total LER for both crop components was in the range 0.96 to 1.17, implying that up to 17% additional land under inter-cropping to attain the same yields as for mono-cropping. Profitability of growing more than crop together on one plot at the same time is measured by land equivalent ratio (LER).

The HARC team carried out 18 PVS of common bean varieties in the southern part of Ethiopia. The highest grain yield came from Hawassa Dume (2.3 ton ha^{-1}) and Ibado (2.0 t ha^{-1}) while the lowest (1.4 t ha^{-1}) was recorded for Awash-1. According to farmer preferences at all locations, Hawassa Dume was the most popular. Nine soybean varieties (late maturity group- Belesa-95, TGX-13-3-2644 and Wegayen; medium- Gizo, Gishama and AFGAT; early-Awassa-95, Williams and Crowford/Nova) were evaluated in six PVS trials at Pawe and Guangua districts. The bean varieties were also evaluated for preference based on gender and maturity and a field day was organized at Guangua District with 200 farmers including 50 women participating.

Melkassa produced 1023 kg of seed of five released common bean varieties (Awash Melka, Awash 1, Nasir, ECAB-0056 and GLP-2) and 65 kg of seed of 25 experimental varieties. Hawassa multiplied pre-basic seed of two well adapted common bean varieties, Awassa Dume (2 t) and Ibado (1.2 t) while Pawe produced 760 kg of seed of 11 varieties. At Bako nine common bean (840 kg) and seven soybean varieties (1240 kg) were multiplied.
Biological nitrogen fixation (BNF) trials was set-up in May 2011 through the facilitation of Murdoch University and it showed a significant nodulation response of inoculated plants with both a local and imported Rhizobium strains versus non-inoculated plants. The results were presented at both the Ethiopian Annual Project Review and Planning Meeting in Addis Ababa and at the SIMLESA Annual Meeting in Arusha in March 2012. The results led to the expansion and establishment of new soybean rotation trials at several farms at Hawassa, Bako and Gute in Ethiopia. Scientists from the Centre for Rhizobia (CRS)-Murdoch travelled to Ethiopia (June 2012) to inspect the new sites at Hawassa and hold meetings with the researchers at EIAR. Murdoch has committed to include comprehensive BNF measurements to assess effect of inoculation and fertilization on maize/legume cropping systems and to develop suitable monitoring and evaluation systems for recording of harvest, data collection and processing during the trials

Tanzania
In the Northern zone, five hybrids and six OPVs were planted. In collaboration with Tropical Legumes II project (TL II) partners assessed potential legume species and varieties for the target environment in the project countries. A pigeonpea variety Mali was identified as suitable for the farming system. Fifty kilogram of Vumilia K1 was produced at Babati. 1,300kg inbred lines for Selian H208 and Selian H308, Lishe H2 and Selian MH07, were multiplied at Ngaramtoni and Babati..

Five Mother and 30 Babies as well as 2 Pigeon pea PVS in each village were established, that makes a total of 10 Mother and 60 Baby trials and also 4 Pigeon pea PVS in each District. These villages were (Bargish uwa and Masqaroda) – Mbulu District as well as Rhotia and Bashay – Karatu District. Planting was done on 17th - 18th December, 2011- Masqaroda and Bargish uwa while on 8th – 9th March 2012, Rhotia and Bashay. Twenty farmers and extension staff in Karatu district evaluated two newly-released maize varieties - Selian H208 and

Selian H308 - and six pre-released maize varieties/lines - SA 523, SA 525, SA 309, SA H636, SA H638 and SA H779.
Foundation and certified seed grade was produced for the highly demanded maize and pigeon pea varieties with 200kg of Selian H208 foundation grade maize seed produced. Twelve tons of the certified seed is expected to be produced in 2012 cropping season. Similarly, 1029 kg of pigeonpea foundation seed and 30 tons of certified seed were produce during the 2011 cropping season. Twenty mothers and 120 baby trials were established in the northern zone and 14 PVS in the eastern zone to evaluate eight maize varieties. The following maize varieties were evaluated in the northern zone Selian H 208, Selian H 308, LISHE H 2, UH 6303, SAH638, and SC 627, LISHE H2, Stuka M1. For the eastern zoneTAN 250, TAN 254, iii) TMV 1, iv) BORA, v) H 600, vi) Vumilia K1, vii) Stuka M1 and Selian H 208.
Eighteen PVS trials were conducted in the Kilosa, Gairo and Mvomero districts of the eastern zone during 2011-12 seasons. Breeder seed (1.77 t) of six pigeonpea varieties was produced along with 5.5 t of QDS seed of the variety "Mali". Private seed companies such as SATEC, Mt. Meru, Kilimo Markets and Tanzania International, and Brac Tanzania Ltd were engaged for pigeonpea seed production.

ICRISAT supplied long-duration elite lines of pigeonpeas to Selian (northern Tanzania); one medium-duration set and two sets of *Fusarium* wilt nurseries to Ilonga (Eastern zone) for evaluation, along with pure seed of all six varieties for seed roadmaps for further multiplication. ICRISAT-Nairobi is also producing seed of these varieties to backstop. During the 2011-12 season, planted 15 pigeonpea PVS in the Eastern zone (Kilosa-5, Gairo-3, Mvomero-7) with ICEAPs 00554, 00557, Mali, 00053,00932 and Tumia. Six PVS with six varieties (ICEAP00933, ICEAP00932, ICEAP00936, ICEAP00576-1, ICEAP00053 and the check ICEAP00040 and 8 demonstration plots were established in the Northern zone. Four maize-pigeonpea intercropping trials were conducted (2-onstation, 2-on-farm) in eastern zone.

Two field days that combined Objective 3 (Mother/Baby–Maize and PVS- Pigeonpea) and Objective 2 were conducted to give farmers, researchers, seed companies and other stakeholders an opportunity to assess the maize varieties under evaluation.

Kenya
The SIMLESA team identified eight maize varieties from Embu and 11 from Kakamega for PVS. The varieties were: H513, KH631Q, KH539E (Embu 209), Embu 208, KDV1, KH500Q, Embu Synthetic and WH105 for Embu; and H520, H624, KM0403, WH105, WS303, DK8031, WH403, H6210, KH533A, KSTP94 and KAK SYN2 for Kakamega. Two varieties (extra-early Emb 225) and Embu Synthetic were planted for seed multiplication with participation of Freshco. Over 135 kgs of CML 144 and 90 kgs of CML 159 were harvested. In Embu, the following common beans: KAT X69, KATB1, KATX56, KATB9 (KAT are early dry land varieties), Embean14, Embean118, Embean7, Mwitemania; pigeonpea ICEAP00554 and ICEAP00557 (pre-released), ICEAP 00040 (Mbaazi 2), ICEAP00850 and KAT60/8 (released) were identified for multiplication. In Kakamega the common beans KK20, KK8, KK71, KK72, KK15 (tolerant to root rot); Local (R. coco); soya beansSB3, SB19, SB25, Gazelle and EAI3600; and groundnut varieties ICGV-SM-90704, ICGV-SM-12991, ICGV-SM-99568, and Local (Red Valencia) were identified.

Three (3) inbred lines of KH500Q and KH631Q were planted and harvested during the short rains. Two varieties (extra-early (Emb 225) and Embu Synthetic) were planted for seed increases with participation of Fresh Co. Over 135 kgs of CML 144 and 90 kgs of CML 159 harvested. PVS trials were conducted with DV1, Extra Early (Embu 225), WH105, EMB209, EMB208, Embu Synthetic, KH500Q, KH631Q, H513. Maize trials with 3-5 varieties per baby were conducted as follows:

i. Kyeni sites: 2 baby trials and 1 mother trial

ii. Mariani site: 3 baby trials and 1 mother trial, Mweru (igoji): 5 baby trials, 1 mother trial , Mworoga site: 5 baby trials and 1 mother trial

The team conducted 16 maize mother and baby trials, 15 legume mother and baby trials and 21 intercropping trials in Embu site. PVS trials were conducted with KDV1, WH105, EMB209, EMB208, Embu Synthetic, KH500Q, KH631Q, and H513.

And in the effort to increase the range of legume varieties available for smallholders through participatory variety selection, seed production and distribution was undertaken for beans in Kyeni project site. A mother trial was established and maintained within the site and consisted of KATB1, KATB9, KATX56, KATX69, Embean14, Embean7, Embean118 and GLPX92 (Mwitemania) as a check. The trial was replicated three times. At the same time, three farmers were each provided with two varieties to try out in their farms under their own management. A similar trial was set up at Gikurune Primary School in Mweru site also with three farmers participating in the neighbourhood. A pigeonpea mother trial with the five varieties was established and maintained at KARI Igoji Sub Centre (Table 2.6).

Table 2.6. Bean grain yield from mother trial conducted at Kyeni and Gikurune sites during April Rains 2011

Variety	Grain Yield (t ha^{-1})	
	Kyeni site	Gikurune site
Embean 14	2.40	1.9
Embean 7	2.04	1.6
Embean 118	1.80	1.2
Mwitemania	1.74	1.2
KAT B9	1.74	1.6
KAT X56	1.62	0.9
KAT X69	1.50	0.7
KAT B1	1.32	0.2
Mean	1.77	1.1
LSD (0.05)	0.8	0.9
CV%	15.2	49

Embean14 and Embean7 had the highest yield at both sites while KATB1 had the lowest in Kyeni. The yields of Embean118, Mwitemania, KAT9, KAT56, KAT69 and KATB1 did not differ significantly ($P \leq 0.05$). The lowest numerical yield was recorded for KATB1. At Gikurune the highest yield was recorded for KATX69 although there was no significant difference (P=0.05) when compared with KATB1, Mwitemania, Embean14 and KATX56. Embean7 had the lowest yield. The low mean grain yield at Igoji could be as a result of low rainfall received in the area that season compared to Kyeni.

Intercropping trials were established using the farmer preferred maize variety (DK8031) and legume varieties. Five maize rows were planted at a spacing of 75cm x 30cm with 1 bean row planted in between in UM3 (Kyeni and Mweru). The varieties were KATX69, KATB1, Mwitemania (local), Embean14, KATX56, KATB9, Embean118 and Embean7. In LM4, pigeonpea varieties (00040, 00850, 00554, 00557, Kendi, Ndombolo and Kimeru) were intercropped with two maize rows. In October 2011 maize/bean intercrop trials were planted in Kyeni, Gikurune and Igoji Sub centre. At harvest, farmers evaluated the varieties based on characteristics they had generated in a focus group discussion. The ranking was done on a scale of 1-4 where 1=least desirable and 4 = most desirable. Both bean yields and farmer perception scores were analysed using SAS statistical package. Embean 14 was the highest yielder in Kyeni but it was also among the highly rated overall in the same site. In Igoji there was no significant yield difference between the varieties. Effect of different pigeonpea varieties on the

intercropped maize variety DK8031 was also not significant except at Igoji where the yield was depressed when intercropped with 00850 compared to 00554.

In order to provide seed for trials, the team planted plots of bean varieties Embean7, Embean14 and Embean118 and one acre under pigeonpea ICEAP00557 at Igoji Centre during April/August 2011. KARI Seed Unit Embu is producing Embu Synthetic variety to make it available to the farmers and 3.1MT was produced. During October 2011 rains, 70 kg of Embean14 and 50kg pigeonpea ICEAP00557 were produced on station and at Igoji sub Centre respectively.

Inbred lines for production of KH539E were planted at Muthaara: 1.5 acres under Kml2 and 4 acres under Kml3. They are being jointly inspected by KEPHIS. We acquired 10 kg of Kml 1 from KARI Muguga which we intend to plant in May/June 2012 if we get irrigated land.

Production of lines CML 395 and E12-210 continued in Tigania East and the crop was inspected by KEPHIS with field approval being granted for one of the lines (CML 395). Seed of Embu Synthetic is being grown by the KARI Seed Unit. Seed of Embean14, KATX56, KATX69 are being grown at the centre. Due to popularity of Embean14 and other bean varieties, the team plans to train farmers on clean seed production to enhance quality of farmer saved seed. More than 2000kg of the variety has been sold by farmers in Kyeni alone.

The SIMLESA team trained 12 farmers in Kyeni (4 males and 8 females) and 18 in Igoji (4 males and 14 females) on informal seed production upon realization that they were producing Embean14 seed and other varieties. The training involved disease and off type identification and rouging.

In the eastern zone, three PVS trials were established for beans, and KAT x 69 and KAT x 56 found to be the most preferred varieties. Intercropping trials with beans (two in Imenti South District, one in Embu East) and pigeonpea (one in Tharka Nithi District, one in Imenti South) were evaluated.

The team produced 812 kg of breeder seed of beans at Kakamega (623kg) and Embu (189kg). Similarly, 58 kg of soybean, 38 kg of groundnut and 50 kg of pigeonpea seed was produced. Three bean varieties: Embean14; Embean7; and Embean118; one pigeonpea variety (ICEAP00557) are being planted in the eastern zone for breeder seed production. Road seed maps were revised during review and planning meeting held at KARI-Embu. ICRISAT supplied breeder seed of both medium (ICEAPs 00850, 00554, and 00557) and long duration (ICEAP00040) varieties for seed increase. A number of private and public institutions as well as NGOs were engaged in legume seed value chain. Leldet Seed Company was involved in commercial seed production of KK8; TSBF provided SB19 Soybean variety for commercial seed production; Western Seed Producers Association contracted seed growers to produce Soyabean while ONE Acre Fund (an NGO) gave 400kg of seed given for up-scaling and 8 MT for scaling out with 75,000 farmers. The Ministry of Agriculture provided extension facilities as well as monitoring of all the trials.

Mozambique

A new hybrid maize variety, Sivukane, developed by IIAM was included in the CA exploratory trials. The SIMLESA breeding team established eight mothers and 28 babies using released IIAM's varieties, 60 soybean trials with eight new (pre) released varieties, 50 trials of cowpea (three released varieties) and 40 trials with pigeonpea varieties (tworeleased varieties). Seed bulking activities for breeder, pre-basic and basic seed of maize and selected legumes (Soybeans, cowpea, beans and pigeonpea) are under way at final stages of selection and cleaning. Seed of pre-release and newly-released maize hybrids and OPVs, and legume species and varieties with potential suitability for the targeted farming system are being produced in Chokwe, Sussundenga Station, Angonia and Gurue.

Two medium (ICEAPs 00554 & 00557) and two long duration pigeonpea varieties (ICEAPs 00020 & 00040) with yield advantage on-farm of 30-56% on farm were released for cultivation, based on FPVS within on-going projects. Six groundnut varieties (ICGV-SMs 01513, 01514, 99541, 99568, 83708 and JL24) with 52-70% on-farm yield advantage were also released. During regional review and planning meeting held in Chimoio (5-8 September 2011) suitable varieties for on-farm PVS and seed road maps were identified. Sixteen PVS trials in soybean and four in cowpea were conducted. Twenty four PVS trials were planned for Angonia (beans, soybean and groundnut), Gorongosa (pigeonpea, groundnut and cowpea), Manica (beans, cowpea, pigeonpea and soybean) provinces. The pigeonpea varieties included for on-farm trials were ICEAPs 00557, 01162/21, 00554, 01167/11, 01170, and 01485/3.

Seed road maps were revised to include more number of varieties (Table 3). IIAM, ICRISAT and TL-II are involved in seed production and delivery to fulfill the seed production targets for on-farm trials, demonstrations, and to meet the certified seed production demands for HH by 2014. ICRISAT has supplied three sets of elite medium duration (Ntengoumodzi, Nampula and Sussundenga) and one set of long duration (Nampula) varieties. Breeder seed of newly released varieties ICEAPs 00040, 00020, 00554 and 00557 was supplied. Intercropping trials are being planned with 5-10 maize varieties (two varieties each of groundnut, pigeonpea and soybean in separate trials) and similarly, 5-10 varieties of pigeonpea, groundnut and soybean with two maize varieties across two on-station locations.

Malawi

Formation of single crosses and three-way crosses for drought tolerant, downy mildew and, Imazarpyl (IR) hybrids is underway. OPV basic seed varieties were produced for ZM523, ZM521, ZM621, ZM623, ZM309, ZM721 and Chitedze2 QPM. Production of seed from selfings, single crosses and three-way crosses were carried out for local and CIMMYT lines; Z130-23, AR403-3, Inbred A, CML 390-IR,CML373-IR, CML445-IR, DRT 28,DRT 24, DRT 25, WVL31, DMRVL 20, DMRVL 26, DMRVL 38, CML 395, CML 202, CML216 and AR 424. Twenty-two IR three-way cross hybrids grown during winter are currently being tested for their adaptation, yield performance and agronomic traits in the summer 2010/11 season. Trials for performance evaluations for drought and downy mildew tolerance were planted in the summer 2010/2011 season.

The team released one pigeonpea variety ICEAP 01514/15 with 59% on-farm yield advantage over *Mthawajuni* for cultivation in the central and northern regions. During the regional review and planning meeting held in Lilongwe (28th August - 2nd September), suitable varieties both for on-farm PVS trials and seed road maps were identified. Thirty six PVS trials were planned in six districts spanning two agro-ecologies (Table 2.6).

Table 2.6. Project sites in two agro-ecological zones of Malawi

Agro-ecology	District	Crop	N0. of PVS	Varieties identified
Short season low-land	Salima	Pigeonpea	3	**Groundnut:** Chitala (ICGV SM 99568), Kakoma (JL 24), Chalimbana 2005, CG 7(ICGV SM 83708), Nsinjiro (ICGV 90704) **Pigeonpea:** ICEAPs 01480/32, 01167/11, 01485/3, 01499/7, 00554, *Mthawajuni* **Soybean:** Makwacha, Tikolore, Olepara-4, Nasoko
		Groundnut	3	
	Ntcheu	Pigeonpea	3	
		Soybean	3	
	Balaka	Pigeonpea	3	
		Soybean	3	
Midseason mid-altitude	Mchinji	Groundnut	3	
		Soybean	3	
	Kasungu	Groundnut	3	
		Soybean	3	
	Lilongwe	Groundnut	3	
		Soybean	3	

The review and planning meeting in Malawi in September 2011 resulted in the establishment of new collaborations with key scientists and secured their willingness to include inoculation and BNF assessments in their field trials. In November 2011, the Centre for Rhizobia Studies (CRS) visited Chitedze Research Station in

Lilongwe to set-up groundnut trials to assess the effect of inoculation using a local vs. imported Rhizobium inoculant on two varieties of Groundnut. The CRS team also provided further training to rhizobiologists and technical staff at the station.

Australia

Work on screening for drought tolerant germplasm from CIMMYT is ongoing by Australian partners. Based on an environment characterization and breeders experience, replicated yield trials were established at five sites. Important agronomic and quality data were collected and analysed. For this report however only trials from dryland sites were presented.

As part of GXEXM work, three hybrids with different maturity groups were established at three levels of planting density across four sites in dryland maize production environments. About 300 test cross hybrids were generated from local breeding populations synthesised from germplasm with good adaptation to drier production environments. Also about 500 S1 lines were screened for drought tolerance under managed stress conditions. An additional 30 CIMMYT lines were imported, and another 93 lines were planted in the breeding nursery to cross them to a local tester. A PhD student has been selected to work on "The environment characterization and GxExM work for Africa". Discussions with CIMMYT were conducted on how to collaborate in large scale testing of germplasm from CIMMYT and Australia for heat stress tolerance both in Africa and Australia.

2.4. Objective 04: Regional institutional innovation

Relevant outputs during this reporting period for this objective are outlined in the table 2.6 below.

Table 2.6. Relevant outputs under objective 04 during the reporting period

Output	Milestone	Date due	Status/ comments
4.1. Mainstreaming gender in research activities in the five primary project countries	4.1.1: M&E system incorporates gender aspect	Dec 2010	Done and ongoing
	4.1.2 Documented evidence on gender balance and research effectiveness in project activities in a sample of target communities in a sample of innovation systems	Dec 2011	Not done
	4.1.3: NARS scientists in Ethiopia, Kenya, Tanzania are trained in implementing gender issues into research design, monitoring and evaluation	Dec 2010	Done
	4.1.4: Understanding of processes and compilation of data on effects of gender-sensitive research designs	Dec 2010	Done and ongoing
4.2. Functioning M&E system incorporated into the project providing information system assessments to national and regional project managers	4.2.1: Functioning common M&E system established based on experiences in eastern Africa	June 2011	On going
	4.2.2: NARS scientists in five project countries trained in implementing common M&E system in 10 local innovation systems	June 2011	On going
4.3. Knowledge of relevant project innovations and germplasm available in five additional countries in the region.	4.3.3: Maps demonstrating agro-ecological analogues between Australia and eastern and southern Africa as well as conclusions for effective sharing of research results on CA-based maize-legume systems in eastern and southern Africa	June 2011	On going
	4.3.4: Shared understanding of regional research challenges and products; sharing of innovative agronomy, breeding and socioeconomic research methods and maize-legume system products	June 2011	On going
	4.3.5: Increased availability of relevant germplasm among project participants in Africa and Australia	June 2011	Not done

ASARECA's roles within Objective 4 focuses on mainstreaming gender in SIMLESA program; support in development of broad M&E for SIMLESA program and leadership in the work on knowledge transfer and

technology spillovers. The specific tasks for ASARECA under the SIMLESA project are highlighted below followed by achievements for 2011/2.

Output 4.1: Gender mainstreaming
Planned activities:
1. Training in gender concepts, approaches and analysis
2. Practical training in the use of socioeconomic and gender analysis (SEAGA) tools for data collection and analysis
3. Backstopping data analysis processes
4. Participation in regional meetings

Output 4.2: Monitoring and Evaluation (M&E) System
Planned activities:
1. Conduct workshop to develop Performance Monitoring Plan (PMP), Performance Measurement Framework (PMF) and to harmonize existing frameworks
2. Conduct workshop to develop country-based PMPs
3. Conduct training in project data quality management
4. Participate in national and regional review and planning meetings
5. Coordinate development of the broad gender responsive M&E framework for the project
6. Backstopping M&E activities

4.3 Knowledge of relevant project innovations and germplasm available in five additional countries in the region
Planned Activities:
1. Analysis of past experiences and bottlenecks for maize-legume systems products for spillover
2. Participate in national and regional review and planning meetings
3. Enhance interchange of maize and legume germplasm within sub-saharan Africa.

Progress under the M&E section:
During the 2011/2012 reporting period, the following achievements against outputs/milestones were recorded:
1. The M&E Unit finalized the relevant SIMLESA Results Measurement Frameworks through a series of workshops- one in Addis Ababa in July 2011, a second one in Entebbe, Uganda, a second one in Nairobi that brought together 20 participants from each of the five countries, as well as representatives from CIMMYT. These frameworks have been adopted by the program implementation team who are inputing data into these tools. The key products included:
   - The Results Frameworks (Logframe), showing all the key performance indicators for the project.
   - The SIMLESA Performance Measurement Framework (providing information on baseline data, targets, data collection methods, data source, data analysis and presentation methods, etc).
   - PMP showing detailed information on each key performance indicator. The PMP will be updated periodically prior to any major meeting (e.g. planning and evaluation workshops) or reporting date. The M&E Unit supported each country to set measurable and practical annual and end-of-project targets based on the Project Document Appraisal. These targets will form the basis of periodic tracking of progress.

2. To ensure that M&E functions are effectively undertaken in every country, M&E Focal Persons were identified. A brief meeting was held, where they were briefed on their roles and functions in SIMLESA M&E System. Another SIMLESA M&E finalization meeting in preparation for the annual review and planning meeting was held in Nairobi in February 2012 to assess progress made in institutionalizing M&E systems.

3. M&E Unit participated in the National Planning and Evaluation meeting held in August 2011 in Lilongwe, Malawi. During this meeting, besides developing a draft reporting framework, a schedule of meetings was also developed – thus leading to the first M&E meeting in Entebbe, Uganda in November 2011. A second M&E meeting was held in Nairobi from 27th - 29th February 2012 where the teams jointly reviewed and updated the program progress based on the agreed targets and indicators. This formed the basis for the compilation of the program M&E progress report that was later presented at the SIMLESA 2nd Annual Planning and Program Steering Committee meeting in March 2012.

   The workshop enhanced skills of participants to develop and present progress reports. Country and objective progress reports were presented and agreed upon. The workshop also increased skills in carrying out effective Data Quality Management and Assurance and undertook designed action plans to implement activities related to M&E.

4. The M&E ASARECA Unit attended the SIMLESA Annual Review and Planning meeting in Arusha Tanzania in March 2012 where the project country performance was ably presented.

5. The M&E Unit has continued to provide backstopping in M&E aspects to the SIMLESA project countries through telephone and online consultations.

Progress in gender mainstreaming

Much of the progress in this output related to capacity development as described below:

A training for SIMLESA country focal persons entitled Gender Disagregated Data in Agricultural Research with the theme of "*Towards Building Capacity for Data Collection*" 26th - 29th was conducted in July, 2011 in Morogoro, Tanzania. This workshop was targeted at building the capacity of the scientists in collection of gender disaggregated data, to acquire skills in field facilitation, data collection and analysis of gender disaggregated data. It highlighted the need for accessible information and data as a starting point for any program/project. The workshop reviewed in detail the conceptual aspects of gender mainstreaming. Participants were given hands on practice on how to generate sex and gender disaggregated data. The training employed a comprehensive methodology in terms of learning skills with hands on practice. The overall aim of the workshop was to strengthen the capacity of the scientists to collect gender disaggregated data (GDD) in agricultural research and to enable them to use gender analytical tools in the field. The workshop provided profound understanding of collection of data at the practical field level by using the gender analysis tools with its capacity to analysis data in more précised manner. The training also covered various topics related to gender segregation within the agriculture research context.

The training enhanced and strengthened the capacity of the gender focal persons in practical gender mainstreaming and skills in concepts, approaches and gained the capacity to use gender analysis tools at the field. Their capacity to collect and analyze sex disaggregated data and up to certain extent GDD was enhanced. Five socioeconomic and gender analysis tools (SEAGA/FAO) have been shared and practiced. Action planning for the GDD baseline survey report preparation was developed for each country while a sustainability cycle for Milama Village in Tanzania developed for analysis of GDD. The dynamics of differences between Male & Female headed households at target group were distinguished and noted.

Gender mainstreaming has achieved a new consciousness and impetus to work on gender mainstreaming. The human feature is gradually being felt in the research in ASARECA. The Gender Mainstreaming Unit backstopped and provided inputs in the action plans for implementation at country level and for engendering ToRs for SIMLESA validation knowledge transfer and spillovers study. The Gender Specialist from ASARECA attended, on behalf of SIMLESA program, the global launch of the Maize and Wheat CGIAR Research Programs for

CIMMYT in Mexico City, from January 16 to 20, 2012 that discussed the global action plans on maize and wheat research developed over the past two years in consultation with partner organizations. The Gender Unit presented a paper on experiences from ASARECA /SIMLESA with the incorporation of gender in agricultural research & development. The ASARECA Gender Unit facilitated the engendering of the socio-economic and gender analysis on SIMLESA program and gender disaggregated data.

Progress on the knowledge transfers & spillovers

Two consultancy studies under the knowledge transfers and spillover output were completed. The first study focused on establishing an inventory of available SIMLESA technologies, knowledge products and dissemination approaches from the five SIMLESA countries that could be scaled out further within each country and also for spillover to other countries. A report documenting the technologies, knowledge products and dissemination approaches currently used in the five countries has been produced. The report also documents maize and legume varieties and the respective agro-climatic characteristics where they can be grown and where it is appropriate for them to be scaled out and spilled over in other countries. For each country, the information for varieties for maize or legumes also indicates if they are hybrids or open pollinated varieties and the problems the varieties are meant to address e.g., resistant to some disease or draught tolerant (refer to Annex 7 tables 1 & 2). GIS maps are supporting the generation of information on current and potential areas where they can be spread through scaling out or cross country spillover and the various combinations of conservation agriculture practices currently being promoted in the five SIMLESA countries and potential areas for scaling out and spillovers. Various knowledge products are being used to disseminate and scale out SIMLESA technologies. The report also list various dissemination and scaling out approaches that were identified in the five countries. Both the knowledge products and the dissemination and scaling out approaches provide a wealth of knowledge that can be shared across the current SIMLESA countries and the potential spillover countries.

The second study identified, analyzed and documented factors enabling or constraining both scaling out SIMLESA technologies within countries and spillovers across countries. The factors range from institutional (including status of seed policy harmonization in the countries), socio-economic, and agro-ecological. The report also documents case studies which illustrate some of the dissemination approaches and the enabling conditions for scaling out. It also provides sets of recommendations for SIMLESA program, spillover countries and national governments in regard to facilitation of scaling out and spillovers.

2.5 Objective 05: Capacity building

Relevant outputs during this reporting period for this objective are outlined in the table 2.7 below.

Table 2.7. Relevant outputs under objective 04 during the reporting period

Output	Milestone	Date due	Status/ Comments
5.1 Training on technology targeting and value chain analysis provided to build and enhance capacity of national and regional programs	5.1.1a Skills of program partners in the national and regional programs enhanced in risk analysis and technology targeting enhanced.	Year 2	Not done
	5.1.1b Capacity of program partners in national and regional programs in identifying market and agro-enterprise opportunities enhanced.	Year 3	Not done
5.2. Training course on simulation model utilization and participatory evaluation	5.2.1: Capacity built in the program countries in utilizing the outputs from systems modeling to evaluate technology options and risk management strategies; and assist in ex-ante analysis of technology options and farming systems designs	June 2011	Not done
5.3. Training on cropping systems management research including the principles and practice of conservation agriculture	5.3.1: One-week training course held for approximately 25 agronomists in each of the project countries on: the principles and practice of CA-based maize/legume systems; principles and tools for improving risk management strategies; options for increasing household livelihoods and food security.	June 2011	Done and on going
5.4. Training on crop and forage improvement	5.4.1: Regional training course including 5-10 maize and legume breeders and 5-20 livestock specialist from partner countries	Dec 2011	partly done
	5.4.2 5 in-country training courses including a total of 20-30 participants from partner countries on farmer-participatory variety evaluation	Dec 2011	Not done
	5.4.3 Short training course involving 2-10 maize and legume breeders on GxExM analysis, its use in breeding programs and how to fast-track variety identification and release	Dec 2011	Not done
5.5. Training on APSIM model parameters	Milestone 5.5.1: Two CIMMYT staff trained in environmental characterization	December 2010	Done and second phase planned for Sep 2012

Specific details on achievements of the outputs and milestones towards Objective 05 are outlined below.

To strengthen research in SIMLESA countries, six PhD candidates were awarded scholarships under the AusAID and ACIAR for 2012 to study at Queensland University, Australia:

1. Effects of Residue Management Strategies on Nitrogen and Water Use Efficiency in Maize-Legume Cropping Systems of Central Mozambique-Nascimento Salomao Nhantumbo
2. Opportunities from Conservation Agriculture and Fertilizer use to enhance Productivity in Maize (Zea mays L.) -Legume intercropping in Dryland and Sub Humid of Ethiopia-Abeya Temesgen Tefera
3. Adapting Mozambican Agriculture to Climate Change by better matching adaptation options to agro-ecology and socio-economic settings-Alda Tomo
4. Options for Managing Current Climate Variability and Market Risks for Smallholder Maize-Legume Farmers in Ethiopia-Yohannis Mulu Tessema

5. Integrating productivity enhancing and risk efficient practices, tactics and strategies in small-holder Farms from the dry environments of the Rift Valley in Ethiopia-Tewodros Mesfin Abebe
6. Economic analysis of inorganic fertilisers' availability and profitability and profitability in combination with combination with organic amendments: legume intensification within maize Based farming systems in Malawi-Grace Phiri

One PhD candidate from Tanzania has registered with the University of KwaZulu Natal and will be supervised an ARC supervisor. Another 30 MSc candidates were identified to undertake their studies in their national institutions. ARC has also facilitated the registration of two MSc candidates from Mozambique at the University of Free State.
Nine SIMLESA researchers and five participants from spillover countries participated in the 5th WCCA Congress in Brisbane, Australia 26th to 29th of September 2011. Twenty five researchers from SIMLESA countries, CIMMYT and from Botswana participated in the ACIAR and Crawford sponsored climatic risk analysis training in Morogoro, Tanzania (28th November-2 December 2011). In terms of spillover, four researchers from the Department of Research, Ministry of Agriculture in Botswana participated in in-country review and planning meetings in Mozambique and Tanzania for 2011/2.

In order to facilitate mobility and supervision of SIMLESA-related work and activities, two 4WD double cabin pick-ups have been procured for the Tanzania SIMLESA teams while an additional 4WD vehicle was also procured for Mozambique. Two soil drying ovens (0.489m^3 int; 0.7797m^3 ext. each) were procured for IIAM SIMLESA team to improve their soil analysis process.

Field equipment such as augurs, weather stations, rain gauges, tape measures, grain moisture meters, analytical balances, seeders and computers have been purchased to strengthen data collection, analysis and storage. The research equipment purchased for the SIMLESA country teams are shown in Annex 4 of this document.

Regional training
Sixteen NARS scientists participated in an ARC-SA coordinated and facilitated training that targeted the following modules**:** Applied Principles of Biometry, Conservation Agriculture, Soil Health, and Innovation Platforms for five days while another 32 scientists (2 women) from Ethiopia were trained *insitu* due to VISA problems. The training in Ethiopia covered some principles of Conservation Agriculture, Innovation Platforms and Extension Principles. Researchers from Ethiopia (4), Kenya (4), Tanzania (5), Malawi (4), Mozambique (4), Sudan (1) and Botswana (2) with a wide range of experiences and skills in agronomy, breeding, soil science, systems modelling, meteorology and extension participated in the Climate Risk Analysis Master Class in Morogoro, Tanzania. Two SIMLESA team members from Ethiopia and Malawi attended the rhizobiology (BNF) training course in Nairobi, Kenya from 10 to 16 July 2011. Two participants from Mozambique and Tanzania attended a 10 day workshop on Impact Assessment coordinated and facilitated by the International Rice Research Institute (IRRI) in Manila, Philippines in July 2011.
Murdoch University conducted a course on nitrogen fixation at the University of Wageningen in the Netherlands from 18 to 22 October 2010 where two SIMLESA scientists attended.

SIMLESA 2nd Annual Review and Planning Meeting and PSC Meeting
From 19-23rd March, 2012, over 80 researchers, policy makers, donors, seed specialists, private seed houses and NGO representatives from Africa and Australia gathered in Arusha, Tanzania for the second SIMLESA Annual Review and Planning Meeting (ARPRM) to learn from the lessons of the last two years and use the lessons to improve the design and implementation of future project activities.

The meeting had 10 sessions that addressed issues ranging from program implementation, Australian-African partnership, SIMLESA project and partner progress and lessons, and communication and knowledge management.

A key message from the meeting on program implementation was that in 2011, SIMLESA consolidated and strengthened activities across all objectives, maximizing gains from integration, innovation, information and technology diffusion for greater impacts on livelihoods and the agro-ecosystem. It was noted that the use of integrated systems – like the approach taken by SIMLESA-can contribute to intensification and overall improvement in productivity of agriculture. Indeed, results from last year show that the Innovation Platform Framework, supported by science and partnerships, can contribute to productive, sustainable and resilient maize–legume production systems. However, for SIMLESA to have greater impact there is need to anchor the program on a stronger leadership from agribusiness, support the role of public sector, and ensure that it is farm-income oriented to lead to poverty reduction.
This was indeed a special ARPM: it attracted the highest decision making board within the Australian Centre for International Agriculture Research (ACIAR) that was represented by nine commissioners. SIMLESA's Program Steering Committee and the Mid-Term Review team also actively participated in the ARPM. The meeting also attracted participation from the United States Agency International Development (USAID's) Feed The Future Program, International Development Research Centre, International Livestock Research Institute (ILRI) and Agricultural Research Council of South Africa (ARC). For the first time participants from SIMLESA program spillover countries - Uganda, South Sudan, Botswana and Rwanda - had a chance to participant in the conference and interact with researchers from the five African SIMLESA implementing countries - Ethiopia, Kenya, Tanzania, Malawi and Mozambique - and Australian counterparts.

The meeting also had a special session where participants had a dialogue with selected panellists from partners present [International Livestock Research Institute (ILRI), International Development Research Centre (IDRC), Bill and Melinda Gates Foundation (BMGF), ASARECA, African Agricultural Technology Foundation (AATF), the USAID Feed The Future Program and ACIAR] on enhancing cooperation among different projects and new initiatives on sustainable intensification of small holder agriculture and how best to address the challenges militating against sustainable livelihoods in Africa. It was concluded that more needs to be done in as far as generating knowledge on the operational environment of smallholder farmers is concerned. Participants also agreed that the issue of value chains needs to be addressed if at all smallholder productivity is to be addressed. Others felt that climate risk needs to be incorporated into all interventions so as to mitigate against crop failure.

Another key message coming through from this the meeting was on strengthening Australian-African partnerships. This was to be achieved through improving research and development delivery and impact; and capacity building by exploring opportunities within ACIAR support under any of its four thematic areas of farming systems, bridging research and extension, strengthening policy and socioeconomic research and building individual and institutional capacity.

Speaking at 2nd SIMLESA Program Birthday party, Ms. Joana Hewitt, a career diplomat and now the chairperson for ACIAR Commission reiterated the Australian Government's commitment to long term partnerships with African governments. She stated that the Australian Government had trebled its development support for the African continent.

The meeting was also informed of the new SIMLESA Program in Zimbabwe that focuses on the interaction between crops and livestock which is also a clear sign of the continued commitment from the Australian

government for African partners. During the dinner, Kenya and Mozambique were recognized for their efforts in promoting/strengthening local innovation platforms.

In order to showcase partner SIMLESA work, a SIMLESA village was set up at the conference venue where partner countries and researchers showcased their achievements through poster presentations. Participants had a chance to appreciate how SIMLESA program is transforming agriculture when they visited Karatu and Mbulu project sites in Tanzania.

SIMLESA Mid-Term Review

The SIMLESA Program Mid-Term Review (MTR) was carried out during 26-30 March 2012 as the project had reached 24 months from its inception in the five countries. The process commenced during the SIMLESA annual partners conference in Arusha, Tanzania with the review team participating to get more details on the SIMLESA program in terms of background, progress, achievements, challenges and meeting with country teams. The main focus of the MTR was to determine and comment on how well the project started and has progressed towards the outputs and milestones; assessing program impacts (community; capacity and scientific) and also assess project execution.

In-country training

Ethiopia

Five SIMLESA-Ethiopian EIAR staff members participated in CA experience exchange tour in Malawi for five days. Three researchers were awarded PhD scholarships to study in Australia.

A trainers' workshop was conducted in collaboration with ARC-South Africa on May 7-12, 2012 at Melkassa Agricultural Research Centre to equip the participants with concept and practical application of Innovation platforms (IPs) and acquaint the participants with CA principles and practices. The training was attended by 33 trainees from the Bureau of Agriculture (8), NGOs (4), seed enterprise and unions (2), main SIMLESA implementing research centers (Pawe, Melkasa, Hawasa and Bako-15), SIMLESA expansion regional research institutes (Somali Regional Pastoralist and Agro-Pastoralist and South Agricultural Research Institute-4).

Participatory climate variability and risk management training exercises involving farmers, extension officers and researchers was organized during May 15-19 at Bofa and 21-25 at Adami Tulu to train SIMLESA site researchers and extension officers, on how participatory approaches will be helpful to better understand and manage climate variability and related risks as well as improve farmers and extension staff' awareness on how to reduce climate variability associated risks and increase understanding of their area climate variation impacts on production and their decision making.

A two-day training (April 20-21, 2012) for 54 experts from Bureau of Agriculture, NGOs and community level was organized at Melkassa Agricultural Research Centre focusing on the principles and implementation of CA practices, agroforestry and forage production technologies. In addition, the trainees were introduced to the SIMLESA project objectives, implementation modalities and roles and responsibilities of the trainees.

Kenya

KARI facilitated an exchange visit for four extension and 11 farmers from Igoji to Embu (field day). Two scientists identified for local PhD training, (Alfred Micheni and James Ouma who are currently working in the project as agronomist and socio-economist respectively) submitted their PhD applications at the University of Nairobi and are currently preparing their study proposals in consultation with their supervisors. Two candidates have been identified for local MSc training. Twenty-four agronomists and partners were trained in CA issues at KARI-Embu

and 12 crop/livestock partners (1 female and 11men) from the innovation platform were trained in CA issues at KARI-Kakamega.

Tanzania

A CA training workshop was conducted for 10 researchers, five extension staff and eight farmers. Three researchers trained in M&E in Addis Ababa, Ethiopia. Two field days were conducted that were attended by 200 farmers (40% of farmers were women).

Four researchers, two from Selian in the Northern and 2 from Ilonga in the Eastern zone attended a Soil Fertility and Management Course in South Africa during 21- 25 February 2012 while two researchers, two extension and one University of Dar es Salaam staff from both the Northern and Eastern zone attended the Climate Risk Management Course in Morogoro, Tanzania from 28 November to 2 December 2012.

Malawi

A five day CA exchange tour was facilitated in Malawi SIMLESA districts where five participants from Ethiopia and three from Mozambique participated. Local partners from Malawi also participated in the tour.

Mozambique

Thirty five extension staff and other innovation platform partners from Mozambique participated in training on CA and all other issues related such as gender, M&E, weed, pest and diseases, post-harvest. The training was held in Chimoio, Mozambqiue and was facilitated by ARC-South Africa. Three Mozambique SIMLESA researchers participated in a CA exchange visit in Malawi SIMLESA sites.

3.0 Impacts

There have been some observable impacts on the ground with neighboring smallholder farmers taking up some of the CA technologies though not the wholesome package. Sub-grantees have been able to undertake more field research activities because of the project's financial and technical support. SIMLESA program is also contributing towards strengthening the long-term scientific human resource capacity to undertake quality agriculture research in the future. SIMLESA program is also advocating for the critical role of sustainable production systems to preserve the natural resource base.

Since its inception, SIMLESA has managed to acquire buy-ins from governments, regional organizations and donors into the project strategy. Through SIMLESA facilitation, NARS have improved their levels of partnerships with and among regional organizations and international agricultural research centers. NARS researchers have produced a number of technical papers from their field data with the backstopping role of regional and international renowned scientists. USAID Feed the Future Program has also borrowed the SIMLESA program methodology and is implementing a similar initiative in eastern Zambia (a spillover country) with its funding.

3.1. Scientific impacts

More that 10 conference papers were submitted by SIMLESA teams to the 5th World Congress on Conservation Agriculture (WCCA) and Farming Systems Design Conference held in Brisbane, Australia in September 2011. The papers focused on characterization of soil nutrient levels in eastern Kenya and intensification of maize-bean production in western Kenya. Another technical paper that gives a synopsis of the preliminary experiences from the first year of project implementation was submitted by the Mozambique SIMLESA team to the same conference. A paper highliting the organization and initial results of SIMLESA and another paper on the adoption of CA in Malawi (based on previous work) were accepted for presentation.These papers are envisaged to motivate other scientists and stimulate constructive debates on CA issues. The Program organized a very succeful SIMLESA symposia to showcase and introduce SIMLES to WCCA particpants in Brisbane, 26-27 September. Regional and international stakeholders had an opportunity to interact with SIMLESA researchers and their work.

Key SIMLESA researchers who participated in the APSIM and APSFarm simulation modeling course are continuing with field work and data collection for simulation and modeling for different case studies in the respective countries. Similarly, QAAFI-UQ is working to create a number of templates for the virtual representations of these smallholder farms in APSFarm. These templates will be modified to fit the descriptions of the case study farms that represent the various identified household typologies. QAAFI has also completed a simulation modeling analysis of maize-mungbean intercropping and relay cropping options for Queensland's rain-fed cropping systems, which is expected to impact on cropping systems in SIMLESA countries in eastern and southern Africa.

3.2. Capacity impacts

An additional 4WD Double cabin pick-up vehicle was procured for the Mozambique to ease their mobility challenges. In order to promote the capacities of NARS in issues related to food security, 30 SIMLESA NARS scientists have been earmarked for MSc and 3 for local PhD studies while 6 SIMLESA participating researchers have been awarded AusAID/ACIAR/Albright Scholarships to study in Australia.

Various research equipment such as, rain gauges, tape measures, soil drying ovens; moisture meters, balances, GIS, digital cameras and computers have been procured in order to strengthen program data collection, synthesis and analysis and storage capacity of participating NARS.

Selected staff from NARS participated in some gender mainstreaming courses to promote the incorporation of gender aspects in scientific research and SIMLESA activities. Some NARS staff also participated in an M&E and

impact assessment training course that was designed to help the project to measure impact. Twenty-three NARS staff members participated in the SIMLESA program Climate risk analysis training in Morogoro, Tanzania.

3.3 Community impacts

According to the latest review of activities on the ground, neighboring farmers are taking up some CA-related principles though not wholesomely due to a number of factors. These farmers were impressed by the performance of SIMLESA exploratory trials in the first year. Farmers have shown interest in the benefits of using herbicides that reduces labor requirements. In Malawi for example, smallholder farmers are appreciative of CA as it is advocating minimum soil disturbances (as opposed to the conventional practice of ridging in Malawi, which is labor intensive). Farmers expressed satisfaction with the reduced labor and associated costs. Farmers' exchange visits to neighboring SIMLESA exploratory sites has generated increased interest in CA and increased the uptake of SIMLESA initiatives. Participating smallholder farmers report that they would get the following benefits from implementing the program: better nutrition from legumes; improved soil quality due to residue retention; and better water management practices that reduce vulnerability of soils and enhance sustainability.

3.3.1 Economic impacts

CA principles have been observed to reduce farming costs. In Malawi for example, conventional tillage usually requires farmers to ridge before planting maize and legumes, but not with CA meaning means lower labor inputs, and reduced costs. It is envisaged that intercropping of maize and legumes results in increased crop productivity per unit area. Intercropping of maize and legumes means reduced risk in the event of moisture stress/drought and in terms of marketing. If the price of one crop is depressed, it can be compensated for by the second crop. Intercropping and retention of crop residues ensures improved soil fertility in the long-run, thereby reducing fertilizer requirement. Intercropping is envisaged to improve the income levels of the smallholder farmers.

3.3.2 Social impacts

CA technologies being developed and promoted under SIMLESA Program are expected to benefit women and youth more than their male counterparts since they do most of the field work. The adaption of more resilient farming systems (CA and intercropping systems) means the risk of declining livelihoods will be reduced. Since CA advocates for minimum soil disturbances, the associated decreased labor demand will help to improve food security in labor-constrained households, including those infected and affected by HIV/AIDS. Most households have been infected or affected by the HIV/AIDS epidemic hence the need to invest in labor-saving technologies. In some communities, CA SIMLESA initiatives have promoted community cohesion since project participants have to work collectively from one field to another. Hosting of the SIMLESA exploratory trials has improved the esteem levels for the host farmers i.e. male and female. Hosting SIMLESA exploratory trials has improved the presentation skills for most farmers since they have to explain to colleagues and partners on the whole process.

3.3.3 Environmental impacts

The anticipated direct impacts will be on soil quality and reduced erosion, through biological nitrogen fixation, adapted fertilization practices, stubble retention and zero tillage. CA is environmentally friendly as it promotes residue retention, not burning. CA is also envisaged to promote environmentally friendly farming ways thereby reducing the negative effects of agriculture on global climate change. The principal components of soil quality that will be affected (and monitored) will be soil nitrogen and organic carbon (soil organic matter), aggregate stability, soil biological activity and increased diversity of soil organisms, soil porosity and pore continuity. An indirect benefit of the expected increases in soil organic carbon will be increased reduction in the emissions of carbon dioxide into the atmosphere, one of the greenhouse gases.

4.0. Communication, Linkages and dissemination activities

4.1 Linkages with On-going Projects

As a way of promoting collaboration, lesson learning and networking with like-minded organisations regionally and internationally, the SIMLESA program;

- Had interactions in collaborative training with N2 Africa and Beca (ACIAR Supported)
- Held joint meetings with TL-II and DTMA (BMGF Supported)
- Participated in ASARECA and CCARDESA meetings;
- Participated in SIMLEZA (CIMMYT-IITA-USIAD-FTF) meetings;

SIMLESA program also had linkages with New projects, proposals and Initiatives (ACIAR Supported)

- Crop Livestock interaction program in Zimbabwe -ILRI-CIMMYT-ICRISAT and Partners
- MELISA(Mechanization with CA)
- Pathways Project
- Evergreen Agriculture-ICRAF
- Sustainable Intensification projects for West Africa, Ethiopian Highlands and ESA-USAID-FTF

SIMLESA, as of the three Australian Food Security Initiative programs regularly interacts with the other the two (**CSIRO CORAF Farming systems/ BeCA**) in the area of capacity building in APSIM and scientific writing courses.

SIMLEZA is a project designed primarily for Eastern province of Zambia with similar objectives to that of SIMLESA with financial assistance from USAID Feed the Future program. CIMMYT and IITA are implementing organizations and the Zambian Agricultural Research Institute (ZARI) is the national partner. SIMLESA developed survey instruments for baseline studies, seed road maps and CA technologies are adopted SIMLEZA.

Africa Rising, the new USAID initiative to enhance sustainable intensification of agriculture in West Africa, Ethiopian Highlands and Eastern and Southern Africa has adopted the SIMLESA framework. SIMLESA PMC members, the Program Coordinator and John Dixon of ACIAR have attended several meetings and shred SIMLESA's vision. USAID representatives also attended SIMLESA 2nd ARPM in Arusha 19-23 March and contributed to the dialogue of Sustainable intensification in which the establishment of SI platform was discussed

Murdoch University, as a SIMLESA grantee has been collaborating on rhizobium technology with N2Africa project and in joint capacity building activities.

DTMA and TLII are the sources of improved and new maize and legumes germ plasm for SIMLESA work.

Harmonized seed road mapf under the two projects and SIMLESA has been proposed and a joint capcity training activities have been implements.

4.2 Communication and Dissemination activties

The Program Coordinator together with some CIMMYT researchers attended familiarization and inception meetings in South Sudan, Rwanda, Uganda and Botswana for their spillover initiatives. The meetings were targeted at raising awareness with government officials, private and NGO sector in terms of CIMMYT work and the ACIAR spillover initiative.

SIMLESA program took part in the European Union Day celebrations at the International Centre of Insect Physiology and Ecology (ICIPE) in Nairobi, Kenya on 09 May 2012, in an exhibition to showcase research and development activities supported by the EU or its member states. Apart from the SIMLESA project, CIMMYT also featured work from sister projects such as Drought Tolerant Maize for Africa (DTMA), Insect Resistant Maize for Africa (IRMA), Effective Grain Storage (EGS), and Improved Maize for African Soils (IMAS).

On 29 April, CIMMYT had a double reason to celebrate, picking up the award for "Best gender paper" and "Best science paper" (along with Bioversity), at the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) Science Conference in Copenhagen held from 29 April – 02 May. The best gender paper derived from SIMLESA baseline data, titled 'Adoption of Agricultural Technologies in Kenya: How Does Gender Matter?' and co-authored by Simon Wagura Ndiritu, Menale Kassie and Bekele Shiferaw, highlighted the differences between technologies adopted on female- and male managed farm plots in Kenya. They found that whilst there were gender differences in the adoption of technologies such as the use of animal manure, soil and water conservation, other differences in the use of chemical fertilizers and improved seed may stem from the varying levels of access to resources for men and women, rather than gender itself. The authors hope that the paper would be published in renowned journals for wide dissemination.

Two technical papers from Kenya SIMLESA team, one from Mozambique SIMLESA team and one from Tanzania SIMLESA were accepted to the World Congress on Conservation Agriculture and Farming Systems Design Conference held in Brisbane, Australia in September 2011. The conference participants shared experiences on CA, discussed problems, challenges and recommended potential solutions for CA in maize-legume intercropping systems. The titles of the submitted technical papers are listed below:

- Characterization of soil nutrient levels in smallholder farms in eastern Kenya
- Sustainable intensification of maize-bean production among smallholder farmers in western Kenya
- Initiating sustainable agricultural systems through conservation agriculture in Mozambique: Preliminary experiences from SIMLESA
- Initial results on the response of maize and pigeon peas to conservation agriculture at Karatu-Tanzania

Other papers presented during the SIMLESA showcase at the WCCA in Australia;

- Effects of minimum and convectional tillage systems on maize grain yield and soil fertility in Western Ethiopia
- Conservation agriculture in dryland agro-ecosystems of Ethiopia
- The sustainable Intensification of maize-legume farming systems in Eastern and Southern Africa (SIMLESA) Program
- Characterisation of soil nutrient levels in smallholder farms in Eastern Kenya
- Evaluation of APSIM to simulate maize-bean cropping systems in Eastern and Southern Africa: An alternative Approach

These papers generated a lot of insights and debate on CA within maize-legume intercropping scenarios.

Local and national 'scaling out' linkages with agribusiness, extension and other large agricultural development programs are being identified in order to foster information dissemination and adoption of technologies and seed varieties through initiation of innovation platforms. In Ethiopia, Kenya, Malawi, Mozambique and Tanzania local innovation platforms have started up, dealing with different thematic areas (e.g., livestock, post-harvest, CA technology, weather, insurance) and are expected to continue in the second year with the participation of more players. These initiatives are aimed at promoting information dissemination on CA technologies. For Malawi, the team is building upon Drought Tolerant Maize for Africa (DTMA)-initiated Innovation Learning Platforms where some SIMLESA members participated.

During the 2nd SIMLESA partners' conference Mozambique and Kenya teams were awarded for having done well in the promotion and strengthening of local innovation platforms and they are expected to document lessons and experiences from their case studies for wider dissemination. The 2nd SIMLESA annual conference was attended by a number of regional and international NGOs and also had a special session for dialogue between SIMLESA researchers with these partners [African Food Security Initiative (AFSI), International Livestock Research Institute (ILRI), International Development Research Centre (IDRC), Bill and Melinda Gates Foundation (BMGF), ASARECA, African Agricultural Technology Foundation (AATF) and ACIAR] on tackling food security challenges in Africa. This year's annual partners' conference has a session on the "SIMLESA Village" where more than 30 posters, displays of seed company products, audio visual and video clips of farmers' testimonies from the five partner countries were displayed for conference participants to learn more about SIMLESA achievements.

The program teams in the five countries have been in regular contact with the participating farmers and a sound feedback and communication mechanism has been established but there is still room for improvement especially when it comes to working with local NGO partners. In Australia, QAAFI established linkages with a number of industry representatives including growers and members of the Grains Research and Development Corporation's Queensland Research Advisory Committee.

Ms Mandy Gyles, a communications expert for ACIAR from Australia visited SIMLESA activities in Ethiopia, Malawi and Kenya in July 2011, to see how to communicate project results to the world. Her TORs included documentation of field activities, capture the effects of drought and prepare for the Australian team which was to visit later on. On another note a SIMLESA team from Tanzania, objective 02 and 03 visited SIMLESA project sites in Kenya (Kari Kakamega; Kari-Embu and Siaya communities) on a look and learn tour.

A 4-day field tour comprising CIMMYT-SIMLESA, the DARTS Malawi and five SIMLESA Ethiopia researchers was undertaken in Malawi while in Mozambique a 5-day field tour was hosted by CIIMYT staff, ISPM, and IIAM from 17-22 February to 11 February 2012. The main objective of the field tours were to share lessons, experiences and challenges in the implementation of CA with farmers, extension staff and other stakeholders. The field tour was also attended by CIMMYT members, DARS Malawi staff and staff members from a local NGO, Total Land Care (TLC). Extension staff from the six SIMLESA demonstration sites facilitated and participated in the field tours.

Work is continuing to refine the SIMLESA-ACIAR communications strategy drafted in May 2010. CIMMYT has appointed a Communications Officer based in Nairobi who provides communications support to the project. ACIAR and CIMMYT communications staff members are working closely together. SIMLESA has been covered in several press releases, radio programs, AusAID Focus, ACIAR partners and a number of CIMMYT *Informas* or e-Newsletters. New websites at CIMMYT and ACIAR have been established. After 29 months of implementation, documentation of best practices and success stories from the field is continuing with the publication of the '*SIMLESA speaks*' bulletin and "*SIMLESA highlights*" for sharing achievements, challenges and lessons with partners. SIMLESA country technical papers, posters, brochures and flyers have been prepared and distributed through different for a (For further information refer to Annex 3). The SIMLESA first review and planning workshop press release was posted on the Media for Environment, Science, Health, and Agriculture Association in Kenya (MESHA) website: http://www.wfsj.org/mesha/ . SIMLESA project Coordinator participated in the ASARECA annual general meeting in Entebbe, Uganda together with the CIMMYT communications officer and exhibited SIMLESA/CIMMYT materials to the participants.

During the 2nd SIMLESA Program Annual conference in Arusha, Tanzania a SIMLESA village was put up where participants had an opportunity to get first-hand country specific achievements since inception of the project. Countries had prepared posters, flyers and videos to showcase their achievements to date. The SIMLESA

program has finally managed to put in place a very informative website specifically for SIMLESA Program. The website is http://simlesa.cimmyt.org. The website is continuously being updated to make it an interactive site.

5. Training activities

See section 2.5 for more detail on capacity building. The South African partner on capacity building, Agricultural Research Council (ARC) finally signed their Memorandum of Understanding to start participation under SIMLESA Program. They have already carried out three trainings for SIMLESA NARS partners; one in South Africa, one in Ethiopia and the last one in Mozambique. Advanced M & E as well as gender mainstreaming workshops were facilitated by ASARECA to capacitate partners.

6. Intellectual property

Nothing reported.

7.0. Future activities

No major variations to project-related activities are expected in the near future. For more information on planned activities refer to Table 7.1 below.

Table 7 SIMLESA Program Workplan

Objective/Activity	Ethiopia	Kenya	Malawi	Mozambique	Tanzania	CIMMYT	ICRISAT	ASARECA	QAAFI	ARC	Murdoch University
Objective 01 Milestones											
1.1.1 Finalize community survey	√	√	√	√	√	√			√		
1.1.1 Report writing for community survey	√	√	√	√	√	√					
1.1.2, 1.3.1 Value chain analysis	√	√	√	√	√						
1.2.2. Finalize household survey	√	√	√	√	√				√		
1.2.3,1.4.1 Develop farm household typologies	√	√	√	√	√	√			√		
1.2.5 Research reports for 5 countries completed and shared with partners	√	√	√	√	√	√					
Objective 02 Milestones											
2.1.2 Identify alternative maize/legume combinations	√	√	√	√	√	√					√
2.1.3 Document alternative maize/legume combinations and agronomic practices	√	√	√	√	√	√					
2.2.1 Initiate and strengthen innovation platforms	√	√	√	√	√						
2.4.1 Review on-farm and on-station research program based on experiences of first season	√	√	√	√	√						
2.4.4 Establish long-term trials	√	√	√	√	√	√					√
2.4.8 Hold annual review and planning meetings	√	√	√	√	√	√					
2.7.2 Facilitate farmer study tours/exchange visits/field days	√	√	√	√	√						
2.4.5 Effect of technological options on soil quality, BNF and system productivity.	√	√									√
Objective 03 Milestones											
3.1.3 Breeding and foundation seed production	√	√	√	√	√		√				
3.1.3 Seed multiplication	√	√	√	√	√		√				
3.1.3 Trials & demos: maize and legumes	√	√	√	√	√		√				√
3.1.3 Facilitate PVS through farmers' field days	√	√	√	√	√		√				
3.2.1 Regional nursery for improved maize & legumes							√				

3.2.7 Rehabilitate current irrigation infrastructure	√	√	√						√		
Objective 04 Milestones											
4.1.3 Gender mainstreaming								√			
4.1.4 Gender Mainstreaming roll-out	√	√	√	√	√			√			
4.2.4 M & E training								√			
4.3.1 Knowledge management and spillovers								√			
Objective 05 Milestones											
5.1.1 Capacity building for extension staff	√	√	√	√	√					√	
5.1.1 Capacity building: farmers	√	√	√	√	√						
5.1.1 Non-degree training in methods of risk analysis									√	√	
5.1.3;5.1.4; 5.3.4; 5.5.2; 5.5.3 M.Sc. and PhD studies	√	√	√	√	√		√		√	√	
Procure additional research related equipment	√	√	√				√				
5.5.1 Training in environmental characterization									√		

8.0. Personnel

Some changes in personnel took place within CIMMYT-SIMLESA in the reporting period under review. The project engaged the services of an agricultural economist; maize breeder; Communications Officer and a project assistant to help the coordination of project-related activities and reporting aspects. Within partner NARS institutions there were some staff movements with some resigning while others secured scholarships for postgraduate studies in Australia. In Ethiopia, the national coordinator resigned from the public sector to join CIMMYT International hence the appointment of a new coordinator while more staff had been incorporated to take care of the expansion program. In Mozambique, the new socio-economist appointed got a scholarship for further studies in Australia hence a new one had to be appointed. On a sad note, the Tanzanian team lost a Site Coordinator for the eastern Zone as well as a seasoned legume breeder, Dr. Joseph Mligo. In Tanzania researchers were moved from SARI to the eastern zone. In Tanzania, again the socioeconomist got a scholarship to study for PhD in South Africa through the facilitation of Agriculture Research Council of South Africa .A list of personnel and variations for SIMLESA partners is presented in Table 8.

Table 8: Personnel and variations for CIMMYT-SIMLESA and partners

Table 8.1 Personnel and variations for CIMMYT-SIMLESA in Kenya and southern Africa

Name	Agency, position (location)	Role in program (discipline)	Variation
Mulugetta Mekuria	CIMMYT, Senior Scientist (Harare based)	Program Coordinator, overall leadership of the program (Agricultural Economist)	
Bruno Gerard	CIMMYT, Director GCAP (Addis Ababa-based)	Oversight agronomy research quality, member PMC (Systems agronomist)	
Bekele Shiferaw	CIMMYT, Director, SEP (Nairobi-based)	Oversight of socioeconomic research quality, PMC chair (Agric Economist)	
BM Prasanna	CIMMYT, Director GMP (Kenya based)	Oversight breeding research quality, member PMC (Breeder)	
Menale Kassie	CIMMYT, Scientist (Nairobi -based)	Analysis of markets and value chains; adoption and impacts (Agric and market economist)	

Name	Agency, position (location)	Role in program (discipline)	Variation
Moti Jaleta	CIMMYT, Associate Scientist (Ethiopia-based)	Agric and market economist	
Fred Kanampiu	CIMMYT, Senior scientist, (Nairobi-based)	Agronomist (agronomy research in Kenya, Tanzania, Ethiopia)	
Dan Makumbi	CIMMYT, Scientist, (Nairobi-based)	Breeder (breeder research in Kenya and Tanzania)	
Fredrick Baudron	CIMMYT, Associate Scientist (Ethiopia-based)	Systems agronomist	
Isaiah Nyagumbo	CIMMYT, Scientist (Harare-based)	Agronomist (agronomic research in Southern Africa)	
Medha Devare	CIMMYT, Knowledge Management Scientist (Nepal based)	Knowledge management (Knowledge management)	
Dagne Wegary	CIMMYT, Associate Scientist, (Addis based)	Breeder (breeder research in Ethiopia)	
Girma Taye	Scientist (Addis Ababa-based)	Breeder/Bioinformatics (Breeder/Bioinformatics)	
Marianne Banziger	CIMMYT, DDG-RP (Mexico based)	Institutional support (Breeder)	
Luz George	CIMMYT, Head, Project Management Unit (Mexico based)	Administrative support (Management)	
Mike Listman	CIMMYT, Head, Corporate Communications (Mexico based)	Communications support (Communications)	
Munyaradzi Mutenje	CIMMYT, Post- Doctoral Fellow (Harare - based)	Agric and Market Economist (Southern Africa)	Joined 01 February 2012
Geoffrey Muricho (NRS)	CIMMYT, locally recruited staff (Nairobi based)	Research support, socioeconomics (Agricultural Economist)	
Oliver Kirui (NRS)	CIMMYT, locally recruited staff (Nairobi based)	Research support, socioeconomics (Agricultural Economist)	
To Be Recruited (NRS)	CIMMYT, locally recruited staff (Africa based)	Research support agronomy (Agronomist)	
To Be Recruited (NRS)	CIMMYT, locally recruited field staff (Africa based)	Support to seed production (Agriculture)	
To Be Recruited (NRS)	CIMMYT, locally recruited staff (Africa based)	Research support breeding (breeding)	
Ojanji Wandera	CIMMYT, Locally recruited staff (Nairobi based)	Support communication	Joined 01 August 2011
Austin Ngindi	NRS (Harare based)	Program Officer & Assistant, support to program management and coordination (Administration)	Joined November 2010
Rose Faju			Joined December 2011

Table 8.2: Personnel and variations for CIMMYT-SIMLESA partners

Partner Australian institution - Murdoch University

Name	Agency, position (location)	Role in program (discipline)	Variation
John Howieson	Murdoch University Director, Inst for Crop and Plant Sciences	Partner Coordinator, legumes in farming systems (Rhizobiologist)	
Graham O'Hara	Murdoch University, Director, Centre for Rhizobium Studies; Dean, Graduate Studies,	Inoculant production, nitrogen fixation, training (Microbiologist)	
Peter White	Murdoch University, Agronomist	Pulse legume agronomy, farming systems (Agronomist)	
Pieter Conradie	Murdoch University	Project Liaison Officer	Joined in August 2010
TBA	Murdoch University, technician	Technician, glasshouse experimentation in nodulation and rhizobiology	

ASARECA

Name	Agency, position (location)	Role in program (discipline)	Variation
Lydia Kimenye	ASARECA, Knowledge Management	Partner Coordinator, Spillover management (Economist)	
Enock Warinda	ASARECA, M&E Specialist	Monitoring and evaluation, PMS	Joined in Aug 2010
Forough Olinga	ASARECA, Gender Specialist	Gender mainstreaming (Gender analysis)	

Australian institution – QAAFI/QDEEDI

Name	Agency, position (location)	Role in program (discipline)	Variation
Daniel Rodriguez	University of Queensland, Team Leader, Agricultural Systems Modeling	Partner Coordinator, Systems modeling (Crop Eco-physiologist)	
Andries Potgieter	QDEEDI, Principal Scientist	GIS & regional production modeling (GIS)	
Richard Routley	QDEEDI, Principal Scientist	Field research agronomy, coordinator of Queensland's field agronomic trials (Agronomist)	Left the team
Jo Owens	QDEEDI, Senior Scientist	Farming system modeling and interactions (Modeling)	
Solomon Kebede Fekybelu	QDEEDI, Senior Scientist	Maize breeding in Queensland (Breeder)	
Andrew Ward	QDEEDI, Science Leader Sustainable Farming Systems	General agronomy in Queensland, training (Agronomist)	
Howard Cox	QDEEDI, Principal Scientist	Cropping systems modeling (Agronomist)	
Brandan Power	QDEEDI, Research Officer	Systems modeling and climate risk management (Statistician)	Joined in May 2011
Alex Hoffman	QDEEDI, Resource Economist	Farm typologies and resource allocation (Economist)	

Name	Agency, position (location)	Role in program (discipline)	Variation
Peter Davies	QDEEDI, Research Scientist	GIS regional production modeling (GIS)	
Karine Chenu	QDEEDI, Senior Research Scientist	GxExM modeling (Modeler)	
TBA	QDEEDI-QAAFI student	Small household livelihoods analysis	
John Dimes	APSRU, Principal Scientist	Field research agronomy, coordinator of Queensland's field agronomic trials (Agronomist)	Replaced Richard Routley in May 2011
TBA	Senior Scientist	Field research agronomy (Agronomy)	
TBA	QDEEDI, Research Officer	Field research agronomy in Qld (Agronomist)	
TBA	QDEEDI, Field Technician	Field breeding in Qld (Breeder)	
TBA	QDEEDI, Field Technician	Field research agronomy in Qld (Agronomist)	

IARC – ICRISAT

Name	Agency, position (location)	Role in program (discipline)	Variation
Said Silim	ICRISAT, Director for Africa (Kenya-based)	Partner Coordinator (Physiologist/Breeder)	
Moses Siambi	ICRISAT, Agronomist (Malawi-based)	Agronomy research, crop modeling, southern Africa (Agronomist)	
Emmanuel Monyo	ICRISAT, Breeder (Malawi-based)	Pulses breeding (Breeder)	
K.P.C. Rao	ICRISAT, Agronomist (Kenya-based)	Research agronomy, pulses, eastern Africa (Agronomist)	
Peter Ninnes	ICRISAT, Director, resource mobilization-partnerships (India-based)	Administrative support	
David Hoisington	ICRISAT, DDG-R (India-based)	Institutional support (Biotechnology)	
N.V.P.R. Ganga Rao	ICRISAT, locally recruited staff (Nairobi-based)	Legume Breeder (Pigeonpea and Chicken pea)	Joined the team in June 2010
Peter Kaloki	ICRISAT, locally recruited field staff (Africa-based)	Research associate (Seed production, on-farm trials)	Joined the team in June 2010
Susan Njeri	ICRISAT, locally recruited field staff (Africa-based)	Research associate (On-station breeding experiments)	Joined the team in August 2010
Oswin Madzonga	ICRISAT, locally recruited staff (Malawi-based)	Support to breeding (breeding)	Joined the team in June 2010

Personnel and variations for SIMLESA program partners - Ethiopia

Name	Agency, position (location)	Role in program (discipline)	Variation
Mekonnen Sime	EAIR	Ag. Country Coordinator	Acting Country Coordinator
Dagne Wegary Gissa	EIAR, Researcher Melkassa RC(Melkassa)	Partner Coordinator, maize breeding (Breeder)	Assumed New post with CIMMYT.

Name	Agency, position (location)	Role in program (discipline)	Variation
Gezahegn Bogale Gebre	EIAR Senior Researcher, Melkassa RC (Melkassa)	Maize breeding (Breeder)	
Setegn Gebeyehu Endire	EIAR Director, Melkassa RC (Melkassa)	Common bean breeding & physiology (Physiologist)	
Kidane Tumsa	EIAR, Researcher Melkassa RC	Common bean breeding	Joined in June 2010
Solomon Admassu	EIAR Researcher, Awassa RC	Maize breeding (Breeder)	
Habtamu Admassu Ayana	EIAR, Researcher, Melkassa RC	Agronomy research (Agronomist)	
Bedru Beshir Abdi	EIAR, Head of Research and Extension, Melkassa RC	Socioeconomics analysis, extension linkages (Economist)	Left for further studies in Feb. 2010
Endashaw Habte	EIAR, Head of Research and Extension, Melkassa RC (Melkassa)	Agricultural Extension	New, Substitute for Bediru Beshir as from March 2010
Tolera Abera Goshu	EIAR Head of Agronomy and Crop Physiology Research Division, (Bako RC)	Agronomy research (Agronomist)	Transferred to another center in April 2010
Birhanu Tadesse	EIAR Breeder, Bako RC	Maize breeding (Breeder)	Joined in March 2010
Abeya Temesgen	EIAR, Breeder, Bako RC(Bako)	Pulse breeding (Breeder)	Joined in March 2010
Shiferaw Tadesse	Oromia ARI, Agronomy and Crop Physiology Research Division, (Bako RC)	Agronomy research (Agronomist)	Joined in March 2010 but now left again for M.Sc. study
Tussa Dedefo	Oromia ARI, Agronomy and Crop Physiology Research Division, (Bako RC)	Agronomy research (Agronomist)	Joined in March 2010
Kifle Degefa	Oromia ARI, Agricultural economics Research Division, (Bako RC)	Agricultural Economist	Joined in July 2010
Fitsum Alemayehu	South ARI, Breeder, Awassa RC	Pulse breeding (Breeder)	Joined in March 2010
Legesse Hidoto	South ARI, Agronomist, Awassa RC	Agronomist	
Mosisa Worku	EIAR, Breeder, Bako RC	Maize Breeder	
Adam Bekele	EIAR, Agro. Economist	Agricultural Economist	
Alemu tirfessa	EIAR, Breeder, Pawe RC	Maize Breeder	
Mulugetta Atnaf	EIAR, Breeder, Pawe RC	Pulse Breeder	
Birhanu Ayalemu	EIAR, Agricultural Economist, Pawe RC	Agricultural Economist	
Fekadu Getnet	EIAR, Agronomist, Pawe RC	Agronomist	

Personnel and variations for SIMLESA program partners - Malawi

Name	Agency, position (location)	Role in program (discipline)	Variation

Name	Agency, position (location)	Role in program (discipline)	Variation
Cyprian Mwale	DARS Research Scientist Chitedze Research Centre	Breeding (Breeder)	New National Coordinator since July 2010, replacing Luwanga
Samson F.M. Kazombo	DARS Agric Economist/Socioeconomist Chitedze Research Centre	Socioeconomics analysis (Economist)	No longer involved with SIMLESA work
Kesbell Kaswela Eston Kaonga	DARS Principal Maize Breeder and Maize Commodity Team Leader Chitedze Research Centre	Maize breeding (Breeder)	
Francis Maideni	DARS Chief Scientist, Plant Breeding Chitedze Research Centre	Seed systems (Agriculturalist)	
Amos Robert Ngwira	DARS Agronomist Chitedze Research Centre	Agronomist focused on CA (Agronomist)	
Donewell Kamalongo	DARS Research Scientist Chitedze Research Station	Maize Agronomist	Joined in Oct 2010
Albert Chamango	DARS Research Scientist Chitedze Research Station	Legume Breeder	Joined in Oct 2010
Donald Siyeni	DARS Research Scientist Chitedze Research Station	Legume Agronomist	Joined in Oct 2010
Boaz Mandula	DAES Research Scientist DAES HQ	Gender Specialist & M and E focal person	Joined in November 2010

Personnel and variations for SIMLESA program partners - Mozambique

Name	Agency, position (location)	Role in program (discipline)	Variation
Domingos José Brás Dias	IIAM Head, Research Dept, Central Zonal Center	Partner coordinator, Agronomy research (Agronomist)	New coordinator as of December 2010, replaced Rafael Nemba Uaiene
Rafael Nemba Uaiene	IIAM Program Coordinator	Partner Coordinator, socioeconomic analysis (Agricultural Economist)	Left the team in February 2011 to join IFPRI
Feliciano Mário Mazuze	IIAM, Economist	Socioeconomics analysis (Socioeconomist)	Left the team in March 2011
Pedro Fato	IIAM Biologist and Maize Breeder	Maize breeding (Breeder)	
Alda Tomo	IIAM, Economist	Socioeconomist	Left for PhD in January 2012
Nasciemento Nhantumbo	ISPM, Agronomist	Agronomist	Left for PhD in January 2012
Manuel Fungulane	IIAM, Angonia, Agronomist	Agronomist	Joined the team in August 2010
Gabriel Francisco Braga	IIAM, Angonia, Agronomist	Agronomist	Joined the team in August 2010
Angela Manjichi	IIAM, Agronomist	Agronomist, Gender and M&E	Joined the team in August 2010
Eduardo Mulima	IIAM, Maize Breeder	Maize breeder, Sussundenga, M & E	Joined the team in August 2010
Isabel Cachomba Sitoe	IIAM, Economist	Socioeconomist	Joined the team in October 2011

Name	Agency, position (location)	Role in program (discipline)	Variation
Bernardo Otelo	IIAM, Seed specialist	Agronomy, seed production, objective 3	Joined the team In December 2011
Custodio Jorge	IIAM Agronomist	Agronomy, long term trials CA, objective 2	Joined the team in October 2011
Jose Pires	ISPM, Agronomist	Agronomy, long term trials CA, objective 2	Joined the team in October 2011
Anacleta Remane	Undergraduate, Student at ISPM	Socio-economics, objective 1	Joined the team in April 2012

Personnel and variations for SIMLESA program partners - Kenya

Name	Agency, position (location)	Role in program (discipline)	Variation
Charles Nkonge	KARI	National Coordinator	New national coordinator
John Achieng	KARI, Senior Research Officer	Agronomy research (Agronomist)	Researcher at Kari Kakamenga
Beatrice Dorna Sakwa Salasya	KARI, Senior Research Officer and Coordinator, Head Socioeconomics Section	Socioeconomics (Economist)	Left the team
Christine Ndinya-Omboko	KARI, Technical Officer, Head of seed program	Seed Science (Agriculturist)	
Charles John Masaku Mutinda	KARI, Senior Research Officer	Plant Breeding (Breeder)	
James O. Ouma	KARI, Economist	Socioeconomics (Economist)	
Ezekiah Ngoroi	KARI, Agronomist	Seed Specialist (Agronomist)	
Micheni Alfred Ngera	KARI, Assistant Head of SWM and adaptive research	Agronomy (Agronomist), Site Coordinator, Kari-Embu	
James Gethi	KARI, Breeder	Plant Breeding, National Maize Coordinator (Breeder)	
David Karanja	KARI, Agronomist	Agronomy, National Legumes Coordinator (Agronomist)	
Erastus M. Kiruiro	Crop Livestock Interactions	Crop livestock interactions	
L.O. Okitoi	Crop Livestock Interactions		
Martins Odendo	Senior Research Officer	Socioeconomics (Economist)	
John Ojiem	Site Coordinator, Kari Kakamega		

Personnel and variations for SIMLESA program partners - Tanzania

Name	Agency, position (location)	Role in program (discipline)	Variation
Lucas Mugendi	DRD	Partner Coordinator, maize breeding (Breeder)	
Adrian B.C. Mbiza	ARS Principal Agric Research Officer 1, Agric Research Inst, Ilonga, Eastern Zone	Maize agronomic research (Agronomist)	
Bashir Makoko	Senior Agriculture Research officer	Agronomist	Moved from Salien to the Eastern Zone
Fidelis A. Myaka	ARS Ilonga Agric Research Inst Eastern Zone	Grain legumes agronomy (Agronomist)	
Ruth Madulu	ARS Eastern Zone, Agric research officer	Farming systems and socioeconomics analysis (Economist)	
K. Kitenge	ARS northern zone, Agric research officer	Maize breeding (Breeder)	
Joseph Mligo	Site Coordinator	Breeder (legumes-pigeon pea)	Substituted Mbiza

Name	Agency, position (location)	Role in program (discipline)	Variation
T. Mbaga	ARS Selian Agric Research Inst, Northern zone	Maize agronomic research (Agronomist)	
M. Mgendi	ARS northern zone, Agric research officer	Pigeon pea research (Breeder)	
Frank Mmbando	ARS northern zone, Agric research officer	Farming Systems and Socioeconomics (Economist)	
Christine Kaswahili	Maize Breeder	Maize Breeder	Joined in June 2011
George Iranga	Agronomist	Agronomist	Joined in June 2011
Theresia Gregory	SARI	Socio-economist	Newly joined the team
Dr. Banabas Kiula	Ilonga ARI	Maize Breeder	Newly joined the team,

9.0. Project implementation challenges and opportunities

Challenges

Capacity problems in project implementation and poor grant utilization vis-a-viz accounting for used funds in-line with agreed guidelines is a major concern, resulting in poor and delayed technical and financial reporting. This is also compounded by the many demands from developmental partners involved in the different countries. This caused difficulties in the submission of project reports (technical and financial) according to contractually agreed deadlines. This also has bearing on harmonization of travel and subsistence rates when dealing with NARS partners since they are bound to leave those low paying projects/programmes for higher paying.

Limited participation by NGOs and other partners in SIMLESA program activities still represents a big challenge. Better participation by these partners would ensure wider dissemination and sustainability of activities on the ground and alleviate capacity constraints. National coordinators have been urged to take advantage of local innovation platforms to promote the participation of other key partners. The PSC strongly recommended that NARS to ensure and develop a better participation arrangement.

Coordination among objective leaders at the field level is still a challenge in some partner countries and hence this comprises project implementation on the ground. Due to lack of coordination and integration among the three objective leaders, budgets allocated do not always suffice.

Another challenge observed is the reluctance by certain NARS senior scientists to give young and brilliant researchers' opportunity to go for staff development so as to plan for succession of the research process, which could impact on future SIMLESA research work, as well as on other food security initiatives.

In some countries extension and technicians faced transport difficulties in executing their day-to-day field activities, thereby affecting the smooth operation of the SIMLESA program. There may be scope for including transport assistance (motorbikes) in the program to facilitate their mobility.

The concept of CA in the rural set up requires a paradigm shift hence the need to invest more time and resources on changing smallholder farmers' mindsets. Uptake by neighboring farmers is still a big challenge considering the numbers being reported in most countries.

Farmers appreciated the role of CA equipment in making sowing easier but they reported that the lack of availability and high cost of this equipment in the local market to be the major constraints in allowing them to replicate the initiative.

Opportunities

There is a sense of SIMLESA ownership by NARS officials and teams because of financial resource allocation and capacity building opportunities for their key staff and partners. There are some encouraging linkages and synergies with AusAID/ACIAR- and BMGF-funded projects. A substantial budgetary allocation for MSc and PhD level training (A$89 K per NARS) to train and mentor a pool of young researchers (SIMLESA-Team B) who are destined to take over the research process. The early start of the capacity building initiatives (CA, M&E-IA and PhD) in most of the SIMLESA countries is encouraging and shows commitment by government officials. The involvement of expertise from ACIAR is beneficial through partnership and backstopping in supporting training, communication and scaling-up activities. Most NARS have shown their commitment to the program through assigning senior staff to coordinate SIMLESA activities e.g. KARI in Kenya.

The presence and participation of regional and international players opens up opportunities for maximizing the returns on funds invested as well as sharing expertise through collaboration and networking. There are great opportunities for capacity building of NARS, farmers and other stakeholders through the 'cross pollination' of ideas, 'look and learn' tours, etc. among the partners.

In Mozambique, the SIMLESA team signed an agreement with Dengo Commercial and Seed Association to produce certified seed for SIMLESA with basic seed to be provided by IIAM. The team has a special agreement with Initiative for Development and Equity in African Agriculture (IDEAA)-CA to scale out SIMLESA activities (CA, variety trials and demonstrations in Manica, Sussundenga, Macossa and Barue). IDEAA-CA has 36 associations in four districts that produce oil crops (sunflower and soybean) as well as maize. IDEAA-CA has a warehouse, commercial contracts with chicken and oil producers and an intensive project on food agroprocessing. The Mozambique SIMLESA team contacted the Hygrotech Company and requested it to provide inputs for Objective 2 and 3 with preferential prices. The team also entered into an agreement with IIAM-Basic Seed Unit (USEBA) to produce seeds (breeder and pre-basic seed) free-of-charge for SIMLESA. Mozambique SIMLESA team has approached the International Fertilizer Development Corporation-Mozambique (IFDC-Moz) to include SIMLESA farmers under its FAO voucher seed and fertilizer program that offer farmers inputs at subsidized prices.

The SIMLESA program continues to examine possibilities for developing further linkages and partnerships with other ACIAR and AusAID-funded initiatives [(Biosciences eastern and central Africa (BECA), West and Central African Council for Agricultural Research and Development (WECARD), Conference of African and French leaders of agricultural research institutes (CORAF), and Commonwealth Scientific and Industrial Research Organization (CSIRO)]. There is also potential for working with ILRI, CSIRO, ASARECA and NRS from Mali, Ghana, Burkina Faso, Niger, Nigeria and current SIMLESA participating countries in terms of a new initiative incorporating and mainstreaming gender into climate resilient Crop-livestock Systems research.

10.0. Budget

Budgets were transferred to all partners in time dependent on submission of accurate financial and technical reports. The financial position for SIMLESA for the period ending 30 June 2012 was as in tables below.

Table 10.1 Budget Utilisation Summary for SIMLESA Program

NARS-Sub grantee	Budget (AUD) (4 Years)	Expenditure reported* (AUD)	Expenditure Reported (USD)	Balance (AUD)	% Utilisation**
EIAR-Ethiopia	1,605,005	745,178.73	697,219.00	859,826.27	46.42
KARI-Kenya	1,250,000	571,661.16	588,810.99	678,338.84	45.73
ARS/DRD-Tanzania	1,250,000	499,253.68	499,753.43	750,746.32	39.94
IIAM-Mozambique	1,000,000	534,710.38	549,425.65	465,289.62	53.47
DARTS-Malawi	1,000,000	298,395.67	298,694.36	701,604.33	29.83
Sub Total	**6,105,005**	**2,649,205.62**		**3,455,805.38**	
Percentage %	100	43.39		56.61	
ARC-SA	353,423	215,602.00	220,558.69	137,821	61
ICRISAT	1,187,234	630,193.00	645,993.12	557,041	53
ASARECA	1,000,008	530,906.00	529,350.41	469,102	53
Murdoch University	514,067	194,695.80	200,711.88	319,371.20	37.87
QAAFI	2,667,885	1,763,415	1,014,494.25	871,725	66
CIMMYT	8,027,924	2,522,334,	2,627,158	6,040,751.30	31
Sub Total	**13,344,930**	**5,857,145.8**		**7,864,261.2**	
Percentage %	100	43.89		56.11	
Grand Total	**19,449,935**	**8,506,351.42**		**12,014,804.88**	
Percentage %	**100**	**43.73**		**56.26**	

*** Indicates funds disbursed to partners by CIMMYT SIMLESA program.**

**** Indicates amount disbursed to partner by SIMLESA program as a percentage of their 4 year grants.**

To enhance and improve funds utilization SIMLESA partners would be encouraged to submit their financial and technical reports timeously so that their research grants could be transferred expeditiously.

Annex 1: Collaborating organizations

- Agricultural Research and Technical Services (DARTS), Malawi
- Agricultural Research Council (ARC), South Africa
- Association for Strengthening Agriculture Research in Eastern and Central Africa (ASARECA)
- Department of Research and Development (DRD), Tanzania
- Ethiopian Institute of Agricultural Research (EIAR), Ethiopia
- Kenya Agricultural Research Institute (KARI), Kenya
- Instituto de Investigacao Agraria Mozambique (IIAM), Mozambique
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- Murdoch University, Australia
- Queensland Alliance for Agriculture and Food Innovation (QAAFI) in association with Queensland Department of Employment, Economic Development and Innovation, (QDEEDI, Australia**)**

Annex 2: SIMLESA Program July 2011-June 2012: Milestone achievements.

SIMLESA Milestone Achievement July 2011-June 2012									
Obj./Milestone	**Ethiopia**	**Kenya**	**Tanzania**	**Malawi**	**Mozambique**	**QDEEDI**	**ICRISAT**	**ASARECA**	**CIMMYT**
Objective 01									
Milestone 1.1.1	100	100	100	100	100				
Milestone 1.1.2	50	50	60	20	50				
Milestone 1.1.3	70	80	80	50	60				
Milestone 1.2.1	100	100	100	100	100		100		
Milestone 1.2.2.a	95	95	95	30	95				
Milestone 1.2.3	90	90	90	60	90				
Milestone 1.2.4	---	---	---	---	---	90			
Objective 02									
Milestone 2.1.1	90	90	90	90	90				
Milestone 2.1.2	85	85	85	85	85				
Milestone 2.2.1	90	80	80	65	70				
Milestone 2.2.2	90	90	90	70	80				
Milestone 2.2.3	0	0	0	0	0				
Milestone 2.3.1	100	100	100	100	100				
Milestone 2.3.2	100	100	100	100	100				
Milestone 2.3.3				100	100				
Milestone 2.3.4				100 20	100 20				
Milestone 2.3.5				60	70				
Milestone 2.4.4.a	90	90	90	80	90				
Milestone 2.7.1	95	95	95	95	95				
Objective 03									
Milestone 3.1.1	90	90	90	70	70				
Milestone 3.1.2							90		
Milestone 3.1.3	90	90	90	90	80		80		
Milestone 3.2.1	90	90	90	90	90				
Milestone 3.2.2	N/A	N/A	N/A	N/A	N/A				
Milestone 3.2.7	N/A	N/A	N/A	N/A	N/A				
Milestone 3.2.8									
Objective 04									
Milestone 4.1.1								40	
Milestone 4.1.3								40	
Milestone 4.1.4								20	
Milestone 4.2.1								0	
Milestone 4.2.2								0	
Milestone 4.3.3								60	
Milestone 4.3.4								40	
Milestone 4.3.5								60	
Objective 05									
Milestone 5.2.1						80			60
Milestone 5.3.1									90
Milestone 5.4.1									95
Milestone 5.5.1									80

Annex 3: Detailed Partner Workplans

ARC: Capacity Building

Operational Plan – 2012

1. Introduction

Purpose: To enhance the capacity and skills of SIMLESA scientists, research technicians, and extension personnel through facilitating the utilisation of R&D outcomes

Focus areas:

A. Post-graduate degree training (MSc and PhD) for national and regional partners
B. Non-degree practical training

2. Budget

Table 1: Operational budget for Capacity Building

Item	Amount US $	Amount in ZAR
1. Review and Planning Meetings	$32,000	243,200
2. Non-degree practical training (In-country)	$80,000	608,000
3. Non degree practical training (Regional)	$52,000	395,200
4. Post Graduate Degree Training		
a. PhD (Registration only)	$400	3040
b. MSC (Registration only)	$1,400	10,640
5. Project management	$16,580	126,008
Total Cost	**182,380**	**1,386,088**

Table 2: Capacity Building Operational Plan for 2012 (January –December)

KRA	WEIGHT	PROJECT AND / OR ACTIVITY	INDICATOR	QUARTERLY TARGETS		OPERATIONAL BUDGET
				Q1 & Q2	Q3 & Q4	
Non-degree practical training	50%	In-country training delivery	Number of trainees trained	40-60	60-90	$33,000
			Number of courses delivered	5	5	
		Regional Training	Number of trainees trained	20	20	$52,000
Degree Training	20%	MSc and PhD in training	PhD students registered (course work starts in 2013)	0	1	$400
			MSc students registered (course work starts in 2013)	0	2	$1,400
Country Reviews and Planning Meetings	20%	Attendance of country reviews and planning sessions	Country meetings attended	1	4	$32,000
			Annual Review and Planning meeting attended		1	

ASARECA SIMLESA ANNUAL WORK PLAN(JULY 2012-JUNE2013)

Output/Activity No.	Output	Activity	Milestone	budget (US$)	Time line
4.1.	**Gender mainstreaming**				
4.1.1	Capacity building in gender mainstreaming for SIMLESA implementing team	Harmonisation of gender mainstreaming Action Plans & Budgets, and development of case studies	Harmonised action plans and country budgets	32,000	Aug-12
			Case studies documented	65,000	Aug-Sept 2012
		Documentation of Gender Mainstreaming capacity building trainings	Workshop proceedings published	5000	Sept-October 2012
		Documentation of the harmonised action plans	Harmonised action plans published	3,000	Oct-Nov 2012
4.1.2	Backstopping and integrating Gender into ongoing project	Backstopping and participation in Regional Meetings		5000	Q1-Q4
	SUBTOTAL			**110,000**	
4.2.	**Monitoring & Evaluation (M&E) System**				
4.2.1	**Capacity Building in Monitoring and Evaluation for SIMLESA implementing team**	Training on M&E Aproaches and Methodologies	At least one training for SIMLESA implementing team conducted	25,000	Aug-12
		Workshop on Data Quality Management (DQM)	DQM workshop held	35,000	Jul-12
		Backstopping and participation in Regional Meetings	At least 3 meetings attended	6,000	Q1-Q4
		M&E focal persons facilitation		20,000	Q1-Q4
4.2.2	**Fine-tuning of existing participatory low-cost M&E system to program outputs and modalities**	Improvement of the M&E framework for the project to make it more gender responsive (work with the Gender Specialist).	Gender responsive M&E framework in place	0	Q3
4.2.3	**Formats for the collection and preparation of monitoring data provided to national and regional program management each six months**	Development of the data collection instruments and performance tracking sheets including gender dissagregated data tools . Periodic review meetings to update the PMP	Data collection instruments and sheets developed	0	Jul-12
4.2.4	**Evaluation and Impact Asssesment**	Conduct Data Quality Assessment for ground truthing	DQA conducted	10,000	Aug-12
		Conduct evaluations for the outcome level indicators	Outcome level evaluations done	45,000	Apr-13
4.2.5	**Analysis and discussion of monitoring data at annual program meetings**	To be routinely done every year	Atleast 2 review meetings held	5,000	Q1-Q4

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4.2.6		**Backstopping on M&E and attending partners meetings**	Participate in partners meetings and review M&E related documents	At least 3 meetings attended and M&E relevant documents reviewed	0	Q1-Q4
		SUBTOTAL			**146,000**	
	4.3	**Knowledge transfer & technology spillover**				
4.3.1		Analysis of past experiences and bottlenecks for maize-legume system product spillovers	Synthesis and documentation of information on available technologies, knowldge products and dissemination approaches	Information on available technologies, knowledge and dissemination approaches published	20,000	Q3-Q4
		Analysis of past experiences and bottlenecks for maize-legume system product spillovers	Synthesis and documentation of the enabling conditions for scaling out and spill overs	Enabling conditions for scaling out and spill overs published	20,000	Q3-Q4
4.3.2		Cross-participation in annual research workshops between program members and other programs in the sub-region	Attend meetings in current SIMLESA and spillover countries to support spillovers	At least 2 meetings attended	8,000	Sept-Dec 2012 June 2013
4.3.3		Backstopping on adoption of technologies and spillovers	Backstopping and participation in Regional Meetings	At least 3 partners meetings attended	8,000	Sept-Dec 2012 June 2013
		SUBTOTAL			**56,000**	
		GRANDTOTAL			**256,000**	

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ICRISAT Work plan

Output	Activities	Achieved	Work plan for Year 3
3.1. An improved range of stress tolerant maize varieties and higher yielding legume varieties available to farmers in the selected farming systems through farmer and seed company participatory variety selection	1. Identify specific released varieties (products of DTMA / TL-II and other projects in ESA) suitable for the targeted farming systems	Selected 45 legume varieties suitable for maize based cropping systems in Malawi (11), Mozambique (13), Tanzania (6), Kenya (7) and Ethiopia (8)	Identification of additional elite varieties for PVS
	2. Scale-up seed production of best-bet varieties through implementation of country-specific seed road maps	Seed road maps prepared using best-bet 45 legume varieties with an aim to produce a total of 3,728 t of certified seed	• Continue production of breeder and/or foundation seed of varieties identified under seed road maps to meet the technology dissemination targets by 2014 • Involving more stakeholders in seed production and delivery
	3. PVS trials (with best-bet maize and legume varieties) in each of the target countries under farmer-representative and legume intercrop/CA conditions [*in coordination with Obj.2*]	Conducted PVS trials in Years 1& 2, which resulted in selection of best-bet varieties for seed road maps	• Facilitate and monitor PVS trials. Production of seed for PVS trials. • Participate in PVS evaluations/field days involving farmers and other stakeholders.

Queensland Alliance for Agricultural and Food Innovation in association with Queensland Department of Employment, Economic Development and Innovation

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

No.	Activities	Activity outputs	Due date of milestone	Responsible	Comments
Activity 1.2.3	Identification of villages and household types through household surveys and participating farmers engaged (in collaboration with 1.2.2)	Farm case studies identified and current farmer's decision on resource allocation and their consequences quantified in terms of productivity – risk – environmental consequences	Started and to be completed as data from Malawi and Mozambique becomes available	Lead: QDEEDI; and 2 PhD students; Participate: ICRISAT; National Program staff[2]; CIMMYT; farmer and women groups in the target communities	The analysis for Kenya and Tanzania is well advanced, and the work for Ethiopia is undergoing. We are awaiting the survey data set from Malawi and Mozambique to start this analysis.
Activity 1.4.1	Developing farm household typologies for selected farming systems to establish representative case studies	• Farm household typology developed and case studies identified based on household survey data (link to 1,2) • Existing farmer resource allocation decisions and their consequences on risk-productivity-environment quantified • Opportunities for improvement and research questions, identified and discussed with the participating farmers and value chain research team	January 2011	Lead: QDEEDI (D Rodriguez, PhD students); Partners: ICRISAT; National Program staff; CIMMYT; Farmer groups in the target communities	The completion of this analysis is delayed as per late arrival of the baseline data set. The analysis has been completed for Kenya and Tanzania and in progress for Ethiopia. We are awaiting the survey data set from Malawi and Mozambique to start this analysis.
Activity 1.4.2	Participatory design and bio-economic modeling and evaluation to identify improved maize-legume enterprise options for increasing productivity and reducing risks	Improved farm-household resource allocation and risk management strategies for each household type identified, and consequences of their implementation i.e. productivity – risk – environmental impacts quantified and discussed with the participating farmers and value chain research team.	December 2012	Lead: QDEEDI (D Rodriguez, PhD students); Partners: CIMMYT, ICRISAT; National Program staff;; Farmers in the target communities	Work in progress as per 1.4.1

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

No.	Activities	Activity outputs	Due date of milestone	Responsible	Comments
Activity 2.3.3	Minimum data set for field characterization defined and sites characterized • NARs aware and collecting a minimum data set required for systems modelling activities • Basic soil, climate, land use, topography and cropping history data available for each of the exploratory trial sites.	Annual report on trial results	December 2011 after soil analyses conducted	Lead: National program coordinators With participation J Dimes	At least one of the exploratory trial per country agro-ecology characterized aiding the interpretation of trial results; and data sets used to evaluate APSIM performance with National System scientists.

[2] *In all cases, national programme staff include members of universities and graduate students*

No.	Activities	Activity outputs	Due date of milestone	Responsible	Comments
Activity 2.4.1	Identify solutions to problems observed on farmer plots (see 2.2.7) and options for system diversification and intensification or productivity increases (previously subjected to ex ante analysis) through an efficient on-farm research program in each country. • On-farm research program defined in each country after the first season of trial plots, ex ante technology analysis and analysis of household data. • Application of the APSIM and APSFarm models to sites and farm households representative of the target communities in the five countries.	Annual report on trial results	October 2011	Lead: National program coordinators With participation from D Rodriguez and J Dimes	• Efficient and dynamic on-farm research programs defined • Data to enable the adequate parameterization of the APSIM and APSFarm models are still to be compiled in a common data base that needs to be shared with the modelling team • John Dimes will work with the National Systems during the second APSIM training exercise in Harare to finalise this activity • Joe Eyre will work with Queensland farmers to re-evaluate mixed species farming options in Queensland, Australia.
Activity 2.4.3	Contribution towards the development of protocols for component technology trials.	At least four trials established on representative sites in each agro-ecology. Although in some countries this may be worthwhile in the first program season, they will only be definitely established in the second season	January 2012	Lead: National Program scientists; Participate: CIMMYT; Link: QDEEDI (J Dimes)	This is an ongoing backstopping activity lead by J Dimes. In 2012 additional results from weed control, crop intensification and N response trials will be analysed.
Activity 2.4.4	Contribution towards the development of protocols for researcher-managed trials.	One researcher managed trial established in each agro-ecology. Precise data on crop productivity and water dynamics available for crop/soil simulation model validation. Data available on the effects and potential effects of the principal technological interventions addressed by the program on soil quality, BNF, and disease, pest and weed dynamics.	December 2010 July 2011 and annually after that. July 2012 and annually after that	CIMMYT; NARS Scientists; QDEEDI (J Dimes)	• This is an ongoing backstopping activity lead by J Dimes. On-station trial results will be used at August training workshop to evaluate APSIM performance, along side exploratory trial results at 2.3.3 • Joe Eyre will lead the development of a guide to Maize-legume field experimentation and data collection. In addition, he will assist with the training of African scientists visiting Australia (supported by the Crawford Fund).

No.	Activities	Activity outputs	Due date of milestone	Responsible	Comments
Activity 2.4.6	Eco-physiological analysis of intercropped maize-legume farming systems	Improved understanding of eco-physiological traits to improve maize adaptation to different environments and management practices	December 2011	Lead: QDEEDI (J Eyre), Participate: NARES, participating farmers Link: CIMMYT	This is an ongoing activity lead by J Eyre • Establish trials to re-evaluate the effectiveness of temporal and spatial manipulation of inter-specific competition for recourses on productivity, profitability and resource use efficiency. • Improve understanding of the frequency of potential relay cropping opportunities in Queensland with simulation modeling. • Opportunistically establish on-farm trials to evaluate and demonstrate multi-species cropping systems in Queensland. • Evaluate the potential to delay legume seed germination to facilitate mechanised relay cropping.
Activity 2.4.7	Best management practices for maize-legume systems identified	Improved understanding of best management practices for maize-legume systems	December 2012	Lead: QDEEDI (J Dimes), Participate: NARES and participating farmers Link: CIMMYT	• John Dimes will work with the National Systems during the second APSIM training exercise in Harare to finalise a plan for this activity. A modelling analysis of intensification options in Western Kenya is in progress. • Joe Eyre will contribute Queensland experience with mixed species farming systems.
Activity 2.4.8	Contribution towards idenfying problems and opportunities observed in research trials and household case studies.	Annual E&P Meetings held in each country each year during the period between crop cycles to evaluate results and incorporate them into plans for the following season.	All completed by Sep 2011, and annually thereafter	Lead: National program scientists and innovation platform partners; CIMMYT, ICRISAT, QDEEDI (J Dimes)	This is an ongoing backstopping activity lead by J Dimes

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.

No.	Activities	Activity outputs	Due date of milestone	Responsible	Comments
Activity 3.2.2	Testcrossing of maize inbreds • Germplasm import • Quarantine evaluation • Test crossing	• Testcross progeny generate about 200 TX (including both local and imported CIMMYT materials	• Dec 2012	Solomon Fekybelu in collaboration with CIMMYT	We have imported diversity panel from CIMMYT. It consists of some 300 lines. It will have to go through quarantine first before we get the seed for testcross planting. How many inbreds we can grow under quarantine depends on the availability of space. We aim to get them through as quickly as we can. It is part of the (CIMMYT & QLD) germplasm evaluation activities.
Activity 3.2.3	Joint characterization of elite inbreds and legume varieties	Elite inbred and legume variety characterization for priority stresses in target		NARS, CIMMYT, TL II partners and QDEEDI breeders (QDEEDI for	We can make available some inbreds to African partners if requested formally

No.	Activities	Activity outputs	Due date of milestone	Responsible	Comments
		countries		maize) (S Fekybelu)	
Activity 3.2.4	Joint characterization of elite testcrosses in relevant farming systems, including with legume intercropping	Testcross characterization in various (legume systems) environments	July 2012 (QLD part)	NARS & CIMMYT breeders, QDEEDI (S Fekybelu)	This involves yield testing of newly developed germplasm from Australia. It doesn't involve legumes as it has no application to Australian conditions.
	Genotype parameterization	Three latest maize hybrids in Australia parameterized	July 2012	QDEEDI (Y Chauhan	
	Preliminary analyses of GxExM	GEM-analyses of Australian maize growing environments	Dec 2012	QDEEDI (Y Chauhan & S Fekybelu)	

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

No.	Activities	Activity outputs	Due date of milestone	Responsible	Comments
Activity 5.1.4	PhD training on bio-economic modeling, and agronomy	Competence of national and regional partners enhanced for conducting strategic research and new options for sustainable intensification identified Partnerships between African and Australian institutions strengthened	Year 4	Lead: QAAFI Partners: CIMMYT, ICRISAT, NARS	QAAFI is presently supervising five PhD students, and new applicants have submitted their applications to AusAid
Activity 5.2.1	Training course on the participatory evaluation (costs, benefits and risks) of opportunities for the application of crop/soil simulation models for the *ex ante* analysis of technology options for maize-legume systems, including conservation agriculture technologies, nitrogen management strategies, crop sequencing, grain-legume mixed systems, rainfall harvesting, and residue management strategies.	Capacity built in the program countries in utilizing the outputs from systems modeling to evaluate technology options and risk management strategies; and assist in the ex-ante analysis of technology options and farming systems designs. Two courses will be held in the region with 25 participants in each course.	September 2010	Lead: D Rodriguez (QAAFI); Participate: Project Coordinator (CIMMYT); National staff	Second round of APSIM training is planned for August 2012. Two participatory modeling exercises are planned for Ethiopia in May 2012.
Activity 5.5.1	Practical training in environmental characterization	Two CIMMYT staff trained in environmental characterization	Dec 2010	QAAFI	PhD enrolled with the QAAFI and new PhD student submitted his application to AusAid
Activity 5.5.2	PhD training in crop simulation model based analysis of GxExM	Tropical germplasm parameterized to apply APSIM models to predict performance in changing climate under different management options in Africa and Australia. Research for one PhD study completed	Dec 2013	QAAFI breeder/APSIM group/UQ (S Fekybelu, Y Chauhan)	Student starting in July 2012

2012/13 WORKPLAN FOR MOZAMBIQUE

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;

No	Activity	Due date	Responsible	Budget (AUD
1.1.2	Finalize agribusiness opportunities survey report	Dez 2012	Isabel Cachomba Anacleta Mugabe (IIAM) with ISPM students	5,000.00
1.2.5	Analysis of household baseline survey data	May, 2012	Lead CIMMYT (Menale), with support from IIAM, ICRISAT, Australia	
1.2.5.1	Baseline survey report presentation	July, 2012	Domingo Dias, Isabel Cachomba ,	4,000.00
1.3.1	Review of existing value chain studies on maize and legumes (input and Output Value Chains)		Isabel Cachomba, Anacleta Mugabe, ISPM students	10,000.00
	Develop a standardized market and value chain survey on key inputs (seed and fertilizers) and outputs	April, 2012	Lead CIMMYT (Menale), with support from IIAM, ICRISAT, Australia	
	Develop a standardized market and value chain survey on key inputs (seed and fertilizers) and outputs	April, 2012	Lead CIMMYT (Menale), with support from IIAM, ICRISAT, Australia	
1.3.3	Value Chain Analysis	May, 2012	Isabel Cachomba	13,000.00
		Jun, 2012	Anacleta Mugabe and ISPM students	
		Jun, 2012	Anacleta Mugabe	
		Aug, 2012	Isabel, Anacleta with support of Menale	
1.3.4	Synthesis and analysis of opportunities and constraints for value chain and market development	Dez, 2012	CIMMYT and Australia, ICRISAT (leaders, analysis)	
1.4	Develop farm household typologies		Daniel (leader), with support from CIMMYT, IIAM and other partners	
1.1.5	Adoption monitoring of new varieties and improved practices (CA, maize-legume, intercropping/rotation, maize/legume	Jul and Dez, 2012	CIMMYT will provide the tool	8,250.00
2.3.5	Farmer evaluation and data collection on labour, herbicides, price and yield for calculating gross margins varieties and technologies evaluation	Sep, 2012		**(This budget will be drawn from objectives 2 and 3)**
	Organizing of time series price input and output data for maize and legumes for gross margin analysis			
	Revise the economic data sheet of experimental trial			

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

Performance Indicator	Activity	Milestone	Responsible	Due date	Budget
Output 2.1: Identified options for systems intensification and diversification, that reduce risk in the ten farming systems using systems modeling					
A list of potential, sustainable, reduced risk yet more productive technology options that are compatible with present and/or future value chain arrangements in each of the target environments of the five program countries prepared based on ex ante analysis. In alignment with Objectives 1.1.1, 1.1.2 and 1.5.1 (value chains)	Continue with CA options tested in exploratory trials in year 1 and 2 and expand it	Trials established from Nov 2011	Isaiah, Dias, Refo with Extension staff and farmers organization (IDEAA-CA), Mulima	Aug, 2012	13,756
	Implement component, long term and farmer trials as identified in 2.4.3, 2.4.4, 2.4.6				
Discussions held with participating farming communities, national technical staff (research and extension), and other members of the incipient innovation platforms, to evaluate technology and livelihood options (including those developed in 2.1.2) and determine the technologies to be tested on farm in each of the targeted communities.	Share Year 1 results with farmers and plan implementation of 2011/12 exploratory trials	6 feedback meetings to farmers	Isaiah, Dias, Refo with Extension staff and farmers organization (IDEAA-CA), Mulima	Jul, 2012	5,046
Output 2.2: Functioning local innovation systems developed in each of ten maize-legume farming systems to help overcome system limitations and enhance scaling out of technologies					

2.2.1 Based on observations of problems in field plots and in maize, legume and CA value chains, multiple agents whose expertise and networks may be useful to overcome these problems invited to participate in local innovation systems (linked to Activity 2.3.5) and membership expanded as necessary	Needs analysis in terms of input quantities at community level, facilitate small loan agreements with farmers	Players identified and active in SIMLESA	Dengo & Extension	Begin Sep 2011 end June 2012	
	Develop links with relevant partners input suppliers (Dengo, IDEAA, Dengo Comercial, IFDC, Betuel commercial, IAP) for Manica / Sofala Provinces, (Bonimar, Semente Perfeita,) for Tete Angonia community. NGOs for Tete province (Total Land care)	350 new farmers involved in CA activities	Isaiah, Dias, Refo with Extension staff and farmers organization (IDEAA-CA), Mulima	Jun, 2012	860
	Develop links with CIAT for sharing IP expertise	Brokers identified for each community		Dec, 2011	
2.2.2 Regular discussions and field visits conducted with program partners and members of the innovation system in each agro-ecological zone to observe and discuss problems and bottle-necks with farmers	Invite IP members to field days and forums to address CA constraints and opportunities	Three meetings per season	Extension officers, IIAM-Dias	Sept, 2012 Jun, 2012 Dec, 2012	
2.2.3 Information flow between all members of the innovation system (including farmers) encouraged and facilitated	Translate (local language), adapt and redistribute existing material from CIMMYT. Make use of community photo's. Pamphlets, brochures etc -Generate relevant information materials/literature (fact sheets, posters and leaflets) and avail at relevant resource centers in each community			June 2012	10,320
	Compile articles and package them in an e-newsletter format at national level at least twice per year				
	Compile and avail an email and telephone list of IP members in each community				
2.2.4 Efforts of members of the innovation system to overcome one or more of the system limitations encouraged, facilitated, and, where possible, supported	Link IP members to relevant academic institutions and research to address identified constraints and networks such as ACT				
2.2.5 Effectiveness of local processes for adapting and spreading the program technologies systematically assessed using participatory and M&E systems;	Establish volume of contracts, sales and other opportunities generated through IPs	Extension records of sales	Every four months		
	Involve farmers and other IP members in developing, reviewing and making recommendations to annual plans	Contracts, farm incomes			
Output 2.3: Evaluated exploratory trials of current best options for maize/legume smallholder systems for different farm types with 5-6 cooperating farmers in each of thirty research sites/communities farming systems					
Number of required inputs procured	Procure inputs (Fertilizers, sprayers and acessories/ equipment, seeds, herbicides, pesticides)	Inputs procured for all the trials sites and delivered	Dias	1st October 2011 October 2012	7,000
	Modify protocols according to recommendations of the planning meetings on APSIM & monitored sites		Dias		
Site characterization (minimum data set)	yearly soil and plant sampling	All sites re-sampled	Dias, Custodio, Mulima	Oct/Nov 2011 (soil) March 2012 (plants)	1,400
Number of extension and farmer trained	Conduct staff and farmer training on:	Staff and farmers trained in all six sites	Extension officers, ARC, Dias, Isaiah	Nov 2011 (2 days) Nov 2012	
	• CA concepts and principles				10,000
	• Use of direct seeder				
	• Data collection and management				

	• Harvesting & storage				
Number of extension staff trained	Conduct pre-harvest hands on training on harvesting and data collection	Extension staff trained prior harvesting on-farm trials	Extension officers, Dias, IIAM, Isaiah	Feb/Mar 2012	10,000
	Participatory evaluation of exploratory trials	Beginning, mid and end season evaluation done		Dec, 2011 - April 2012	
On-farm visits	At least once weekly		Isaiah, Dias		6,000
	Give farmer a record book where EO signs on every visit.				
	Develop checklist to be used by EO on each visit, Bind and avail protocol documents				
	Checklist for EO to complete on visits.				
Output 2.4: Adjustments to the maize-legume systems tested in the exploratory trials and farmer experiments developed with farm and soil quality, system productivity and disease, pest and weed dynamics quantified					
2.4.1 Identify solutions to problems observed on farmer plots (see 2.2.7) and options for system diversification and intensification or productivity increases (previously subjected to ex ante analysis) through an efficient on-farm research program in each country	Implement changes suggested at AP&E meeting (replace jab-planters, pre-season testing of direct seeder, modify protocol to plant beans 1 wk after maize at Angonia, seed germination tests – see discussion list)	Report on completed checklist	Isaiah and Dias	End Oct 2011	
	Increase back-stopping support to extension officers for labor monitoring	Schedule Plan for site visits	Obj 1 Coordinator, local economist	Nov 2011	
2.4.2 Sites representative of the conditions of farmers in the target communities selected and characterized to enable the establishment of an efficient on-farm research program in each country.	Identify 2 on-farm trials for intensive data monitoring at Angonia (1 in Chiphole, 1 in Cabango) and Sussundenga	Sites selected		Oct 2011	10,494
	Minimum dataset documentation added to experimental protocol for Angonia and Sussundenga	New protocol for applicable sites		Oct 2011	
	Analyse soil, plant and climate data for APSIM input	Report on trial results		June 2012	
	Simulate trial results using APSIM	On-farm trial results simulated and documented		July 2012	
2.4.3 Component technology trials established on sites representative of the target communities and agro-ecologies to explore possible solutions to observed problems and explore options to sustainably increase the productivity of maize-legume farming systems	Conduct termite control trial at ISPM, monitor mulch cover, maize biomass and grain yield	Trial protocols developed	Isaiah, Dias, Ext staff	Oct 2011	1,565
	Conduct weed control trial at Gorongosa, monitor weed biomass, mulch cover, biomass & grain yield	Field trials established and data collected	Isaiah, Dias, Ext staff	Nov2011-Apr2012	
	Analyse soil, plant and climate data for reporting at 2012 AP&E	Annual report on trial results	Isaiah, Dias, Ext staff	July 2012	
2.4.4 Researcher-managed trials established under conditions representative of the agro-ecologies addressed in the program to monitor the medium to long-term effects of the principal program interventions on soil quality and disease, pest and weed dynamics.	• Establish 1 long-term on-station trial on tillage, crop rotation and intercropping options at Angonia.	Trial protocols developed	Isaiah, Dias	Oct 2011	2,000
	• Establish 1 long-term trial on cropping intensification options (Intercrop, strip and relay crop) using CA at Angonia	Trials established and 1st year data collected	Dias, Isaiah and Ext staff	Nov 2011-Apr 2012	
	• Analyse soil, plant and climate data from trial for APSIM input	Report on trial results	Dias, Isaiah and Ext staff	June 2012	
	• Evaluate/calibrate APSIM for CA systems using 2011/12 trial results at Angonia and ISPM				
	• Simulate 2010/2011 on-station trial on tillage, crop rotation and intercropping at Sussundenga	On-station trial results simulated and documented	Dimes, Isaiah, Dias	July 2012	
2.4.6 Eco-physiological analysis of intercropped maize-legume production systems	Experimentation in Australia on maize-mungbean intercropping and cereal-legume relay cropping options	Trials established and data collected	J Eyre Y.Chauhan, Dimes		
	Evaluate/calibrate APSIM capabilities to simulate competitive effects for light, water and nutrients in intercrop systems	On-station trial results simulated and documented			

2.4.7 Best management practices for maize-legume systems identified	In progress	Improved understanding of best management practices for maize-legume systems	Isaiah and Dias	Dec, 2012	
2.4.8 Problems and opportunities observed in research trials and household case studies analyzed at Annual Evaluation and Planning Meetings (AE&P) in each country and incorporated plans for the following season.	Consultations at 2011 AP&E	Updated work plan for Mozambique Obj. 2	Isaiah and Dias	Sep 2011	
Output 2.5: Appropriate interventions for improving seed and fertilizer delivery and farmer access to technologies and markets field tested in at least thirty research sites/communities (Refer to Objective 1)					
2.5.1 Testing and evaluation of options for improving farmer access to inputs (seeds, fertilizer, knowledge, finance) for technology adoption (these interventions will be refined after analysis of household and market survey data)	Identify suitable options for inputs delivery and access to farmers	Prior planting	Isabel and Menale	Sep 2011	
	Compare the effectiveness of the different options through tracking the suppliers and users for each option	Prior harvesting			
	Develop tools for assessing effectiveness of IP's				
2.5.2 Testing and evaluation of options for improving farmer access and participation in output markets (e.g. collective marketing, grades and standards, market information systems, warehouse receipt systems, metal silos, value adding enterprises, etc) for maize and legumes	Link with government (agribusiness officer, crop protection officer)		Isabel and Menale		
Identifying effective strategies to improve rural finance and insurance e.g. index climate insurance, farmer loans	Link with government (agribusiness officer, crop protection officer)		Isabel and Menale		
Output 2.6: Lessons from active farmer experimentation with CA-oriented systems incorporated into on-farm research trials in each of the thirty research sites/communities					
	On-station trial to determine the effectiveness of selected products to control termites in Manica Province	Trial established, managed, data collected, analyzed and presented	OE (Mr Custodio and Pires)		3,000
Output 2.7: Farmer learning through annual facilitated visits of farmers and their local extension agents between the targeted communities in each of the five countries					
	Farmer exchange visit	One meeting per community	Dias/Isaiah	March/April 2012	4,200
	Planning meetings	One planning per site for new season	All obj. coord/ Isaiah/Ext supervisor	August 2012	
Output 2.7: Farmer learning through annual facilitated visits of farmers and their local extension agents between the targeted communities in each of the five countries					
	Farmer exchange visit	One meeting per community	Dias/Isaiah		4,000
	Planning meetings	One planning per site for new season	All obj. coord/ Isaiah/Ext supervisor		10,000
	Crop livestock meetings to plan for animal pressure on crop residue Required for CA	One meeting per site after harvest	Ext supervisors and staff	August 2012	3,366
	Post Harvest Farmers Feedback	Review previous season	All obj. coord/ Isaiah/Ext supervisor	June 2012	4,000
	Farmers evaluation, 3 per site	Start of season, middle and end	Ext supervisor and staff	Jan/Feb March/April May 2012	4,000
	Site visits and completion of checklist	Weekly during season	Ext supervisor and staff	Ongoing through out year. June - Oct 2012	
		Two weekly in off season			
	Farmer discussion group led by research committee.	Three meetings	Research committee members	Nov, 2011 and Nov, 2012	2,772

Main SIMLESA-Ethiopia Work plan for 2012

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

No.	Outputs / Activities		Due date of milestone	Responsible
Activity 1.1.2	Finalize agribusiness and market opportunities survey report	No. of reports (1)	May 2012	Adam B. with support from Kifle Degefa., Bayissa Gedefa, Hassen Nur Hussein, Berhanu Ayalew
Activity 1.1.3	Collecting secondary socio-economic and biophysical data including some village level data for mapping and characterization.	Number of target maize-legume farming communities characterized (1)	May 2012 March 2012-mapping of data	Lead in mapping: Menale Kassie in collaboration with Australia and NARS (Adam, Girma M.) and ICRISAT
Activity 1.2.5	Analysis of data on existing farmers' resource use patterns, production practices, technology choices and preferences, constraints to market participation and maize-legume systems improvements, socioeconomic profiles, input output levels, access to services and markets for maize, legumes and other farm outputs in the target farming systems of each of the selected countries to appraise technology options	No. of reports produced (1)	April 2012	NARS, Minale Kassie, CIMMYT
Activity 1.2.5.1	Baseline survey report presentation	No. of forums organized (1)	Early June-2012	Adam, Berhanu, Kifle, Hassen, Bayissa Gedefa,
Activity 1.3.1/2	Develop a standardized market and value chains survey instrument on key inputs (seed and fertilizer) and outputs	Number of surveys conducted (2)	March 2012 April 2012 Late April 2012 June 2012	Lead: CIMMYT (Menale) with support from EIAR (NARS), ICRISAT, Australia and other partners
Activity 1.3.3	Analysis of the structure and performance of input and output markets and their integration in Ethiopia	No. of reports produced (1)	Aug 2012	Lead: Menale Kassie with support from EIAR (NARS), ICRISAT Australia and other partners
Activity 1.4	Developing farm household typologies	No. of typologies developed (3) No. of analysis made (2)	May 2012 September 2012	Daniel (leader) with support from CIMMYT, EIAR (Adam, Girma), and other partners Menale Kassie (leader) with support from QAAFI
Activity 1.1.5	Adoption monitoring of new varieties and improved practices (CA, maize-legume intercropping/rotation, maize/legume varieties adoption)	No. of reports produced (1)	Sept 2012	Adam, Birhanu, Kifle, Bayisa, Hassen, Minale
Activity 2.3.5	Farmer evaluation and data collection on labor, herbicides, price and yield for calculating gross margins varieties and technologies evaluation Organizing of time series price input and output data for maize and legumes for gross margin analysis Revise the economic data sheet of experimental trial	No. of reports produced (1) No. of participants by gender Type of data documented No. of revised sheet evaluated (2)	3 times early/medium/late season April 2012 April 2012	Adam, Birhanu, Kifle, Bayisa, Hassen, Minale with support from partners and CIMMYT Adam, Birhanu, Kifle, Bayisa, Hassen,

Objective 2: *Testing and developing productive, resilient and sustainable smallholder maize-legume cropping systems and innovation systems for local scaling out*

Activity No.	Activity	Output	Performance Indicator	When	Melkassa	Awassa	Bako	Pawe
Out put 2.2. Functioning local innovation systems developed in each of ten maize-legume farming systems to help overcome system limitations and enhance scaling out of technologies.								
2.2.1	Establishing functioning and effective local innovation platform	innovation systems established	Number of functioning and effective local innovation platform developed in each agroecologies	Before planting and mid-season/September	1	1	1	1
2.2.2	Assessing effectiveness of LIPs/ satisfaction of stakeholders with the LIPs	Standardized effectiveness measuring checklist developed LIPs effectiveness assessed (%)	Level of effectiveness of LIPs/ satisfaction of stakeholders with the LIPs	Before planting, (mid-season)/September	70	70	70	70
2.3. Evaluated exploratory trials of current best options for maize/legume smallholder systems for different farm types with 5-6 cooperating farmers in each of thirty research sites/communities farming systems								
2.3.1	Organizing awareness creation meetings	Awareness creation meetings carried out	Number of stakeholders' awareness creation meetings carried out at each target communities	April-May	8	8	7	7
2.3.2	Exploratory & Researcher managed trials established, characterized and evaluated	Exploratory researcher managed trials planned and executed (Crop management, weed management Farm implement evaluation &demonstration Established, BNF, Soil water management)	Number of exploratory & researcher managed trials established, characterized and evaluated	April-May	22 (2) (number in brackets are researcher managed trial)	20 (4)	15 (4)	15(2)
2.3.3	Identifying and selecting best-bet options	Best-bet options selected for further scaling out	Number of best- bet options selected	September , December	1	1	1	1
Output 2.4: Adjustments to the maize-legume systems tested in the exploratory trials and farmer experiments developed with farm and soil quality, system productivity and disease, pest and weed dynamics quantified.								
2.4.1	Adjusting maize-legume system and testing at target areas	Adjustments made that can add value to the system (BNF, CA implements)	Number and type of adjustments made to the maize-legume systems tested	April-June	2	2	2	2
2.4.2	Calibration & Validation of APSIM for generation of appropriate Maize-Legume farming systems	✓ Minimum data set collected & model calibrated and Validated ✓ Scenarios generated	Number of appropriate maize-legume farming system scenarios generated through APSIM and APSFARM analysis	April-Early June	1	1	1	1
Output 2.6: Lessons from active farmer experimentation with CA-oriented systems incorporated into on-farm research trials in each of the thirty research sites/communities.								
2.6.1	Documentation of farmers trying out CA-based experiments on their own fields	Farmers adopting CA-based farming documented	Number of farmers trying out CA-based experiments on their own fields documented	May-September	25	25	25	25
Output 2.7: Farmer learning through annual facilitated visits of farmers and their local extension agents between the targeted communities in each of the five countries.								
2.7.1	Organizing farmers and other stakeholders exchange visits	Exchange visits carried out	Number of farmers and other stakeholders participating in exchange visits in communities with similar conditions	September	30	30	30	30
2.7.2	Organizing field days to facilitate scaling up of technologies	At least one event carried out at each site	Number of farmers and other stakeholders participating in field days.		275	275	275	275

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

Activity No.	Output/ Activity	Performance Indicator	When	No. of varieties per location			
				Melkassa	Hawassa	Bako	Pawe

3.1	10 - 15 stress tolerant maize varieties and 10 higher yielding legume varieties available to farmers in the selected farming systems through farmer- and seed company-participatory variety evaluation and release			4	3	5	3
3.1.3	Seed increase for farmer-participatory maize and legume variety evaluation	1. Seed of maize varieties increased 2. Seed of legume varieties increased	2012	8 20	5 11	8 14	4 12
3.1.4	Farmer-participatory evaluation of pre-release and newly released maize hybrids and OPVs and legume species and varieties under farmer-representative and legume-intercrop/CA conditions	1. Number of pre-release/newly released maize varieties tested 2. Number of pre-release/newly released legume varieties tested	2012	8 16	9 10	9 16	5 18
3.1.5	Seed production characteristics of elite maize hybrids and OPVs and legume varieties established	Identification seed production characteristics of the parental materials of each elite maize hybrid	2012	4	2	2	
3.1.7	Improved GxExM analysis approaches applied to Farmer participatory maize variety trials and NMVTs	Stability of the nine maize hybrids determined across locations	2012		9	9	9
3.1.8	DUS and NMVT/VCU testing of selected maize OPVs and hybrids	Specific traits of each variety identified	2012	2	2	2	2
3.1.9	Requirements for legume variety release completed for adapted varieties in each program country		2012	4		4	4
3.1.11	Breeder/basic seed production for seed companies and demonstrations	Amount of breeder seed produced for recently released maize hybrids	2012	10	4	10	2
3.2	Regional nursery for further improved (2nd generation) maize and legume varieties and hybrids						
3.2.1	Seed increase of elite inbred lines and legume varieties generated in various programs	1. Amount of seed of each maize inbred lines produced 2. Amount of seed of each legume/soyabean variety produced	2012	50 250	30 20	40 20	- 56
3.2.2	Test-crossing of maize inbreds	Number of test-crosses formed		60	50	50	
3.2.3	Joint characterization of elite inbreds and legume varieties	1. Number of maize inbred lines characterized 2. Number of legume varieties characterized	2012	30 20	6 20	8 20	6 20
3.2.4	Joint characterization of elite testcrosses in relevant farming systems, including with legume intercropping	Number of elite test-crosses characterized	2012	50	29	29	-
3.2.6	Development and selection of new 2nd generation hybrids, OPVs and legume varieties based on joint germplasm characterization and predicted performance of hybrids/OPVs	Number of new 2nd generation hybrids, OPVs and legume varieties developed	2012	30		60	
3.2.7	Target farming system-related improvement of infrastructure for program execution	Number of cold rooms and irrigation facilities constructed		1	1	-	1
3.2.8	Assess opportunities for incorporating national germplasm into regional nursery	Policy issue??					
3.3	Environmental characterization						
3.3.1	Environmental characterization of main CIMMYT, NARS and Queensland testing sites	To be determined					

No.	Outputs / Activities	Milestones	Due date of milestone	
Output 5: Training in Agriculture Development and Agriculture Economics				
Objective 1	Long term training for NARS economics staff		4 economists at MSc level trained	TBD
	Short-term: GIS, spatial and multivariate analysis		5EIAR (NARS) economists trained	August/September 2012
	Software application (STATA, SAS, SPSS)		5 NARS economiststrained	July 2012
Objective 2	APSIM, Implement, data analysis (Biometry, Software), Soil analysis, IP(extension system), BNF)		At least 12 personnel trained	April-December
Objective 3	Training and trainee identified (APSIM, Implement, data analysis (Biometry, Software), Soil analysis, IP(extension system), BNF)		74 – breeders, technicians, and experts	2012
	Training of farmers , experts, researchers on CA, IP, knowledge management		150	May, 2012

Annex 4: List of SIMLESA Program Publications

Technical Papers			
	Title	Author(s)	Presented/published
1.	Adoption of multiple sustainable agricultural practices: Evidence from Rural Tanzania. 2011.	Menale Kassie, Moti Jaleta , Bekele Shiferaw, Mulugetta Mekuria and Frank Mmbanda	Paper submitted to Journal of Technological Forecasting and Social Change
2.	Sustainable Maize-Legume Systems: Experiences and Lessons from SIMLESA to Asia	Mulugetta Mekuria, Bekele Shiferaw, Prasanna Boddupalli, Daniel Rodriguez and John Dixon.	11th Asia Maize Conference, 7-11 November, 2011, Nanning China
3.	Sustainable Intensification of Maize Legume cropping systems for food security in Eastern and Southern Africa. SIMLESA: The Why, How and Where.	Mulugetta Mekuria; Prasanna B, Rodriguez D , Shiferaw B, Wall P, Dixon J, Dimes J, Potgieter	5th WCCA SIMLESA Symposium, Brisbane , Australia, 26-29 Sept 2011
4.	Adaptation of Conservation Agriculture by smallholder farmers in Malawi: drivers, intensity, benefits and problems for up scaling	Ngwira A, Mulugetta Mekuria and Aune, J	5th WCCA SIMLESA Symposium, Brisbane , Australia, 26-29 Sept 2011
5.	Enhancing Smallholder Agricultural Productivity and sustainability through Conservation Agriculture: Initial Evidence from Southern Africa	Mulugetta Mekuria and Menale Kassie	Accepted Symposia paper for IAAE Conference in Brazil August 2012
6.	Interdependence in farmer technology adoption decisions in smallholder systems: Joint estimation of investments in sustainable agricultural practices in Rural Tanzania	Menale Kassie, Moti Jaleta , Bekele Shiferaw, Frank Mmband and Mulugetta Mekuria	Accepted Symposia paper for IAAE Conference in Brazil August 2012
7.	Improved Maize Technologies and Welfare Outcomes In Smallholder Systems: Evidence From Application of Parametric and Non-Parametric Approaches	Menale Kassie, Moti Jaleta, Bekele Shiferaw, Hugo De Groote, Frank Mmbando	Accepted Symposia paper for IAAE Conference in Brazil August 2012
8.	Tradeoffs in Crop Residue Utilization in Mixed Crop-Livestock Systems and Implications for CA and Sustainable Land Management	Moti Jaleta, Menale Kassie, Bekele Shiferaw	Accepted Symposia paper for IAAE Conference in Brazil August 2012
9.	On the Joint Estimation of Multiple Adoption Decisions: The Case of Sustainable Agricultural Technologies and Practices In Ethiopia	Hailemariam Teklewold, Menale Kassie, Bekele Shiferaw	Accepted Symposia paper for IAAE Conference in Brazil August 2012
10.	Adoption of Agricultural Technologies in Kenya: How Does Gender Matter	Simon Wagura, Menale Kassie, and Bekele Shiferaw	Accepted Symposia paper for IAAE Conference in Brazil August 2012
11.	Understanding the Drivers of Sustainable Intensification of Smallholder Agriculture in Eastern and Southern Africa	Mulugetta Mekuria, Menale Kassie and Bekele Shiferaw	Accepted Symposia paper for IAAE Conference in Brazil August 2012
12.	Gender of Household Head and Food Security: Empirical Evidence From Kenya	Menale Kassie, Simon Wagura, Bekele Shiferaw	Accepted for Agricultural Economics Society conference 2012, UK
13.	Crop-Livestock Interaction in Smallholder Farming and its Implications for the Adoption of Conservation Agriculture in Kenya	Moti Jaleta, Martins Odendo, James Ouma, Menale Kassie, Bekele Shiferaw	CIMMYT Socio-Economics Working paper
14.	Welfare impacts of maize–pigeonpea intensification in Tanzania	Mulubrhan Amare, Solomon Asfawb, Bekele Shiferaw	Published in Journal of Agricultural Economics 00 (2012) 1–17
15.	Impact of modern agricultural technologies on smallholder welfare: Evidence from Tanzania and Ethiopia	Mulubrhan Amare, Solomon Asfawb, Bekele Shiferaw	Published in Journal of Food Policy 37 (2012) 283–295

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16.	Determinants of Agricultural Technology adoption: the Case of Improved Pigeonpea Varieties in Tanzania	Franklin Simtowe, Menale Kassie, Aliou Diagne, Said Silim, Elijah Muange, Solomon Asfaw, and Bekele Shiferaw	Published in Quarterly Journal of International Agriculture 50 (2011), No. 4: 325-345
17.	Characterization of Soil Nutrient Levels in Smallholder Farms in Eastern Kenya	Alfred Micheni, Fred Kanampiu and Daniel Rodriguez	*5th WCCA & 3rd FSD, Brisbane, Australia; 26-29 September 2011*
18.	Towards Sustainable Intensification of Maize-Legume Cropping Systems: Kenya Experience	John Achieng', Alfred Micheni, Fred Kanampiu	*5th WCCA & 3rd FSD, Brisbane, Australia; 26-29 September 2011*
19.	Intensification of Maize-Legume Cropping Systems under Conservation Agriculture in Eastern Kenya	Alfred Micheni, Fred Kanampiu and Onesmus Kitonyo	*Submitted to: 13th KARI Biennial Conference (12th -26th Oct. 2012)*
20.	Innovative Platform: A Practical Approach for Out/Up - Scaling Conservation Agriculture Techniques and Maize-Legume Cropping Systems in Eastern Kenya	Alfred Micheni, Fred Kanampiu, Onesmus Kitonyo, James Ouma, Ezekiel Ngoroi and Charles Mutinda	*Submitted to: 13th KARI Biennial Conference (12th -26th Oct. 2012)*
21.	Sustainable Intensification of Maize-Bean Production among Smallholder Farmers in Western Kenya	Achieng' J., Ndinya Omboko, Odendo, M. and Nyakundi, B.	Submitted for "Project Evaluation" at the 13th KARI Biennial Conference (12th-26th October, 2012)
22.	Sustainable intensification of maize bean production among smallholder farmers in western Kenya. 2011.	Achieng, J. O., Kanampiu, F., Chauhan, Y, and Rodriquez, D.	*Published in Resilient food systems for a changing world. Proceedings of the World Congress of Conservation Agriculture incorporating 3rd Farming Systems Design Conference. Brisbane, 26th-29th September, Pp 176-177. www.wcca2011.org*
23.	Evaluation of APSIM to simulate maize-bean cropping systems in eastern and southern Africa: an alternative approach.2011.	Dimes, J., Achieng, J., Mesfin, T., Makoko, B., Nhantumbo, N., and Rodriquez, D.	*Published in Resilient food systems for a changing world. Proceedings of the World Congress of Conservation Agriculture incorporating 3rd Farming Systems Design Conference. Brisbane, 26th-29th September, 2011. Pp 462-463. www.wcca2011.org*
24.	Towards sustainable intensification of maize-legume cropping systems: Kenya Experience. 2011.	Achieng, J., Micheni, A. and Kanampiu, F.	*In Resilent food systems for a changing world. Proceedings of the World Congress of Conservation Agriculture incorporating 3rd Farming Systems Design Conference. Brisbane, 26th-29th September, 2011. www.wcca2011.org*
25.	Sustainable intensification of maize-bean production through conservation agriculture among smallholder farmers in western Kenya. 2011	Achieng, J., Kanampiu, F	*Ist Simlesa National Planning Presentations (Embu, Kenya)*
26.	Sustainable intensification of maize-bean production through conservation agriculture among smallholder farmers in western Kenya.	Achieng, J., Kanampiu, F, Chauhan, Y, Rodriguez,	*Regional planning meeting in Arusha, 2012*
27.	Management of Climate Variability: Way-forward for Kenya.	Achieng, J., Micheni, A., Kamau, C., Nyaga, J.	*Presented at the Climate Risk Management Workshop,*

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			Morogoro, Tanzania. Nov 27th-Dec 2nd, 2011.
28.	Performance of maize legumes under conservation agriculture technologies in western Kenya. 2011	Achieng, J. and Nyakundi, B.	*Centre Research Advisory Committee (CRAC)*
29.	Performance of maize and beans under conservation agriculture technologies in western Kenya. 2010	Achieng, J. and Nyakundi, B.	*KARI Annual Reports Pp 43-48.*
30.	Performance of maize-bean production under conservation agriculture technologies in western Kenya. 2011	Achieng, J. and Nyakundi	*KARI Annual Reports*
31.	Initiating Sustainable Agricultural Systems through CA in Mozambique: Preliminary Experiences from SIMLESA.	Domingos Dias	*5th WCCA & 3rd FSD, Brisbane, Australia; 26-29 September 2011*
32.	Intensity of improved maize varieties adoption, food security, and poverty alleviation: Empirical evidence from rural Tanzania	Menale Kassie, Bekele Shiferaw, Moti Jaleta, Hugo De Groote, Frank Mmbando	
33.	Implications of maize-legume intensification on technical efficiency of smallholder maize producers in Kenya: A Stochastic Frontier Analysis	Muricho Geoffrey, Menale Kassie, Bekele Shiferaw, and Kirui Oliver	
34.	Adoption of Agricultural Technologies in Kenya: How Does Gender Matter?	Simon Wagura Ndiritu, Menale Kassie, Bekele Shiferaw	
35.	Initiating sustainable agricultural systems through Conservation Agriculture in Mozambique: preliminary experiences from SIMLESA	Dias, D.J., Nyagumbo I, Nhantumbo, N.S.	
36.	The effects of minimum and conventional tillage systems on maize grain yield and soil fertility in western Ethiopia	Tolessa Debele	
37.	Sustainable intensification of maize-bean production among smallholder farmers in western Kenya	Achieng J1, Kanampiu F, Chauhan Y, Rodriguez D	
38.	Intercropping maize and mungbean to intensify summer cropping systems in Queensland, Australia	Eyre JX, Routley RA, Rodriguez D, Dimes JP	
39.	Initial results on the response of maize and pigeonpeas to conservation agriculture at Karatu-Tanzania	Makoko Bashir R, Mmbaga T, Kanampiu F, Rodriguez D	
40.	Characterization of soil nutrient levels in smallholder Farms in Eastern Kenya	Micheni AN, Kanampiu FK, Rodriguez D	
41.	Breeding better maize germplasm for drier and hotter production environments	Fekybelu S, Zeppa A, Chauhan Y, Rodriguez D	
42.	5-Simulating maize-bean cropping Systems in eastern and southern Africa: Evaluation of APSIM to simulate maize-bean cropping systems in eastern and southern Africa: an alternative approach	Dimes J, Achieng J, Mesfin T, Abeya T , Makoko B Nhantumbo N and Rodriguez D	
43.	Towards Sustainable Intensification of Maize–Legume Cropping Systems in Ethiopia. 2012.	Dagne Wegary, Abeya Temesgen, Solomon Admasu, Solomon Jemal, Alemu Tirfessa, Legesse Hidoto, Fekadu Getnet, Gezahegn Bogale, Temesgen Chibsa, Mulugeta Mekuria.	*Proceedings of the Third National Maize Workshop of Ethiopia, Addis Ababa, Ethiopia Pp. 115-122.*
44.	Meeting the Challenges of Global Climate Change	Dagne Wegary, Abeya	*Proceedings of the Third National*

	and Food Security through Innovative Maize Research. 2012	Temesgen, Solomon Admasu, Solomon Jemal, Alemu Tirfessa, Legesse Hidoto, Fekadu Getnet, Gezahegn Bogale, Temesgen Chibsa, Mulugeta Mekuria	*Maize Workshop of Ethiopia, Addis Ababa, Ethiopia.*
45.	On farm and on station 'Best Bet' maize-legume cropping systems evaluation under CA and Conventional practice in mid altitude sub humid of Western Ethiopia	Abeya Temesgen, Tusa Dadefo, Tadesse Birhanu, Gemechu Shumi, Kifle Degefa, Shiferaw Tadesse, Getachew Biru and Ifa Waltaji	5th WCCA SIMLESA Symposium, Brisbane, Australia, 26-29 Sept 2011
46.	System Productivity as Influenced by Integrated Organicand Inorganic Fertilizer Application in Maize (Zea mays l.) Intercropped with Soybean (Glycine max l. merrill) Varieties at Bako, Western Ethiopia. 2011.	Abebe Zerihun.	

Poster presentations

47.	Validation of Options for Sustainable BNF in Maize-Legume farming Systems in Central Kenya	Alfred Micheni	The Legume-Rhizobium Symbiosis Workshop, Wageningen University, The Netherlands. 18th – 22nd October 2010
48.	Understanding the drivers of conservation agriculture (CA) technology Adoption in Small holder Agriculture: Evidences from Malawi	Mulugetta Mekuria and Vine Mutyasira	5th WCCA SIMLESA Symposium, Brisbane, Australia, 26-29 Sept 2011
49.	Minimum Tillage Method	Alfred Micheni.	SIMLESA Project Planning & Training Meetings
50.	Conventional Tillage Method	Alfred Micheni.	SIMLESA Project Planning & Training Meetings
51.	Furrows and Tillage Method	Alfred Micheni.	SIMLESA Project Planning & Training Meetings
52.	Farmers Tillage Method	Alfred Micheni.	SIMLESA Project Planning & Training Meetings
53.	Kyeni SIMLESA Innovative Platform… evaluating and promoting SIMLESA Technologies and Knowledge in Eastern Kenya	Charles Nkonge, Ezekiel Ngoroi and Fred Kanampiu	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
54.	Characterization of Soil Nutrient Levels in Smallholder Farms in Eastern Kenya	Alfred Micheni, Fred Kanampiu, and Daniel Rodriguez	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
55.	Embean 14: Improving Food Security in SIMLESA Villages	Alfred Micheni , Ezekiel Ngoroi and Aslipon Nyaga	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
56.	Availing Appropriate Maize and Legume Varieties to Smallholder Kenyan Farmers	E. Ngoroi, C. Ndinya-Omboko, P. Kwena, C. J. Mutinda and A.N. Micheni	
57.	Scaling-out conservation agriculture among smallholder maize-legume farmers in western Kenya. 2012	Achieng, J., Ojanji, W., Nyakundi, B., and Kanampiu, F.	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
58.	Sustainable intensification of maize-bean production in western Kenya through conservation agriculture. 2012.	Achieng, J., Kanampiu, F., Ojanji, W., Nyakundi, B and Chauhan, Y.	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
Tanzania			
59.	Introduction of New Drought Tolerant Maize Varieties in Mbulu and Karatu Districts	Kheri Kitenge, Dan Makumbi and R. Ndondi	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd

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			March 2012
60.	Initial results on the response of maize and pigeonpeas to conservation agriculture at Karatu-Tanzania	Makoko Bashir R, Tuaeli Mmbaga, Fred Kanampiu, Daniel Rodriguez	World Congress for Conservation Agriculture at Brisbane Australia in September, 2011
61.	Short term effects of conservation agriculture and fertilizer use on maize-legume cropping systems in Eastern Tanzania	G. Iranga and B. Makoko, L. Mugendi, D. Rodriguez, F. Kanampiu	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
62.	Effect of fertilizer micro-dosing on yields of maize and pigeonpeas intercropped under smallholder farmers' conditions in Tanzania	Lyimo, S.D; R.M. Ubwe1; M.Z. Owenya; C. Yangole1; P. Mushi1; P. Sulumo1; J.K. Mligo; S.Silim	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
63.	Identifying pathways out of poverty in Tanzania	Mmbando F, Rodriguez D, Menale K, Power B	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
64.	Baseline assessment of Maize-Legume production systems in Tanzania	Ruth Madulu and Frank Mmbando	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
65.	Adoption of multiple sustainable intensification practices in Rural Tanzania	Frank Mmbando, Menale Kassie, Moti Jaleta, Bekele Shiferaw, and Mulugetta Mekuria	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
66.	Introduction of improved Agronomic Package under Conservation Agriculture (CA) in Northern Tanzania	John Sariah, Bashir Makoko, Tuaeli Mmbaga, Lukas Mugendi, Daniel Rodriguez and Fred Kanampiu	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
67.	Seed Market Liberalization, Hybrid Maize Adoption and Impacts On Smallholder Farmers In Tanzania	Jonas Kathage, Qaim Martin, Menale Kassie, Bekele Shiferaw	Submitted and accepted Symposia Poster presentation for IAAE Conference in Brazil August 2012
Mozambique			
68.	Preliminary results of SIMLESA research activities in Mozambique	Domingos Dias et al	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
69.	Pests of soybean Pests and diseases under CA	Domingos Dias	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
70.	Baseline results (objective 1)		SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
71.	Community survey results (Objective 1)		SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
72.	Characterization of Maize-legume Farming Systems and Farm Households in Mozambique	Cachomba, I. and Menale, K	
73.	5 Posters: Soybean characteristics of varieties (PVS, objective 3, under CA): TGX1740-2F, Ocepara-4, 427/5/7, H7, H17	Domingos Dias & Manuel Amane	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
74.	Cowpea (IT-16) under participatory Variety Selection (PVS), objective 3		SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
75.	Pest and disease management of soybeans in CA		

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76.	Initiating Sustainable Agricultural Systems through Conservation Agriculture in Mozambique: Preliminary Experiences from SIMLESA	Dias, D.J. Nyagumbo, I and Nhantumbo, N.S	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
77.	Posters sized A3 with 2010/11 results for CA farmers (With drawings). Explains using simple drawings the benefits of CA compared to conventional agriculture		
78.	The role of Dengo Comercial in SIMLESA		SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
79.	FIELD DAYS, 20-22/02/12: Monitoring demonstrations of techniques Conservation Agriculture (CA)	Department of Training, Documentation and Dissemination, Chimoio 2012	
80.	IDEAA-CA, Oilseeds Commodity Association	IDEAA-CA	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
81.	Perfect Seed Company, Manica, Mozambique	Alberto Vura	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
Ethiopia			
82.	Participatory Maize Variety Selection: Fast-tracking the release of farmer-preferred varieties	Solomon Admassu, Gezahegn Bogale, Berhanu Tadesse, Mekonnen Sime and Dagne Wegary	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
83.	Adoption of Bio-diversification, Conservation Tillage and improved seed varieties in Ethiopia: Implications for food security and Environment	Hailemariam Teklewold, Menale Kassie, Bekele Shiferaw, Adam Bekele	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
84.	Increasing the range of legume varieties available for smallholders in maize-legume farming systems under SIMLESA target areas	Kassaye N., Solomon A., Zinaw D. and Adane A.	
85.	Assessment of adoption of sustainable intensification practices in rural Ethiopia	Hailemariam Teklewold, Menale Kassie , Bekele Shiferaw , Adam Bekele	
86.	Increasing the range of legume varieties available for smallholders in Maize-legume farming system areas	Kassaye N., Solomon A., Zinaw D. and Adane A.	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
87.	Reading Maize-bean growing smallholder farmers in Ethiopia	Adame Bekele and Menale Kassie	
88.	CA- based Technologies for Sustainable Legume-Maize Cropping System	Solomon J.a, Mekonnen S., Solomon A., Zerihun A., Fitsum M.	
89.	Assessment of adoption of sustainable intensification practices in rural Ethiopia	Hailemariam Teklewold, Menale Kassie, Bekele Shiferaw, Adam Bekele	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012
Australia			
90.	Rapid access to quality research data with a flexible electronic capture and storage systems	*James McLean and Joseph Eyre*	*SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012*
91.	Intra- & inter-specific competition in mixed maize-legume cropping systems: Temporally offsetting	*Joseph X. Eyre, Daniel Rodriguez, John P. Dimes, and Howard Cox*	*SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012*

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Malawi			
92.	Farmer participatory research: a tool for enhancing uptake of CA maize-legume based technologies in Malawi	*Donwell Kamalongo, Cyprian Mwale, Boaz Mandula, Albert Chamango, Esau Mwendo Phiri, Patrick Chingati Phiri, Samidu, Christine Mtambo, Violet Phiri and Frank Samidu;*	*SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012*
93.	Characterization of Maize-legume Cropping Systems and Farm Households in Malawi	*Cyprian Mwale, Donwell Kamalongo, Boaz Mandula, Albert Chamango, Esau Mwendo Phiri, Patrick Chingati Phiri, Samidu, Christine Mtambo, Violet Phiri and Frank Samidu; Munyaradzi Mutenje*	*SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012*

Posters Developed

94.	SIMLESA Country poster – Ethiopia		
95.	SIMLESA Country poster – Kenya		
96.	SIMLESA Country poster – Tanzania		
97.	SIMLESA Country poster – Malawi		
98.	SIMLESA Country poster – Mozambique		
99.	SIMLESA Pull-up Poster		

Article(s) published/broadcast

100.	SIMLESA Farmers' Field Day	Micheni, et al. 2011	CIMMYT Informal. No. 1734. 11-18 February 2011
101.	Farming is a business- you must invest in it in order to get returns	Micheni, et al. 2011	SIMLESA Speaks. ACIAR Magazine. Pages 7 – 8.
102.	Kilimo-KARI; Conservation Agriculture Promoted in Western Kenya	Achieng' J.	Radio-Mambo, 13th January, 2012
103.	Eco-friendly weed killer to boost food security	Achieng' J.	The County Weekly of the The Standard Group, 6th February, 2012 (Kenya)
104.	Kenya promoting conservation agriculture to fight food insecurity.	Achieng' J.	Published in "The EastAfrican", 30th January, 2012 (Kenya)
105.	Farmers in western Kenya embrace conservation agriculture	Achieng' J	Produced by Kenya Broadcasting Corporation TV, January 17th, 2012
106.	Successful conservation agriculture trials continue in Ethiopia and Kenya	Achieng' J	Published in CIMMYT's Informa and SIMLESA Bulletin July-December, 2011.
107.	SIMLESA holds another successful field day in western Kenya	Achieng' J.	Published in SIMLESA Bulletin - January-March, 2012 Issue.
108.	Africa: Women farmers can overcome world hunger	Achieng' J.	Published by Population and Sustainability News Digest. population.org/prepage/viewswction.php?

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109.	Radio Documentary: "Minimum Tillage aids African Farmers".	Achieng' J	Produced by Australian Broadcasting Corporation, Rural Press, November 2011
110.	Radio program for SIMLESA: Broadcasting twice a week in local language (stories, experiences with CA, Questions and Answers, etc..) for 3 months (March-May, 2012)		
111.	New collaborative maize and legume project kicks off in Africa		CIMMYT Informa April 2010
112.	Maize-legume project launched in southern Africa		CIMMYT Informa May 2010
113.	Sharing is caring: SIMLESA teaches Kenyan farmers about the importance of CA and knowledge exchange		CIMMYT Informa October 2010
114.	SIMLESA farmers' field day		CIMMYT Informa February 2011
115.	Taking stock and smiling towards the future – SIMLESA's first annual review and planning meeting		CIMMYT Informa March 2011
116.	Researchers to Review Food Security Project in Kenya	George Kebaso	Business Daily, March 9, 2011
117.	SIMLESA Special Report		Broadcast on Voice of America March 2011
118.	Minimum tillage aids African farmers		Australian Broadcasting Corporation, Rural Press, November 2011
119.	Kenya farmers showcase their harvest	Achieng' J	Produced by ACIAR, September, 2011
120.	SIMLESA Field Day in Mozambique		Shown in two Mozambican TV (Public and private)
121.	SIMLESA project objectives, importance of conservation agriculture, farmers view and the benefit farmers got from the project (SIMLESA field day in the south)		Aired on Debub FM for two weeks on Wednesday and Saturday for 30 minutes and ETV-South program for two days for 26 minutes
122.	The exchange visit of SIMLESA CA and PVS trials by SIMLESA hosting farmers, DA, agronomists from office of agriculture and researchers		Aired for one day for 15 minutes on Debub FM
123.	Local Innovative Platform: A case of SIMLESA Kyeni trials site in Eastern Kenya	Alfred Micheni, Fred Kanampiu and Onesmus Kitoyo	SIMLESA Highlights Bulletin, April-June 2012. Page 10-11
124.	KARI develops high-yielding bean variety	Alfred Micheni	Sunday Nation (Kenya) July 2012, pg 37
Video Clips			
125.	Mweru Field Day	Micheni, et al., 2011	
126.	Conservation Agriculture for Improved food Security in Eastern Kenya (2011)	Alfred Micheni, Fred Kanampiu and Charles Mugo	To be finalized
127.	Integration of on-farm trees, crops and livestock for improved food Security in Eastern Kenya (2012)	Alfred Micheni, Peter Gachie and Mohosen Mwangi	To be finalized
128.	Bean varieties evaluation by Kyeni IPs	Alfred Micheni and Ezekiel Ngoroi	SIMLESA 2012 PSC Meeting, Arusha, Tanzania. 19th – 23rd March 2012 (to be finalized)
129.	Purity: the farmer teacher of alternative feeds [besides crop residue]	Alfred Micheni, Peter Gachie, Mohosen Mwangi and Valentine Gitonga	To be finalized

Publications

130.	SIMLESA Semi-Annual 2010		
131.	SIMLESA Annual 2010		

132.	SIMLESA Semi-Annual 2011		
133.	SIMLESA Annual 2011		
134.	Booklet for extension: Growing Maize and Legumes under CA (Mozambique)	Domingos Dias. 2011.	
135.	Exploratory Trial Protocol – Lowland Agro-ecosystem 2010/2011		
136.	Exploratory Trial Protocol – Highlands Agro-ecosystem 2010/2011		
137.	SIMLESA Highlights (Bulletin)		
138.	SIMLESA Brochure		
139.	SIMLESA Voices		
140.	EC/IFAD CGIAR Program: Enhancing Total Farm Productivity in Smallholder Conservation Agriculture-Based Systems in Eastern Africa		Technical Progress Report 1 July – December 31, 2011
141.	Conservation Agriculture– for Sustainable Maize-legume Production (Flyer)		
142.	On farm and on station 'Best Bet' maize-legume cropping systems evaluation under CA and Conventional practice in mid altitude sub humid of Western Ethiopia (Flyer)		

Annex 4.1 Other Publications on SIMLESA Program

1. SIMLESA Highlights 1
2. SIMLESA Highlights January-March 2012
3. SIMLESA Brochure
4. Africa recruits research partners to secure its food-SIMLESA
5. SIMLESA Speaks Magazine
6. The People Sunday:-"Research gives hope to disease-ravaged hungry community"-Article by KARI
7. SIMLESA Farners' Field day-Informa N0. …11-18 February 2011
8. Sharing is Caring: SIMLESA teaches Kenyan farmers about the importance of CA and knowledge exchange: Informa No. 1734, 11-18 February 2011
9. SIMLESA Highlights April-June 2012
10. SIMLESA spills over into South Sudan: Informa No. 1798, 8-15 June 2012
11. CIMMYT participates in EU exhibition in Nairobi: Informa N0. 1793, 04-11 May 2012
12. MELISA: Mechanisation for SIMLESA; Informa No. 1791, 20-27 April 2012
13. SIMLESA: Celebrating two years of achievements, defining the future: Informa 1789, 30 March-13 April 2012
14. Australia's Foreign Affairs Minister praises SIMLESA Achievements in Africa: Informa No. 1763, October 2011

Annex 5: SIMLESA Program Country Field Days' Summary

Kenya

Eastern Kenya

Month	Name of Site	Total Attendances	Females	Males
July 2011	Mweru	555	352	203
July 2011	Kyeni	243	167	76
December 2011	Mariani	162	96	66
March 2012	Kyeni	1248	761	487
	Total	**2,208**	**1,376**	**832**

Western Kenya

Site	Total Attendance	Females	Males
Liganwa (Ndere Site)	1300	800	500
Bumula	1400	900	600
Total	**2,700**	**1,700**	**1,100**

Malawi

Month	Name of Site	Total Attendances	Females	Males
July 2011	Nkotakota	28	13	15
July 2011	Kasungu	137	62	75
August 2011	Ntcheu	100	23	77
August 2011	Mutundu	100	15	85

July 2011	Mchinji	100	11	89
July 2011	Salima	70	10	60
	Total	**535**	**134**	**401**

Ethiopia

NARS Center	Community	Total Attendances	Participants		Date
			Men	Women	
Melkassa	Adami Tulu	109	82	27	2 September 2011
	Shalla	375	312	63	3 September 2011
Hawassa	Dore Bafano	250	200	50	8 August 2011
Bako	Tibe &Gobu Sayo	100	88	12	24 September 2011
Pawe	Guangua	200	150	50	24 October 2011

Field Days in Eastern Zone of Tanzania

Date	Location	Male	Female	Total
29/6/2012	Dodoma Isanga	44	31	75
2/7/2012	Makuyu	66	63	129
4/7/2012	Vitonga	76	61	137

Annex 6: Inventory of SIMLESA Program - NARS research equipment procured.

Equipment	Mozambique	Malawi	Kenya-Embu	Kenya-Kakamega	Tanzania-SARI	Tanzania-Ilonga	Ethiopia
4 WD Vehicles	2	1	2		2		2
Analytical portable balance	8	7			1	1	
Hanging balance	8	8			5	5	
GPS			1	1	5	5	
Digital camera			1	1	0	0	
Rain gauge	38	38	6	6	4	4	
pH meter			1	1	6	6	
5 m tape measure	16	16					
30 m tape measure					10	10	
50 m tape measure	8	8			10	10	
Grain moisture meters	8	8	2		2	2	
Vehicles	2	1	1	1	1	1	2
Desktop computer			1		1	1	
Laptop computer		1	1		1	1	
Printer		1					
Thermometer max/min	6	6			4	4	
Soil drying oven	2				1	1	
Soil augers					2	2	
Knapsack sprayers	10				10	10	
Ripper/sub soiler	3	0			3	1	
Jab planters	4	0			10	10	4
Deep freezer	3	0	1		0	0	
Weather Stations	2	1					
TDR Soil moisture equipment	2	1					
Soil moisture probe and access tubes		2 sensor units & 60 access tubes					
Animal traction direct seeders					3	1	

Annex 7: Spillover Technologies Identified

Annex 7.1 CA Practices identified

Country	CA package and practices	Comments and other issues	Issues with CA practices
Ethiopia	Minimum (one pass at planting)/zero tillage Residue cover Rotation or intercropping (maize-legume-pigeonpea)	55 on-farm CA based exploratory trials Sole maize and CA Intercropping under CA MAB/BAM rotation CA FP (repeated land preparation, no residue retention) 8 on-station trials CA vs Convectional practices (CP) Determination of the right Time of intercropping maize with Haricot	Trade-offs between uses of crop residue (fodder, fuel, residue cover, fencing, market) CA implement Weed management Herbicide price and availability
	Complementary Practices Improved varieties (adapted and compatible) Herbicide (pre-emergence Glyphosate) + hand weeding Recommended type & rate of fertiliser		
Kenya	Minimum soil disturbance Residue retention (maize/bean/pigeonpea residue) Crop rotation/intercropping	**Eastern Kenya-with low rainfall** Crops are maize and either common beans or pigeonpea. Spacing beans vary with season. **Western Kenya with moderate rainfall:** Crops are maize, beans and groundnuts.	Lack of CA farm tools Termites feeding on residue Competition for residue Build up of pests e.g cricket and maize stalkborer Planting in residue is cumbersome, may also hinder germination
	In aiding minimum tillage, herbicides are used. Furrow and ridges are additional practices		
Malawi	**Based on three principles:** Soil cover Minimum soil disturbance Crop rotation	Maize-legume intercropping with pigeonpea (Mwaiwathu alimi variety) in low altitude as well as rotation with groundnuts (Chitala variety). Maize variety MH 26 Maize legume rotation in mid-altitude. Maize rotation with soyabean (Nasoko) and MH 27	Herbicides availability and associated costs Livestock system of management in crop/livestock farming community Crop rotation in limited landholding sizes Adequate knowledge in CA principles and application Viable policies not available to enhance adoption of (CA) soil and water conservation
	Actual practices anchoring on three CA principles: 1. **Residue retention** Cover crops (cowpea in low altitudes) Crop rotation (short term fallow-2yrs with agro-forestry tree species 2. **Minimum Soil disturbance** Dibble stick planting Jab planting Integrated weed management (herbicides, hand weed, crop residue retention,		

	intercropping) Basin versus pit planting 3. **Crop rotation and Intercropping** Maize-legume (crop components, land size, farmer circumstances) Maize-g/nut; maize-pp; maize-soyabean (based on adapted legume varieties), land		
Mozambique	1. Disturb the soil as little as possible 2. Keep the soil covered as much as possible 3. Mix and rotate crops (Intercropping & Rotation **Complementary Practices** Jab planter Maize varieties: Tsangano-OPV Ripper	**Manual Labour Practices:** Maize, cowpeas/beans Maize varieties: Tsangano-OPV Convectional-No residues Basin sole maize Jab planter sole maize Basin Cowpea/beans-maize rotation Basin maize/Cowpea/beans rotation Basin maize/cowpea/beans intercrop **Treatments under animal traction** Maize, cowpea/beans Maize varieties: Tsangano-OPV Convectional-No residues Ripper sole maize Direct seeder sole maize Ripper Cowpea-sole maize rotation Ripper maize-Cowpea/beans rotation Ripper maize-cowpea intercrop	
Tanzania	No soild disturbance Crop residue retention Intercropping	**Farmer Practice** What they used to do(except varieties) Maize, pigeonpea intercropping **Convectional Practice** Maize, pigeonpea intercropping Improved varieties used Use of fertiliser at recommended rates Soil disturbance-tractor/oxen	The CA practices apply to maize, pigeonpea intercropping Crop residue retention in agro-pastoral farming system CA based planting equipment (need modification) Weed management at early stages is difficult Integration of CA into Ministry of Agriculture mainstream Application if CA on sloppy areas contour ridges should be applied
	Complementary Practices Use herbicides (Round up) Use improved seed Weed management (shallow weeding)		

Annex 7.2. Inventory of pre-released and proven maize varieties.

Country	Maize variety	Problems addressed	Agro-ecology

Ethiopia	**Hybrids:** BH-660, BH-661,BH-543, BKH-1, BKH-5, BKH-8	Major biotic & abiotic stresses: Disease(leaf rust, leaf blight, grey leaf spot), Low yield	Sub-humid mid-altitude (BH-540 Gibe-2,Gibe-1) Some promoted for Transitional mid to highland areas (e.g. BH-660, BH-661. Rainfall: 1000-1500 mm Altitude:1600-2200 masl
	MH-130 (recently released) MHQ-138(recently released) SC-403(recently released)	Major biotic & abiotic stresses Drought/low moisture stress Disease(leaf rust, leaf blight, grey leaf spot) Low yield	Some have been promoted (e.g. Melkassa 2, Melkassa-6Q) to Central Rift Valley of Ethiopia. Rainfall: 600-800 per annum Altitude: 1200-1700 masl
	Open Pollinated Varieties : Melkassa-2; Melkassa-5 Melkassa-6Q	Major biotic & abiotic stresses Drought/low moisture stress Disease(leaf rust, leaf blight, grey leaf spot) Low yield	Some have been promoted (e.g. Melkassa 2, Melkassa-6Q) to Central Rift Valley of Ethiopia. Rainfall: 600-800 per annum; Altitude: 1200-1700 masl
	Gibe-2 Gibe-1	Major biotic & abiotic stresses Disease(leaf rust, leaf blight, grey leaf spot), Low yield	Sub-humid mid-altitude (BH-540 Gibe-2,Gibe-1). Some promoted for Transitional mid to highland areas (e.g. BH-660, BH-661. Rainfall: 1000-1500 mm. Altitude:1600-2200 masl
Kenya	KH539E	Low yield; Disease Tolerance (grey leaf spot and maize streak virus-MSV). It is flint and medium maturing	Upper Midland; 1300-1500 masl; 500-800mm of well distributed rainfall optimum temperature 18-25^0 C
	H520	Addresses low yield and it is medium maturing	Upper Midland; 1300-1500 masl; 500-800mm of well distributed rainfall optimum temperature 18-25^0 C
	KH500Q	Quality Protein maize It is medium maturing	Upper Midland; 1300-1500 masl; 500-800mm of well distributed rainfall optimum temperature 18-25^0 C
	KH533A	Early maturity	Upper Midland; 1300-1500 masl; 500-800mm of well distributed rainfall optimum temperature 18-25^0 C
	KH631Q	Quality Protein Stay Green	Upper Midland; Above 1500 masl; 500-800mm of well distributed rainfall optimum temperature 18-25^0 C
	KSTP94	Striga tolerant	Lower midlands to medium Midlands; 1200-1500 masl; 500-800mm of well distributed rainfall and optimum. temperature 18-25^0 C

Country	Maize variety	Problems addressed	Agro-ecology
Malawi	MH 26	Low yield, drought, foliar diseases (Rust & GLS); White seed, flint grain, good husk cover. Early – medium-130-140 days	Rainfall: 500-600 mm/annum; Altitude: 200-760 masl; Temp: 25-35° C; Soil types: Alluvial soils; Average pH: 6.0
	MH 27	Low yield, drought, foliar diseases (GLS & leaf blights); White seed, flint grain, good husk cover Medium maturity- 130-145 days	Rainfall: 600-1000 mm/annum; Altitude: 760-1300 masl; Temp: 15-30° C; Soil types: loam; Average pH: 5.7 - 6.0
	E7010 (to be coded **MH** after release)	High yielding, drought tolerant, early maturity	Low altitude areas: Rainfall: 500-600 mm/annum; Altitude: 200-760 masl; Temp: 25-35° C; Soil types: Alluvial soils; Average pH: 6.0
	MAO 7007 (to be coded **MH** after release)	High yielding, drought tolerant	Mid and low altitudes
	CZH 87 (to be coded by the responsible seed company)	High yielding and drought tolerant. Medium maturity - 130-145 days	Mid altitude: Rainfall: 600-1000 mm/annum; Altitude: 760-1300 masl; Temp: 15-30° C; Soil types: loam; Average pH: 5.7 - 6.0
Mozambique	**Open Pollinated Varieties** Tsangano	Yield and drought tolerance	Mid and high altitude (600-1500 masl); rainfall:600-1200 mm Temp:25-30 ° C
	ZM523	Yield and drought tolerance	Low to mid altitude (0-600 masl); 400-800 mm of rainfall Temp:25-30 ° C
	Dimba	Early maturity, flint	Lowland and Marginal areas; rainfall: 400-800 mm, Temperature: 27-35° C
	Hybrid Varieties Hluvukane	Yield, flint, tolerance to post harvest insects	Low and mid altitude (400-800 mm, 27-35° C)
	Olipa	Yield, QPM, foliar disease tolerance (MSV, GLS, DMR)	All agro-ecologies (400-1200 mm, 25-35° C)
	Molocue	Yield, drought tolerance	Mid and high altitudes (600-1500 masl); 600-1200 mm (25-30°C)
	SP1	Yield, drought tolerance	Mid and high altitudes (600-1500 masl); 600-1200 mm (25-30° C)
	DC1	Yield, drought tolerance	Mid and high altitudes (600-1500 masl); 600-1200 mm (25-30° C)

Country	Maize variety	Problems addressed	Agro-ecology
Tanzania	Selian H208	Diseases (Tolerant to blight, GLS), Drought (tolerant), Maturity (early 135 days), Yields (high 7-8 t/ha)	Altitude: 900 – 1800 masl, Temperatures: 15 -30°C, Rainfall: 600 – 1100mm per growing season
	Selian H308	Diseases (Tolerant to blight, GLS), Drought (tolerant), Maturity (early 135 days), Yields (high 8-9 t/ha).	Altitude: 900 – 1800 masl, Temperatures: 15 -30°C, Rainfall: 600 – 1100mm per growing season
	SAH 779	Drought (tolerant), Diseases (resistant to MSV, GLS and Tursicum blight), Maturity (early 150 days), yields (high 8-9 t/ha)	Altitude 1200 – 1600 masl, rainfall: 600-1600mm per growing season, temperatures: 15 - 28°C, Moisture: 600 -1100mm.
	SAH 636	Drought (tolerant), Diseases (resistant to MSV, GLS and Tursicum blight), Maturity (early 150 days), yields (high 6-7 t/ha)	Altitude 1200 – 1600 masl, rainfall: 600-1600mm per growing season, temperatures: 15 - 28°C, Moisture: 600 -1100mm.
	SAH 638	Drought (tolerant), Diseases (resistant to MSV, GLS and Tursicum blight), Maturity (early 150 days), yields (high 7-8 t/ha)	Altitude 1200 – 1600 masl, rainfall: 600-1600mm per growing season, temperatures: 15 - 28°C, Moisture: 600 -1100mm.

Annex 7.3. Inventory of Pre-released and Proven Legume Varieties

Country	Maize variety	Problems addressed	Agro-ecology
Ethiopia	**Beans** ECAB-0081; GLP-2; ECAB-0056; Nasir; Awash-1; Deme; Dinkinash; Awash Melka	✓ Yield increase ✓ Tolerance to major disease and pests ✓ drought tolerance	Mid-altitude low moisture areas
	Soybeans Belessa-95; New variety-1 New variety-2	✓ Yield increase ✓ Tolerance to major disease and pests	Sub-humid mid-altitude areas
Kenya	**Pigeon peas:** ICEAP 00040 (Mbaazi 2)	-High yield (1.3 ton/ha) compared to local varieties(500kg/ha) -Tolerance to Disease	Low Midlands 4. 900-1800masl. 400-800mm of well distributed rainfall in growing period. Temperature 15-25^0 C
	ICEAP 00850	-High yield (1.3 ton/ha) compared to local varieties(500kg/ha) - Tolerance to Disease	Low Midlands 4. 900-1800 masl. 400-800mm of well distributed rainfall in growing period. Temperature 15-25^0 C
	Beans Kat X69	-Early maturing (65 days).; -Good seed colour; -Yield 1.4-2.0 t/ha -Tolerant to rust and common bean mosaic virus and angular leaf spot -cooks fast	Upper Midlands 3-4. 900-1600 masl. 200-400 mm of well distributed rainfall. Optimum temperature 15-27^0 C
	EMBEAN 14	-Early maturing (75 days); -High yield (2 t/ha); -Good cooking quality	Upper-midlands 3-4; Altitude: 900-1600 masl. 200-400 mm of well distributed rainfall. Opt. temp- 15-27^0 C
	KK15	-Tolerant to root rot	Upper Midlands 3-4. 1500-1800 masl. 250-450 mm of well distributed rainfall. Opt. temp- 15-27^0 C
	KK8	-Tolerant to root rot	Upper Midlands 3-4. 1500-1800 masl. 250-450 mm of well distributed rainfall. Optimum temperature 15-27^0 C
	KK71	-Tolerant to root rot	Upper Midlands 3-4. 1500-1800 masl. 250-450 mm of well distributed rainfall. Optimum temperature 15-27^0 C

Malawi	**Pigeon pea**: Mwaiwathu alimi (ICEAP00557))	Low yields, and drought. Medium duration. Early maturing. Market preferred (white grain)	Rainfall: 500-600 mm/annum; Altitude: 200-760 masl; Temp: 25-35 °C. Soil types: Alluvial soils. Average pH: 6.0
	G/nut: Chitala i.e. ICGV-SM 99568	Low yields, drought, Rosette disease. Early maturity, medium – large seeded	Rainfall: 500-600 mm/annum; Altitude: 200-760 masl. Temp: 25-35 °C. Soil types: Alluvial soils. Average pH: 6.0
	Soybean: Nasoko	Low yields and drought. Seed size and color. Medium duration	Rainfall: 600-1000 mm/annum. Altitude: 760-1300 masl. Temp: 15-30 °C. Soil types: loam. Average pH: 5.7 - 6.0

Country	Maize variety	Problems addressed	Agro-ecology
Mozambique	**Soybean** Ocepara-4	Yield, earliness and non shattering, tolerance to virus	Mid –high altitude (600-1500 masl); 600-1200 mm (25-30 o C)
	427/5/7	Yield, earliness and non shattering, tolerance to rust and virus	Mid –high altitude (600-1500 masl); 600-1200 mm (25-30 o C)
	H7	Yield, earliness and non shattering, tolerance to rust and virus	Mid to high altitude (600-1500 masl); 600-1200 mm (25-30 o C)
	17	Yield, earliness and non shattering, tolerance to rust and virus	High altitude and most suited to Angonia site (600-1500 masl); 600-1200 mm (25-30 o C)
	Cowpea: IT16 (TL-II), IT) 18)	Determinate, tolerance to rust and to ascochita	North and Centre (600-1500 masl); 600-1200 mm (25-30 o C)
	Common bean: CAL 143,	Tolerant to bacterium wilt, drought tolerance and tolerant to low soil	North and centre (600-1500 masl); 600-1200 mm (25-30 o C)
	Pigeon pea: ICEAP 00040	Long cycle (able to escape pest infestation), high yield	North and centre (600-1500 masl); 600-1200 mm (25-30 o C)
Tanzania	ICEAP 00554 and ICEAP 00557	Diseases (resistant to Fusarium wilt). Drought (tolerant), maturity (early	Altitude: 0 -700 masl; Temperature: 25 - 30° C; Rainfall mm?
	ICEAP 00040 (Mali)	Diseases (resistant to Fusarium wilt). Drought (tolerant), maturity (early 160 -180 days). Low yields (high 3t/ha)	Altitude 900 – 1500 masl; Temperatures (15 -25 °C; Rainfall mm?

Annex 7.4: Factors constraining and enabling spillover of CA practices and maize-legume technologies.

Policy and Regulatory Factors	
Enabling	**Constraining**
• Renewed government commitment to and investment in agriculture across Africa • Liberalisation and greater scope for private sector • Seed policy harmonisation and related germplasm exchange networks	• Seed policy harmonisation still at early stages • Limited capacity to monitor movement of germplasm between and within countries • Complicated import and export regulations
Institutional Factors	
Enabling	**Constraining**
• The existence and activities of the African Conservation Tillage Network • Range of SIMLESA activities • Regional networks and bodies	• Limited linkages between SIMLESA and ACT at national (and regional) levels • Low capacity of up-coming seed companies • Low capacity to produce foundation seed • Limited shared learning between SIMLESA objectives 2 & 3 • Insufficient funding for exchange visits • Lack of suitable equipment such as jab planters
Agro-Ecological Factors	
Enabling	**Constraining**
• CA versatile and widely applicable • Agro-ecology in the wider region suited to spillover	
Socio-Economic Factors	
Enabling	**Constraining**
• The reduced labour demands in CA are an incentive to take up CA in other countries • Informal trade and sharing of seed across borders	