
Final

Mid-term Review Report

Sustainable intensification of maize-legume cropping systems for food security in eastern and southern Africa — Phase II (SIMLESA-2)

CSE/2009/024 (variation 3)

Bruce Pengelly (Leader)

David Young

Mandi Rukuni

David Norman

Richard Brettell (ACIAR)

December 2015

Table of Contents

List of Acronyms	3
Background	4
Summary and Recommendations	4
Overarching recommendations	6
.....Recommendations relating to specific objectives	7
Methodology	9
Program data and documentation.....	10
Program management	11
Program progress and future focus	13
1. R	
esponse to the MTR of SIMLESA I 2012.	13
2. P	
olicy.....	14
3. M	
onitoring and Evaluation	15
4. C	
ommunication	17
5. S	
cience.....	18
6. P	
artnerships.....	20
7. O	
bjective 1	22
8. O	
bjective 2	23
9. O	
bjective 3	24
10. O	
bjective 4	25
11. O	
bjective 5	28
Attachment 1 Program Outputs Table.....	29
Annex 1. Presentations made to the MTR meeting Beshale Hotel Addis Ababa October 2015	62

Annex 2. Participants list SIMLESA MTR Meeting 30-31 October 2015 @Beshale Hotel Addis Ababa, Ethiopia 63

Annex 3: Members of the SIMLESA Program Steering Committee (PSC) and the SIMLESA Program Management Committee, November 2015..... 64

Annex 4. Comments by the 2015 MTR on progress by SIMLESA against each of the recommendations from the 2012 MTR..... 65

List of Acronyms

ACIAR	Australian Centre for International Agricultural Research
AfDB	African Development Bank
AIFSRC	Australian International Food Security Research Centre
AIP	Agricultural Innovation Platform
ARC	Agricultural Research Council (South Africa)
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
ASWAp	Agricultural Sector-Wide Approach (Malawi)
BMGF	Bill & Melinda Gates Foundation
CAADP	Comprehensive Africa Agriculture Development Programme
CBSO	Community-Based Seed Organisation
CCARDESA	Centre for Coordination of Agricultural Research and Development for Southern Africa
CGIAR	Consultative Group for International Agricultural Research
CGS	Competitive Grants Scheme
CIAT	International Centre for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement Centre
CORAF/ WECARD	West and Central Africa Council for Agricultural Research and Development
DARS	Department of Agricultural Research Services (Malawi)
DRD	Department of Research and Development (Tanzania)
EIAR	Ethiopian Institute for Agricultural Research
ESA	Eastern and Southern Africa
EU	European Union
FACASI	Farm Mechanisation and Conservation Agriculture for Sustainable Intensification
FEAST	Feed Assessment Tool
GRDC	Grains Research and Development Corporation (Australia)
ICIPE	International Centre for Insect Physiology and Ecology
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFAD	International Fund for Agricultural Development
IIAM	Instituto de Investigação Agrária de Moçambique
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
KALRO	Kenya Agricultural and Livestock Research Organization M&E Monitoring and Evaluation
M&E	Monitoring and Evaluation
MTR	Mid-Term Review
NAIP	National Agricultural Investment Plan
NARS	National Agricultural Research System
PMC	Program Management Committee
PSC	Program Steering Committee
QAAFI	Queensland Alliance for Agricultural and Food Innovation
R4D	Research for Development
NGO	Non-governmental Organisation
SADC	Southern African Development Community
SAPP	Sustainable Agricultural Production Programme (Malawi)
SI	Sustainable Intensification
SIMLESA	Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa
USAID	United States Agency for International Development
WB	World Bank
ZimCLIFS	Zimbabwe Crop-Livestock Integration for Food Security

Background

The SIMLESA program commenced in 2010 with the aim of assessing conservation agriculture (CA) practices for maize and legume based farming systems in Sub Saharan Africa (SSA) and having them widely adopted. CIMMYT has been the commissioned agency (lead office, Harare; supporting offices, Nairobi and Addis Ababa) and the National Agricultural Research Systems (NARS) of Ethiopia, Kenya, Tanzania, Malawi and Mozambique are collaborating partners. Australian collaborating partners under Phase I were Queensland Alliance for Agriculture, Food and Innovation (QAAFI) and Murdoch University (WA). The program was reviewed (Mid Term Review) in 2012 which provided a set of recommendations. The program continued in its first phase (Phase I) until December 2013.

This Mid-Term Review is designed to assess the SIMLESA Program over the 3 year period since the MTR 2012, i.e., from July 2012 until August 2015, covering the closing years of Phase 1 and the opening period of Phase II. An end-of-program review was not conducted at the completion of Phase I.

Phase II of SIMLESA commenced in May 2014 and will continue until 30 June 2018. Phase II which is a variation of the project design described in the original proposal, maintained the original five objectives with greater emphasis in each on delivering impact through adoption of technologies in the main five partnering countries, and what are termed “spill-over” countries (i.e., Rwanda, Uganda and Botswana) – countries not included in the original design but which are now partners in a wider SIMLESA network

Both phases of the program employed a management structure of a Program Steering Committee (PSC), a Program Management Committee (PMC), Program Coordinator, and leaders of each partner-country and each objective.

Phase II has a somewhat different set of collaborating partners. ICRISAT, and Murdoch University are no longer formal partners although additional agencies such as ILRI, CIAT and the ARC (South Africa) are now contributors to the program.

Summary and Recommendations:

SIMLESA (I and II) is a complex program with many partner countries, agencies, science disciplines, and objectives. Despite that complexity, the MTR found the program on the whole to be well managed by CIMMYT, and the NARS partners had a strong sense of ownership of the program. It was very evident that the whole SIMLESA team is determined to meet the objectives of the program, to contribute and to work as a team.

The MTR was particularly impressed with the energy and commitment of the program’s coordination team, the leadership of the various objectives and the national teams. The input during the MTR of those members of the PSC who were present was very valuable. They too demonstrated their commitment and understanding of the program’s many dimensions and the need to deliver outcomes and impact.

Fluctuations in the USD/AUD exchange rate have posed challenges for management, particularly since 2013/2014 and the end of Phase I. From that time the USD value of AUD-denominated payments from ACIAR to CIMMYT commenced their decline of about 30%. This reversed the trend of Phase I when exchange rate movements were favourable to CIMMYT. Between commencement of Phase I (early 2010) and June 2011 the Australian dollar appreciated against the USD by up to 25% compared to the exchange rate in early 2010. It is also noted that the national currencies of participating countries have also depreciated against the USD (to various degrees) since 2014 which has lessened the impact of the AUD decline at national level.

Notwithstanding the exchange rate challenges, SIMLESA II has in most respects successfully transitioned from Phase I with its foci on understanding of systems, developing CA-based Sustainable Intensification (SI) packages and support of commercialisation of new maize and legume varieties, to Phase II which is consolidating the findings of Phase 1 to underpin the adoption target of an additional 650,000 benefiting households.. Nevertheless the MTR suggests that more needs to be done to enable SIMLESA II to deliver its planned outputs by 2018 in such a way that the impact targets of 650, 000 farmers by 2023 are achievable. Many activities that are planned for the coming three years need to be refocussed so that the program can deliver on two major fronts:

- Achieve adoption of SI practices by farmers through the Agricultural Innovation Platforms (AIPs) and other pathways.
- Use program results to contribute to national and regional policy dialogue.

There is a need to rebalance plans and activities of all the program objectives, and the various program-wide themes. The program should ensure that the science which underpins the development of SI packages and policy dialogue is completed and published in extension reports and peer-reviewed literature. It should also refocus its Monitoring and Evaluation (M&E), communication plans and gender activities. To achieve these changes, each country and the Program as a whole should prepare a revised work plan within the approved budget through to the end of SIMLESA II. The program will then be able to make an informed decision on what to prioritise and what needs to be phased out, avoiding the risk of leaving un-finished tasks at the end, due to lack of time and finance. If there is insufficient time or resources to complete an activity, consideration should be given to terminating it now or not starting it.

SIMLESA II should not become over stretched. It must continue work as a research-for-development program that will deliver pilot scale-out through its modest, but significant number of AIPs and other channels such as those of the various national agencies. It should not attempt to transform itself into a development program, but rather inform the design and implementation of other programs and policies. The progress of scale-out through AIPs will be supported by the Competitive Grants Scheme (CGS). However the CGS has limited resources and it will be best to focus them on supporting priority activities in selected AIPs.

SIMLESA I and II achieved a great deal. It has built an energetic, committed team including the NARS (including universities), PSC members, CGIAR, AIP members and some from the private sector. It has delivered impressive results in capacity building and science. Its final three years should be spent on synthesising and documenting research results and working

towards its impact goals by being willing to make hard decisions on priorities and re-allocating resources accordingly.

The future of the SIMLESA or at least its impact and influence beyond 2018 is very much dependent on the delivery over the next 3 years. Measureable progress in adoption of SI interventions across target numbers of households in multiple locations across eastern and southern Africa by 2018 would provide a strong argument for continuing investment by ACIAR and /or other donors to use the lessons from that scale of success to underpin even wider adoption of SI.

Overarching Recommendations

Recommendation 1: Program Data and Documentation

1.1 SIMLESA, in conjunction with all partners, urgently develop and implement a data management policy that addresses quality assurance, archiving, annotation, ownership, and access to current SIMLESA partners and to the wider research community post-SIMLESA.

Recommendation 2: Program management

2.1 The PMC should ensure that it takes appropriate steps to support SIMLESA II to achieve its objectives by taking a more active role in the program management over the remaining life of the program. Special attention should be given to ensure delivery of milestones as per contract, and to prioritising activities and resources for impact.

2.2 ACIAR and the PMC should review and where appropriate, revise, SIMLESA II plans and budgets in accordance with the recommendations of the MTR.

Recommendation 3: SIMLESA's role in formulating policy:

3.1 SIMLESA should approach policy practice as an 'action-learning' process, using SIMLESA data and AIPs to inform policy dialogue.

3.2 SIMLESA should avoid declaring policy or providing policy solutions. Rather it can be a more powerful agent for policy reform by providing advice to policymakers in the form of evidence-based analysis of options including their actual and/or expected distributional effects, and implications for inclusive development.

3.3 The program should go beyond the financial analysis of technologies undertaken so far, and extend that into economic analysis as a powerful tool for informing policy-makers (e.g., on economic implications of subsidies and other public investments).

3.4 SIMLESA should take greater advantage of the influence of PSC members, some of whom are senior policy-makers, for direct engagement in the policy discourse.

Recommendation 4: Monitoring and Evaluation

4.1 The program's monitoring and evaluation should be built on defined outcome, adoption and impact indicators that reflect targeted impact on 650,000 households by 2023 through combinations of technologies adopted and years of practice change.

4.2 M&E should also be strengthened to consider institutional and capacity outcomes, and appropriate analyses that can inform this and future SI initiatives in Africa.

Recommendation 5: Communication

5.1 SIMLESA should develop and implement a revised communication plan that includes particular focus on providing support material for influencing national policies, and supporting the AIPs in their role as important vehicles for adoption of SI technologies/practices.

5.2 Extra efforts should be made to ensure that the SIMLESA website is continually updated to include the breadth of outputs and data coming from the program.

Recommendation 6: Science

6.1 The focus on science should be to complete field research and progress that to peer-reviewed publication and extension reports especially where the findings directly underpin the SI packages being recommended and associated policy implementation.

6.2 The PMC should carefully review SIMLESA II research plans to ensure that the experimental program is focussed on completing existing work and providing essential knowledge required for fulfilling the program objectives. Non-essential research should not be commenced.

6.3 The livestock component should be redesigned to align it with the program's objectives. Given the small amount of time remaining, it should be fast-tracked so it can add value to the implementation in AIPs.

6.4 The program should place particular emphasis on quantifying the benefits of SI packages and their components with respect to climate variability, risk and gender.

Recommendation: 7: Partnerships

7.1 SIMLESA should put greater emphasis on engagement with the three associated ACIAR projects (FACASI, Adoption Pathways and ZimCLIFS) to assist it in refocussing some key research areas such as livestock and mechanisation.

7.2 SIMLESA should strengthen partnerships beyond the research domain. These should include partnerships with Ministries of Agriculture and major development finance institutions (IFAD, AfDB, WB, EU, USAID, BMGF etc.) so that SIMLESA concepts, principles and technologies can be scaled-out through investment programs financed by and implemented through the Ministries and their financiers.

Recommendations relating to specific objectives

Recommendation 8: Objective 1

8.1 The information generated under Objective 1 must not simply be recorded in a descriptive form. It needs to be analysed to provide a synthesis for publication and

dissemination as part of SIMLESA's knowledge management framework to ensure that Objective 1 makes a stronger contribution to:

- incorporating the baseline situation analysis within the M&E framework;
- informing the policy analysis work, especially with regard to identifying SI adoption constraints and options for addressing these;
- identifying evidence based understanding of how SIMLESA scaling can be designed for maximum impact
- generating further insights into the risks associated with various SI options and adoption pathways and how farmers respond to these.

8.2 The Objective 1 team should develop a risk reduction options framework that includes both crop and livestock system components and their interactions that can be used to assist decision making in the AIPs and policy dialogues.

Recommendation: 9: Objective 2

9.1 The SI practices for scaling-out should be documented as soon as possible so that they provide the basis for scaling out under Objective 4.

9.2 SI technologies/practices appropriate for widespread dissemination through national extension systems, NGOs and the private sector should continue to be refined and adjusted through trials and demonstrations.

9.3 SIMLESA should undertake a literature review and focussed discussions with practitioners to identify emerging or potential pest, disease and weed threats with a view to initiating mitigation measures through the SIMLESA team or other agencies/ specialists (e.g. ICIPE).

9.4 There is a need to identify and integrate livestock practices that address the critical issue of crop residue management and opportunities for transitioning livestock "keeping" to livestock "production" and new sources of income.

9.5 The biophysical and participatory research methodologies used in identifying and refining the recommended practices should be documented in the scientific literature and/or in program reports) as information sources for future programs of an analogous nature.

Recommendation 10: Objective 3

10.1 Seed production for legumes (both grain and fodder) should be given a high priority, and a plan should be developed as soon as possible on where and how delivery of legume seed to farmers can be scaled-up before the end of the program. This plan should be based on other successful legume seed production programs in the region.

Recommendation 11: Objective 4

11.1 The CGS and the Objective 4 team members should prepare a comprehensive scaling-out plan that harnesses appropriate program elements and associated activities of public, business and NGO organizations that support scaling-out. Particular focus in the plan should be given to gender, M&E and communication.

11.2 AIPs should be regarded not only as a mechanism for adoption of SI systems, but also should be monitored and recorded, for learning and improvement, and provide lessons for good practice options as public good knowledge contribution. A key part of this would be providing information on the likely benefits and risks with respect to gender from introducing various SI practices.

11.3 Although the AIPs will continue to be an important vehicle for scaling-out, in some situations national extension systems, agri-business and NGOs have the capacity to take a meaningful role in the scaling-out process. Data, evidence and lessons (including do's and don'ts) from AIPs need to be gathered, analysed and reported so that they can inform scaling-out efforts through all channels.

Recommendation 12: Objective 5

12.1 Capacity building should continue its current commitments for post-graduate students but focus new training on improving the broad range of skills that will be required to directly support scaling-out of the SI technologies/practices in each location/country. The priority skill sets will likely range at least from AIP facilitation and governance, to agronomy, systems analysis, communication and extension.

Methodology

The MTR was undertaken through six activities:

1. One member of the MTR (David Norman) attended the SIMLESA II annual program meeting in Harare in March 2015 and his subsequent report and comments were key inputs into the MTR. He also attended PSC meeting in Harare as an observer.
2. A wide range of program reports and communication literature (e.g. Program Proposal, annual reports, semi-annual reports, SIMLESA I MTR report, communication briefs on program highlights and national reports, were reviewed.
3. Short visits were made to the program teams in four SIMLESA participating countries.
 - a. Bruce Pengelly met with Dr Daniel Rodriguez (QAAFI) in Brisbane on 5 October 2015.
 - b. David Young visited Tanzania and Malawi during the week of 26-31 October 2015.
 - c. Mandi Rukuni visited Kenya and Uganda (a spill-over country) during that same week.

- d. Mandi Rukuni also attended the High Level Policy Forum on Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) held in Uganda on 28 October 2015.
 - e. The MTR team with the exception of David Norman, attended a workshop outlining progress of SIMLESA II in Ethiopia on 29 October 2015 in Addis Ababa.
4. The MTR team attended a whole-of-SIMLESA II workshop on 30-31 October in Addis Ababa in which presentations were made by all Objective Leaders (Presentations are listed in Annex 1). Attendees included some members of the PSC, including one of the Co-Chairs (Dr Eric Craswell), the Program Coordinator, Country Leaders, Objective Leaders and other key partners. A full list of attendees is provided in Annex 2.
 5. The MTR met with representatives from the PSC after the workshop on the 31st October.
 6. The output/activities table was reviewed and reported (Attachment 1)

Program data and documentation

Program documentation is considered satisfactory. Documents generally report on the activities undertaken in participating countries. The value of the reports would be improved by a stronger focus on results. Too often reporting focusses on activities such as workshops held, the number of people trained, the number of varieties released, the number of AIPs and the number of papers published. It is difficult to draw conclusions on how these activities influence progress towards SIMLESA's higher level goals. There is no emphasis in the reports on gaps, and how resources need to be deployed to fill those gaps. More reflection would enhance the quality and value of the reports.

There are also inconsistencies in styles and content. For instance the Objective 1 summaries from the five countries in the 2014-2015 annual report differ greatly in focus and content. There is also no clear link between the header paragraph on financial analysis in Malawi and the project-wide workshop on synthesising the results from this objective and the country reports.

It is important to make the distinction between the quality of documentation and the design of components. The most recent M&E report is very comprehensive and reports well on the current M&E theme "numbers" – the main indicators used in the M&E framework. However as outlined below, M&E plans require significant modification. It is expected that the next M&E report will be a more useful document for assisting the program's management and planning.

Part of the "activity focus" has no doubt been influenced by the logframe which is activity and outputs, rather than results, focused. The text of the reports tend to repeat some of what the logframe also contains, but then to dive into detailing some activities.

Future reporting should attempt to capture the “programmatic” nature of SIMLESA and its special place in advancing SI adoption in eight countries in Eastern and Southern Africa (ESA). It would be beneficial in future reports to use schematic representations to summarise progress (not activities) under the objectives using a common master diagram so that it is easier to compare across countries and for readers to grasp overall progress.

Given the breadth of the program, and steps that will be required to meet scale-out, policy outcomes and impacts, as well as two key Australian Aid themes (promoting gender equity and engagement with the private sector), it would also be preferable to review the relative priorities in the logframe. This would facilitate stepwise reporting over the coming three years on “programmatic” issues such as economic analysis, scaling plans, redesign and implementation of M&E and communication plans, and partnering with associated ACIAR projects (i.e., the Zimbabwe Crop-Livestock Integration for Food Security (ZimCLIFS), the Farm Mechanization and Conservation for Sustainable Intensification (FACASI) projects and the Adoption Pathways Project).

One of the recommendations of the MTR of 2012 was that SIMLESA, in conjunction with all partners, urgently develop a data management policy that addresses quality assurance, data archival, annotation, ownership, and timely access to others within and outside SIMLESA. This task has not been fully implemented and the delay since this recommendation was made has made the task more challenging but it remains urgent and critically important. SIMLESA is a large and complex program producing a wealth of valuable data and knowledge. The 2015 MTR repeats Recommendation 7.1 of 2012 MTR, that data management, quality and security be pursued as a matter of urgency.

Recommendation 1: Program Data and Documentation

1.1 SIMLESA, in conjunction with all partners, urgently develop and implement a data management policy that addresses quality assurance, archiving, annotation, ownership, and access to current SIMLESA partners and to the wider research community post-SIMLESA.

Program management

Program management includes a Program Steering Committee (PSC) made up of representatives from ACIAR, CIMMYT (the Project Management Committee (PMC) Chair), Directors and Directors General of the NARS partners; Ethiopian Institute Agricultural Research (EIAR)(Ethiopia), Kenya Agricultural and Livestock Research Organization (KALRO) (Kenya), Department of Agricultural Research Services (DARS) (Malawi), Mozambique Institute of Agricultural Research (IIAM) (Mozambique), the Division of Research and Development (DRD) (Tanzania), and the Directors of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and the Centre for Coordination of Agriculture Research and Development for Southern Africa (CCARDESA) and representation from QAAFI (See Annex 3).

The PMC consists of two CIMMYT Program Managers (Social Science and Conservation Agriculture) and a representative from QAAFI (Annex 3). The PMC works more directly with

the Program Coordinator and Program Administrator. Each country has a program coordinator and there are coordinators for each of the four Objectives.

While this management structure looks at first glance large and even cumbersome, the different levels have clear roles and responsibilities and work well as a team. It is apparent that the three members of the PSC who attended the MTR are well versed in the Program and very supportive. Their inputs in discussions were invaluable. One of the recommendations from the MTR (Recommendation 2.4) suggests taking advantage of their commitment and detailed knowledge of the program to help bring SIMLESA closer to the policy domain. That aside, the inclusion of a body such as the PSC with its broad representation and oversight role has been an important factor in gaining the high level engagement of partners and in the success of SIMLESA.

The MTR team did not meet with the PMC as a whole in Ethiopia in October, but David Norman met briefly with the PMC in Harare in March 2015, Bruce Pengelly met with one PMC member (Dr Daniel Rodriguez from QAAFI) in Australia in early October 2015, and Richard Brettell spoke with Dr Olaf Erenstein at the conclusion of the workshop. While the role of the PMC is not entirely clear, all three out-of-session discussions showed deep understanding of the program, its progress and challenges. However the current arrangements appear to have the PMC (which is dominated by CIMMYT membership) meeting on a somewhat *ad-hoc* basis.

Currently (November 2015) the Outputs table reports reveals many instances of milestones not being delivered on-time, some many months overdue, and others that have little likelihood of being delivered as per expectations. Given the core responsibilities of CIMMYT staff in the program, the vital operational role of the PMC in program governance, and that the PMC members have significant salary allocations for their PMC roles, it is essential that the PMC takes a much closer, more active role in program management over the remaining life of the program to help ensure delivery.

A key part of that a more active role should be leading discussions and decision making on prioritising activities that will enable the program to deliver impact through adoption, policy and science, and aligning resources (skills and budgets) accordingly. These discussions should be held with the SIMLESA partners and with ACIAR senior management.

The Program Coordinator, and the national and objective leaders have the bulk of responsibility for coordination. This is a close team with mutual respect and determination to deliver. Nevertheless, given the complexity of the program and the challenges in coordinating such a program, it would be advisable if the coordinator's role had greater support from the PMC. Comments from the Coordinator and the national and objective leaders were particularly appreciative of the intellectual and management/administrative support that they received directly from ACIAR.

While the core national partners (but not spill-over countries) are all represented on the PSC, they are not formally part of the PMC which is probably the more important entity for operational issues. This seems to be somewhat inconsistent with the concept of SIMLESA being a multi-national program, and with the capacity-building aims to improve project management capability in the national partners (Objective 5.4). Participation in the PMC

would be an opportunity for national partners to contribute through their national coordinators and would also strengthen their management capability.

The depreciation in the Australian dollar against the USD over the past 2-3 years is providing additional challenges to the program. The exchange rates of AUD relative to the value of partner country currencies has been varied with the AUD stronger against some (e.g. Malawi Kwacha) but weaker against others (Ethiopian Birr and Kenya Shilling). However the key issue is undoubtedly the program's exposure to the USD exchange rate through the number of CIMMYT- employed staff delivering into SIMLESA. Those challenges are probably compounded by the current 2015-16 CGIAR-wide budget shortfalls, and would not normally be remedied by additional funds from ACIAR given that the exchange rate risk under ACIAR contracts lies with the Commissioned Organisation.

ACIAR, the PSC and the PMC should be working together to address this issue as a matter of urgency. Hard decisions need to be made that are based on a plan to deliver the SIMLESA program in the partner countries within the new budget climate.

Recommendation 2: Program management

2.1 The PMC should ensure that it takes appropriate steps to support SIMLESA II to achieve its objectives by taking a more active role in the program management over the remaining life of the program. Special attention should be given to ensure delivery of milestones as per contract, and to prioritising activities and resources for impact.

2.2 ACIAR and the PMC should review and where appropriate, revise, SIMLESA II plans and budgets in accordance with the recommendations of the MTR.

Program progress and future focus

1. Response to the MTR of SIMLESA I 2012.

This section considers the transition of SIMLESA-I to SIMLESA-II to assess how well the current program has built on work conducted in the earlier phase. It also comments on the extent to which the recommendations of the MTR of SIMLESA I, undertaken in 2012, have been implemented.

SIMLESA I was initiated in 2010. The MTR of 2012 recognised that considerable progress had been made over the initial three years (2010-2012) in each of the target countries. This included characterisation of maize-legume production and value chain systems; testing of promising smallholder maize-legume cropping systems; increasing the range of maize and legume varieties available for smallholders; developing regional and local innovations systems; and substantial capacity building of research partners. The MTR endorsed the SIMLESA approach, commended it for having made very good progress in its first two years, and congratulated the team for their dedication, commitment and enthusiasm.

SIMLESA was varied at the start of SIMLESA II in 2014 to reinforce interdisciplinary integration and consolidate activities in order to strengthen targeting, scaling-out and impact. The core research of SIMLESA II remained conservation agriculture (CA)-based

sustainable intensification. In addition, the program was designed to address: (i) crop residue scarcities through a focus on biomass management research including fodder/forage production in mixed crop-livestock systems, and; (ii) soil health issues by focusing on nitrogen dynamics and management in CA-based systems.

The transition from SIMLESA-I to SIMLESA II has largely been implemented but there are some areas in which progress has been slow. This has been for a variety of reasons, including operational constraints. This report makes a number of recommendations that endorse many of the 2012 recommendations including those in relation to program documentation, program management, risk, livestock integration and capacity building. Detailed comments on SIMLESA responses to each of the 2012 MTR recommendations are provided in Annex 4.

2. Policy

There is need for SIMLESA to decide on its endgame in order to achieve its impact targets over the remaining three years and beyond (i.e. 5 years after the end of the program). Defining the endgame will help answer the question of how far SIMLESA should reach outside the research domain. SIMLESA has succeeded in designing and implementing a complex model that creates: a) a suite of technological innovations, notably improved varieties and agronomic practices; and b) institutional innovations, especially AIPs, that improve the enabling environment for adoption of SI practices. SIMLESA should continue to provide additional tools and evidence that underpins those tools. It should not strive to provide and promote market and institutional opportunities, nor attempt to provide definitive solutions to market and institutional failures, including those associated with finance. Rather, SIMLESA should remain committed to its original design and objectives and its comparative advantage with respect to the broader agenda of SI, and flowing from that, its potential influence on national and institutional (e.g. IFAD) policy and investment programs. In this way, SIMLESA can deal most effectively with both the technical and institutional questions and innovations and contribute to the design of national agricultural investment plans (NAIPs).

While the transition from Phase I to Phase II appears to being well executed with respect to scaling-out through AIPs and other models, the Program has not yet been very effective in moving outside the research domain to engagement in policy dialogue. Nor has it been able to establish links to the major NAIPs or the investment projects which come out of them. Malawi is an exception, where SIMLESA has developed a strong interface with the major investment programs under the Agricultural Sector Wide Approach (ASWAp) (Malawi's NAIP) and two of its larger programs: the ASWAp Support Program financed mainly by the World Bank; and the Sustainable Agricultural Production Program (SAPP) financed by the International Fund for Agricultural Development (IFAD), which together are investing over USD 100 million, largely in SIMLESA-type SI initiatives. The Malawi model is potentially replicable in the other SIMLESA countries and could form a key element of the exit strategy and leave a lasting legacy for the Program.

SIMLESA's policy agenda and approach should therefore be reviewed in line with the above. So far contributions to policy have been through policy briefs and a partnership with ASARECA on networking and dialogue with policy makers. SIMLESA (and its partners

ASARECA and CCARDESA) may need to first develop a deeper understanding of agricultural “Policy Practice” where distinguishing between the policy domain (declared policy) and the implementation domain (revealed policy) is essential. In general, ESA countries have developed good policy documents, but implementation has been poor. Nevertheless that situation is improving. In the 1990s there was a large divergence between African governments and donor organisations in the policy domain. Following the ‘structural adjustment’ phase, however, the gap has now narrowed; there is now better alignment and scope for leveraging investment from the public sector, domestic private sector, as well as in attracting foreign investment. In this regard 44 African countries have so far subscribed to the Comprehensive Africa Agricultural Development Programme (CAADP)-framed NAIPs that guide the investment process. SIMLESA has the potential to make a significant contribution to policy implementation and resource mobilization through the NAIP process.

One such action that SIMLESA II should consider is in financial and economic analysis which are both valuable policy tools that have not been fully exploited. Most SIMLESA countries have undertaken some basic financial analysis to demonstrate that SI practices offer better financial rewards for farmers than traditional practices. This work needs to be extended to incorporate risk analysis by looking at the variability of financial returns rather than only averages. Financial benefits and costs also need to be converted into economic values in order to estimate the economic benefit/cost ratios of different SI options relative to traditional practices, also with due consideration of variability and risk. In this way, a combination of financial and economic analysis can provide a powerful evidence-base to support informed policy decisions.

Recommendation 3: SIMLESA’s role in formulating policy:

3.1 SIMLESA should approach policy practice as an ‘action-learning’ process, using SIMLESA data and AIPs to inform policy dialogue.

3.2 SIMLESA should avoid declaring policy or providing policy solutions. Rather it can be a more powerful agent for policy reform by providing advice to policymakers in the form of evidence-based analysis of options including their actual and/or expected distributional effects, and implications for inclusive development.

3.3 The program should go beyond the financial analysis of technologies undertaken so far, and extend that into economic analysis as a powerful tool for informing policy-makers (e.g., on economic implications of subsidies and other public investments).

3.4 SIMLESA should take greater advantage of the influence of PSC members, some of whom are senior policy-makers, for direct engagement in the policy discourse.

3. Monitoring and Evaluation

The M&E focuses on its targets of farmers “reached”. The Program Proposal and various program documents specify the need for “impact”, but also that SIMLESA aims to “reach” 650,000 farm households by 2023 (e.g. 2014-2015 Annual Report). However it is unclear what is meant by “reach” in the M&E documents and the various reports. In some cases it is implied that this means exposure to a new technology; for example, by attending a field day. The Program Proposal (page 56) says that 30% of female-headed households reached are expected to adopt SI technologies, suggesting that “reach” and adoption mean different

things. At the MTR meetings it was stated that “reach” means adoption of at least one of the SI technologies. If there is to be meaningful M&E at the outcome and impact level, this ambiguity needs to be clarified through revised, well-defined, measurable indicators.

An indicator which measures exposure to SI technologies, or engagement with potential beneficiaries through AIPs, field days etc. is a measure of output, not of outcome or impact, with 650,000 being an un-demanding target. Similarly, the popularity of improved varieties means that the target of 650,000 farming households by 2023 should be easily achievable if the use of improved seed alone is considered to be adoption of SI technology. Attribution is also likely to be weak since SIMLESA does not generally play a leading role in varietal development or release although undoubtedly SIMLESA has played an important catalytic role in encouraging their evaluation, promotion and dissemination via various initiatives such as AIPs and field days. The M&E system therefore needs to develop more robust and less ambiguous outcome/impact indicators and targets which are ambitious but achievable.

In this context it is recognised that M&E of SIMLESA II is extremely challenging in view of the complexity and scope of the Program. The Program Proposal does not specify outcome/impact indicators but refers to defining “impact pathways”, which should have led to the definition of some higher order indicators and targets. This was supposed to have happened during Phase I but did not. The M&E Officer appointed in Phase II is now (only recently) engaged in this challenging and demanding task and the M&E plans are recognised as being a “work-in-progress”. The M&E indicators that were presented at the MTR meetings were chiefly at the output level. Outcome/impact level indicators were largely missing. The following guidelines are suggested for more rigorous definition in the M&E framework:

- “Reach” (meaning exposure, awareness etc.) should be considered an output indicator, obviously with a target higher than the 650,000 beneficiary households originally specified in the program document given that this target was not to be achieved until 2023. It is an intermediate result representing a necessary but not a sufficient step along the impact pathway.
- Higher level M&E indicators at outcome and impact level should incorporate more robust measures of adoption, going beyond use of improved varieties. The indicator could be refined to estimate the number of farmers adopting one, two, three, or the full set of practices from the suite of SI technologies/practices, rather than just measuring adopters and non-adopters. Over time it would also be valuable to consider the adaptation/modification of component practices that will surely happen as farmers “fit” practices to their circumstances. Also the characteristics of the adopters’ environment (i.e., both bio-physical and socio-economic) should be identified to help in defining or refining the recommendation domains for the specific technologies. This is important in helping identify other “potentially suitable locations” for their introduction/dissemination.

Other than counts associated with “reach” (cf “impact”), surveys undertaken, workshops and training, the current M&E plans are deficient in considering other factors. While there is an impressive number (56) of AIPs that have been established, an impressive number of new crop varieties being supported, and several baseline studies completed, there is little

analysis of what the “numbers” of each of these, and other deliverables mean in terms of impact pathways, new knowledge and the SIMLESA objectives. Other aspects (including significant successes) of the SIMLESA experience are being overlooked in the current M&E plans. Questions such as to how SIMLESA has impacted on the capacity and actions of national agencies (not numbers trained!), lessons learnt by CIMMYT and national partners from implementing such a complex multi-country program, establishment and function of AIPs as well as the science and capacity building impacts (not just numbers) are issues which require more focus from M&E and incorporation within a learning framework. This would enable the SIMLESA experience to inform the design and implementation of future R4D programs.

While a comprehensive and deployable M&E plan has yet to be developed for SIMLESA I or II, the recent CIMMYT appointment of an M&E specialist should enable a revised M&E plan to be finalised and implemented at both programmatic and national scales in the coming months. This is one of the most urgent actions flowing from this review.

Recommendation 4: Monitoring and Evaluation

4.1 The program’s monitoring and evaluation should be built on defined outcome, adoption and impact indicators that reflect targeted impact on 650,000 households by 2023 through combinations of technologies adopted and years of practice change.

4.2 M&E should be strengthened to consider institutional and capacity outcomes, and appropriate analyses that can inform this and future SI initiatives in Africa.

4. Communication

The program has done much to deliver its many messages and has developed a large amount of written promotional material. Some of this has focussed on the program as a whole, such as briefs on promoting SI (TIME TO ACT), use of herbicides (Bye-Bye Hand Hoe), legume seed production systems (SEEDS OF HOPE), a summary document on SIMLESA (AT A GLANCE) and SIMLESA achievements to date (SIMLESA Highlights of Achievements 2010-2015). There have also been productions that have been country focused such as the five country overview documents covering the period 2010-2015. Many of these “popular” communication documents have been particularly effective in communicating the importance and potential of SI options to national policy makers and subregional agencies.

Written material has not been the only medium used. The program has developed videos, used television and radio and, in some countries, especially Mozambique, has embarked on an innovative delivery of information to farmers and rural communities through SMS/mobile phone technology.

The program’s science publication record is expanding with a modest number of publications in peer-reviewed literature but many more in conference proceedings. The publication record is weakest in the biophysical sciences.

The SIMLESA website is a valuable resource that ought to hold all of the communication material produced. However the website appears relatively thin in content, given the vast amount of information that has been generated over a six- year period.

The communication plans presented to the MTR include a long list of activities: report writing, editorial support, annual reports, success stories and digital media. While all these activities are important, the plans appear to lack focus and definition of target audiences.

Extension material is lacking in some locations at least. In Malawi there was no SIMLESA, or SIMLESA-related material at hand and available to the AIPs and the associated extension staff. There are also questions about the value of much of the material produced so far to inform adoption in AIPs. Often the products are very general and provide overviews that are probably intended for national partner and donor audiences, but have little value in supporting on-the-ground adoption.

Communication is undoubtedly a priority for the next three years, but the communication plan needs to more closely align with the two key themes of this report; influencing policy, and supporting adoption of SI practices through the AIPs.

This means that SIMLESA needs to be clear about who its audience is, what the purpose of communication is, and what its message is to be. Being clear about those issues will help define levels of detail and language.

SIMLESA should not be directly involved in the production and dissemination of extension materials. SIMLESA should provide information that will support national and sub-national agendas but should not be drawn into mass communication. Rather, the communication plan should align with the concept of scale-out through AIPs and provide support via information to its 56 AIPs. Communication material, in whatever media, should be at the right level that can be used to inform the AIPs and other pathways to adoption. .

Communication to support policy should have a completely different focus. Its aim should be to present the key messages; that SIMLESA provides evidence-based means of influencing national policies for improving production and better risk management through SI technologies/practices.

Recommendation 5: Communication

5.1 SIMLESA should develop and implement a revised communication plan that includes particular focus on providing support material for influencing national policies, and supporting the AIPs in their role as important vehicles for adoption of SI technologies/practices.

5.2 Extra efforts should be made to ensure that the SIMLESA website is continually updated to include the breadth of outputs and data coming from the program.

5. Science

The quality of the science in SIMLESA is sound. It has already delivered a substantial number of papers in international peer-reviewed literature and far more in conference and workshop proceedings. However, the program needs to put emphasis on progressing research to publication through peer reviewed literature in parallel with documenting research results in a form which can be of immediate value to Ministries and key scaling-out agencies and personnel. If the program is to influence policy and provide SI practices that

can be adopted, it must be able to demonstrate that its recommendations are evidence-based.

Emphasis should be given to completing the science (research and publication) that is directly informing SI packages. It would be unwise to be advancing such packages unless this has been done. Similarly, the science that will underpin efforts to influence implementation of policy should be completed as a matter of priority. The program should not leave itself open to criticism that the science underpinning recommendations has not been peer reviewed.

Some science issues are addressed under specific objectives. However SIMLESA II has added a number of new partners and science domains to SIMLESA I. CIAT's work on soil fertility, especially nitrogen, soil organic matter and structure is adding extra value to the program through experimental activities that can provide data directly relevant to technologies/practices being developed. CIAT and the QAAFI team, who are also working on soil N dynamics, have already developed a strong partnership to address soil issues. With only three years to the end of SIMLESA II, this work should remain focused as outlined above.

SIMLESA II design includes the addition of a livestock component that is focussing on exploring sources of feed over the year using ILRI's feed assessment tool (FEAST), and testing a small suite of forages. The work has already revealed the small numbers of livestock owned and that in Tanzania for instance, crop residues form about 20% of the annual dry matter feed. However this new component does not appear to be sufficiently integrated with the program's overall objectives. There has been insufficient consideration of the implications of markets (for draught power, meat or dairy products), on demand and use of feeds, and possibly most importantly, of some of SIMLESA's underlying consequences of introducing SI practices, such as the likelihood that less draught power will be required and the necessity to reduce use of crop residues as feed. As it is currently implemented, the livestock component is unlikely to deliver outputs that will contribute to refining SI practices. The livestock work requires redesign and, given the remaining timeframe of the program, that redesign and implementation should be fast-tracked to provide direct benefit to the program. Much of the redesign will have to be based on literature and results from other mixed- crop-livestock projects and systems but there is already a substantial body of information which can underpin this task. A redesign should be built around livestock contributing to the concept of SI, and providing opportunities for income and sustainability. Key questions should be framed around what contribution this research will make to the SI practices that are to be scaled-out through the AIPs. A revised livestock component should also aim to contribute to the breadth of systems across a majority) of partnering countries, sites and environments. Progress in the ZimCLIFS project, where some of these issues have been successfully addressed, should be the starting point for the redesign. If redesign is not considered possible, then the MTR recommends that the livestock component of SIMLESA II be terminated.

While a cornerstone of SIMLESA is 30% risk reduction, SIMLESA appears to be undervaluing and underselling the resilience aspect of SI practices in relation to climate change and climate variability, even though there seem to be some good stories to tell in this regard. There were few presentations at the MTR, nor have there been many SIMLESA publications

that have addressed this issue. Risk reduction should be a key message for both influencing policy and for AIPs and scale-out, and requires more attention through systems modelling and financial analysis. There are a number of new sources of funding, known as “climate finance” which could be accessed to supplement ACIAR resources during the remaining life of SIMLESA and beyond, but, with or without extra funding, the issue of risk, and especially risk associated with climate variability must receive far more attention.

SIMLESA II needs to be considering its research program for the coming years very carefully. In short, when should research stop? Certainly new experiments should not be commenced unless there is a compelling argument that they will provide essential new knowledge that is required to reach the program’s objectives and is not already available from past SIMLESA work, other projects, or from the literature.

Recommendation 6: Science

6.1 The focus on science should be to complete field research and progress that to peer-reviewed publication and extension reports especially where the findings directly underpin the SI packages being recommended and associated policy implementation.

6.2 The PMC should carefully review SIMLESA II research plans to ensure that the experimental program is focussed on completing existing work and providing essential knowledge required for fulfilling the program objectives. Non-essential research should not be commenced.

6.3 The livestock component should be redesigned to align it with the program’s objectives. Given the small amount of time remaining, it should be fast-tracked so it can add value to the implementation in AIPs.

6.4 The program should place particular emphasis on quantifying the benefits of SI packages and their components with respect to climate variability risk and gender.

6. Partnerships

A major contributor to the successes of SIMLESA has been the establishment of productive partnerships. The partnerships with the national systems of participating countries have been central to the operation of SIMLESA. “Partnership” implies equity in aims and influence, and the MTR team considered the extent to which this was the case in CIMMYT’s relationships with its national-level partners. From the country visits and discussions with the national partners, the MTR team concluded that the partnerships are well established and that the partners in each country at all levels are demonstrating strong commitment to and ownership of their involvement in SIMLESA. A high level of collaborative enthusiasm is also being shown by NARS partners in two of the spill-over countries, Uganda and Rwanda.

An additional strength of SIMLESA is the partnerships with organisations outside the national systems. These include formal linkages and involvement of QAAFI, ILRI, CIAT and the Agricultural Research Council (ARC) (South Africa). The new model in SIMLESA II of having two QAAFI staff working in Africa, one in Zimbabwe and one in Ethiopia, is working particularly well. This approach is turning out to be a far more powerful mechanism of building research capability, than earlier short term missions undertaken by scientists flying in from Australia. The collaborative work with CIAT has significantly broadened the research capacity of some of the activities in Objective 2. On the other hand, the livestock

component with ILRI is so far not providing sufficient value to the program, and future support for this activity needs to be examined in response to the redesign recommended previously (see Recommendation 5.3). Similarly, it was not clear to the MTR where ARC fits into the collaborative framework.

The linkages with related ACIAR projects in Africa are a further area that merit examination. One of SIMLESA II commitments was to establish links with these projects. The nominated ACIAR projects include two projects funded through Australian International Food Security Research Centre (AIFSRC) (one on Adoption Pathways and one on farm mechanisation [FACASI]) both managed by CIMMYT, as well as the ZimCLIFS project on livestock integration with farming systems in Zimbabwe which is managed by ILRI but physically based at CIMMYT Harare. While there is involvement with these projects through CIMMYT at a management level, and a sharing of some CIMMYT staff across projects/programs, the MTR was presented with little evidence of integration or, in some cases, even linkages between SIMLESA II and these projects. While the Adoption Pathways project is sharing data for activities in Objectives 1 and 4, the linkages with this project appeared to be weaker than expected. The ZimCLIFS project was mentioned in the context of work in Mozambique, but apart from that, ZimCLIFS seems to have not been used sufficiently to inform the design or implementation of crop-livestock research in SIMLESA II despite both ZimCLIFS and the livestock work being undertaken by ILRI.

Mechanisation (tractors) has the potential to reduce dependence on draught power and thereby address one of the central SI issues, competition for crop residues. Yet the interaction with FACASI received little attention in any of the MTR discussions. Following a FACASI presentation at the annual meeting in March 2015, David Norman reported that there was a general view that the widespread introduction of tractor mechanisation might be somewhat premature in SSA. Despite that view, it is widely agreed that the key to adoption of mechanisation will be appropriate business models, having the right equipment for purpose, and appropriate policies. These are all objectives of FACASI. All the above factors combined (AIPs, draught power, residue, appropriate business models and equipment for purpose) should make stronger positive engagement between SIMLESA and FACASI well worthwhile. Much can also be learned in this regard from the experiences of mechanising small scale farming in South America and Asia. However it would appear that for SIMLESA II, the AIPs are a potential first step from which to explore mechanisation possibilities and how they might be play a role in SI in the region.

The scientific and research linkages to other donor-funded programs in Africa, those supported for example by the Bill and Melinda Gates Foundation (BMGF), IFAD and USAID, are largely informal, As is the case in the policy domain, there is considerable benefit to be derived from strengthening these, to learn from shared experiences and to avoid duplication of effort.

Both ASARECA and CCARDESA/SADC have strong roles in SIMLESA governance with representatives of each providing the co-Chairs of the PSC on a rotating basis. The partnership with ASARECA has also been operational. Under SIMLESA I, ASARECA was responsible for the M&E, and gender functions. While it provided basic M&E information to management, that ASARECA product was considered to be unnecessarily complex and in Phase II CIMMYT has established an in-house unit for M&E. The second Phase service by

ASARECA is policy dialogues, such as the Policy Forum, a session of which was held in Entebbe during the MTR. Mandi Rukuni attended on behalf of the MTR. It is evident that ASARECA does have considerable convening power and in this instance was able to gather strategically positioned policy players from the SIMLESA countries including spill-over countries. In line with the overall tone of the MTR, however, it suffices to point out that this partnership needs review in line with this review's Recommendation 2, on Policy. The emphasis in the next few years should therefore be on leveraging the partnership with ASARECA and a similar one with CCARDESA under the Southern Africa Development Community (SADC) (Malawi, Mozambique and Botswana are members of SADC) for scaling out, country and NAIP engagement, and designing/implementing an appropriate exit strategy.

The partnerships with ASARECA and CCARDESA/SADC have the potential to yield stronger and longer lasting collaboration between countries. Such partnerships would also provide institutional benefits to ASARECA and CCARDESA/SADC through their key subregional roles. The potential value of these partnerships may be relevant to analogous agro-ecologies in other parts of ESA and even in west and central Africa via the West and Central Africa Centre for Agricultural Research Development (CORAF/WE CARD).

Recommendation: 7: Partnerships

7.1 SIMLESA should put greater emphasis on engagement with the three associated ACIAR projects (FACASI, Adoption Pathways and ZimCLIFS) to assist it in refocussing some key research areas such as livestock and mechanisation.

7.2 SIMLESA should strengthen partnerships beyond the research domain. These should include partnerships with Ministries of Agriculture and major development finance institutions (IFAD, AfDB, WB, EU, USAID, BMGF etc.) so that SIMLESA concepts, principles and technologies can be scaled-out through investment programs financed by and implemented through the Ministries and their financiers.

7. Objective 1: *To enhance the understanding of CA-based intensification options for maize-legume production systems, value chains and impact pathways.*

Progress towards Objective 1 has been satisfactory across all participating countries. SIMLESA I focused on initial characterization of maize-legume farming systems; selection of research sites; and understanding SI constraints, opportunities, crop and livestock interactions, resource use, technology preferences and market access in the selected farming systems. Objective 1 activities have been scaled back during SIMLESA II, and re-oriented towards: (i) analysis of risks, risk perceptions and their implications for SI adoption; (ii) further analysis of SI options in selected farming systems; (iii) analysis of value chains and the constraints and opportunities they present; and (iv) identification of recommendation domains and adoption and impact pathways. Given the achievements so far, Objective 1 activities are being wound down. The priorities for the remainder of the Program are: (i) further analysis of impact pathways, adoption pathways and feedback loops; (ii) assessment of modalities for diffusion and scaling-up; (iii) identification of public investment needs to support wider adoption of SI methods; and (iv) analysis of risk especially in relation to climate variability. This work is being undertaken within an interdisciplinary framework incorporating bio-physical, socio-economic, institutional and marketing considerations.

The risk priority (above) is especially important for SIMLESA to reach its goal of a 30% reduction in risk. At this stage of the SIMLESA timeframe, and in view of the importance of the issue of scaling-out under Objective 4, it would be extremely valuable, perhaps even essential, for the Objective 1 team to construct a framework of risk reduction options that might be employed under SI, and how these impact and interact with risky and less-risky alternative SI practices in various environments and systems.

The Objective 1 team duly recognizes the need for further documentation, analysis and dissemination of the substantial amount of data and information that has been assembled.

Recommendation 8: Objective 1

8.1 The information generated under Objective 1 must not simply be recorded in a descriptive form. It needs to be analysed to provide a synthesis for publication and dissemination as part of SIMLESA's knowledge management framework to ensure that Objective 1 makes a stronger contribution to:

- incorporating the baseline situation analysis within the M&E framework;
- informing the policy analysis work, especially with regard to identifying SI adoption constraints and options for addressing these;
- identifying evidence based understanding of how SIMLESA scaling can be designed for maximum impact
- generating further insights into the risks associated with various SI options and adoption pathways and how farmers respond to these.

8.2 The Objective 1 team should develop a risk reduction options framework that includes both crop and livestock system components and their interactions that can be used to assist decision making in the AIPs and policy dialogues.

8. Objective 2: *To test and adapt productive, CA-based intensification options for sustainable smallholder maize-legume production systems.*

According to the SIMLESA II Proposal, Objective 2 builds on Objective 1 and remains the core component of the Program, centred on testing and adapting SI-based intensification options for different sites and household types. It aims to: (i) identify different SI technologies/practices that are needed for different farm typologies and examine how these are adapted by farmers to suit their needs and circumstances; and (ii) further assess SI options in crop-livestock systems with high demand for crop residues. This is being undertaken by the continuation of Phase I on-farm research with strengthened interdisciplinary teams including system agronomists and social scientists; as well as on-station soils research to enhance the understanding of productivity and soil health dynamics. AIPs and scaling out were included in Objective 2 during Phase I but transferred to Objective 4 in Phase II.

Progress towards Objective 2 has been mostly satisfactory. The program has identified, developed and validated a range of SI technologies/practices across diverse agro-ecological

and socio-economic contexts. These have been tested and demonstrated on-station and on-farm and shown to offer significant advantages over traditional practices in terms of yields, lower labour inputs, reduced erosion, improved resilience to climatic variations and better profitability. The technologies/practices provide farmers with menus of SI options ranging from use of improved varieties up to full CA packages including zero tillage, residue retention, crop rotation/inter-cropping and herbicides. Farmers have proven very eager to use the improved maize and legume varieties, but have been more cautious in adopting other elements of the SI packages which require a significant change in mind-set, the capacity to absorb and understand more complex extension messages, and access to finance for purchased inputs. This is in line with expectations. However, there is significant unfinished business in relation to: (i) livestock-crop interactions in situations of strong competition for crop residues; (ii) SI technologies for soils subject to waterlogging; and (iii) growing pest and disease challenges associated with residue retention. In the longer term weed problems are also expected to increase, possibly exacerbated by herbicide resistance.

Two further issues under this objective deserve more attention. The first is documentation of methodologies used in testing practices on station and on farm. This is a critical step towards ensuring the science legacy of the SIMLESA team. This includes documentation of the different approaches to farmer participation. Although some guidelines were introduced at the beginning of SIMLESA on how to ensure a farmer perspective and systems analytical approach, there has been considerable freedom within countries to adapt approaches to fit their operational environment. In light of such diverse experiences there would be considerable merit in documenting and evaluating the approaches used and possibly providing a list of “do’s and don’ts” in the light of those experiences. This could provide valuable reference materials for future initiatives in the region analogous to SIMLESA thus hopefully reducing the potential for improving implementation efficiency and reducing the potential for repeating mistakes.

The second relates to the urgency in fully documenting the various SI technologies, how they might be implemented in various combinations, in which countries and in which farming systems. This would seem to be a critical input into the scaling-out strategy via AIPs (Objective 4) which for SIMLESA II is the central objective.

Recommendation: 9: Objective 2

9.1 The SI practices for scaling-out should be documented as soon as possible so that they provide the basis for scaling out under Objective 4.

9.2 SI technologies/practices appropriate for widespread dissemination through national extension systems, NGOs and the private sector should continue to be refined and adjusted through trials and demonstrations.

9.3 SIMLESA should undertake a literature review and focussed discussions with practitioners to identify emerging or potential pest, disease and weed threats with a view to initiating mitigation measures through the SIMLESA team or other agencies/ specialists (e.g. ICIPE).

9.4 There is a need to identify and integrate livestock practices that address the critical issue of crop residue management and opportunities for transitioning livestock “keeping” to livestock “production” and new sources of income.

9.5 The biophysical and participatory research methodologies used in identifying and refining the recommended practices should be documented in the scientific literature and/or in program reports) as information sources for future programs of an analogous nature.

9. Objective 3: *To increase the range of maize, legume and fodder/forage varieties available to smallholders*

This objective is supporting the production and distribution of seeds of new varieties of maize and legumes that have been identified in partnership with the NARS. The attributes include high yield potential, disease resistance and drought tolerance. In addition, the work includes the production of seeds of forage and fodder species for livestock in Ethiopia, Kenya and Tanzania.

Excellent progress has been made under this Objective in both late Phase I and early Phase II. Quantifiable benefits have been demonstrated for new varieties of maize through farmer participatory variety selections, and evidence has been provided that the new varieties are being well adopted by farmers. Local successes are also seen for some of the grain legumes, for example, beans in Kenya. The work has advanced well into the next stage of developing Seed Road Maps to scale-out production of new maize and legume varieties in partnership with seed companies and community based seed organizations (CBSOs). A total of 26 seed roadmaps have been developed; and more than 42 seed companies are involved in scaling-up identified products. These links to the seed companies demonstrate that SIMLESA has successfully engaged with the private sector. That engagement is only part of the story however and further links to the private sector will emerge as the scale-out process of SIMLESA intensifies. These additional links will include those developed through AIP members from the private sector such as traders, local input suppliers, and transport providers.

One issue that was identified in David Norman’s report of March 2015 was the production of legume seeds, which are a less attractive proposition for seed companies than maize. The MTR agrees strongly with this observation, both for fodder and grain legumes, and highlights this as an area for attention, recognising the emphasis placed on legume seed in Phase II by the Coordinator – but these efforts have yet to gain traction with NARS. There is certainly scope for more involvement with CBSOs, which could be supported by competitive grants under the CGS. Where necessary, additional collaborative support can be sought from other institutions working in this area, such as ICRISAT and IITA. In contrast, maize seed production and marketing will continue to be adequately addressed by the private seed companies. Therefore while SIMLESA might continue to modestly build on earlier work, it should be careful not to be distracted into new maize evaluation and selection work.

SIMLESA can make a valuable contribution to seed policy in the partner countries. However, it should tread cautiously in this area and not seek to be prescriptive in its policy

recommendations, recognising that the role of seed parastatals in several countries needs to be considered. Rather, policy dialogue can be informed through work in the AIPs, to help ensure that farmers have access to seeds of improved varieties.

The supply of maize germplasm to breeding programs in Australia should be considered a significant achievement of SIMLESA. While maize is not a major crop in Australia, it is expanding. As a “new” crop with limited plant improvement history in Australia, the availability of appropriate genetic material has been a constraint. The partnership between CIMMYT and QAAFI under the SIMLESA umbrella has been a vehicle for facilitating CIMMYT germplasm into the QAAFI breeding programs and for building Grains Research and Development Corporation (GRDC) support for maize breeding and evaluation in Australia.

Recommendation 10: Objective 3

10.1 Seed production for legumes (both grain and fodder) should be given a high priority, and a plan should be developed as soon as possible on where and how delivery of legume seed to farmers can be scaled-up before the end of the program. This plan should be based on other successful legume seed production programs in the region.

10. Objective 4: *Scaling out modalities, innovation platforms and systems, competitive grants, gender, M&E, knowledge management*

The SIMLESA target of reaching 650,000 beneficiaries by 2023 continues to be valid. AIPs will be an important tool for reaching such targets but should not be considered only in that context. AIPs also provide a learning opportunity for all participants by identifying problems, exploring possible solutions and implementing appropriate strategies.

The formation and engagement with 56 AIPs in partner and spillover countries is itself a significant achievement that provides a sound base for pilot adoption, and an opportunity for action-learning research, especially on crafting institutional innovations and navigating around market failures and other impediments in the enabling environment. All this needs to be well captured, analysed and documented. A program-scale synthesis of findings, lessons and good practice from SIMLESA I is still needed. Although the synthesis will be too late to contribute to the design of the CGS scale-out initiative which is commencing in November/December 2015, such a synthesis would still inform and sharpen the scaling-out strategy later in Phase II, and help inform other research and development programs.

The MTR found some evidence of success and impact with AIPs and gathered anecdotal evidence during its limited visits to partner countries. Some of this includes:

- AIP's are general purpose instruments to address a wide array of needs, from adoption, access to legume seed, aggregation to address marketing and financial needs, etc. It is noteworthy that they are seen as valuable in pre-production, production and post-harvest issues.
- There appears to be scope, for specialisation, including possibilities for spinning-out of related upstream and downstream small and medium enterprises (SMEs) and artisanal businesses (i.e. engagement with the private sector) supplying various products and services (e.g. local seed, fertilizer and veterinary supplies, transport providers and possibly even hiring of machinery).

- A practical limit to the size of AIPs is around 20 members, of which about two thirds are farmers. This makes some sense in terms of group dynamics, but there is need to learn and understand more about the relationships between AIP size, membership and functionality through consolidated program-wide data.
- The contribution of AIPs to social capital is not yet fully investigated and with a greater understanding there may be leverage points for engaging policy.

Although the CGS has very limited resources it remains an important out-scaling instrument. Every effort should be made to clarify its role and fast-track its implementation, if possible by selecting grant recipients on the basis of brief expressions of interest and then negotiating grant agreements based on agreed milestones. A two-stage selection process will risk further delays and loss of a full agricultural season in Southern Africa.

Gender was not given sufficient attention in SIMLESA I and a new focus on gender was added to SIMLESA II. So far gender focal points (i.e., leaders) have been identified in each country and they are critical positions for commencing greater gender recognition. However the program has not yet made expected progress towards more balanced gender participation. One aspect of gender is the participation by women. Women have some representation in senior SIMLESA governance via membership of the PSC. Overall they are poorly represented among the SIMLESA implementing partners, although there are a number of outstanding women contributing to SIMLESA via CIMMYT and national partners. There are also some outstanding examples of women's roles and influence in the AIPs (in Embu Kenya for instance) but again their roles and participation across AIPs do not appear to match the large portion of women who form the farming population. A lot remains to be done in this regard especially as it can be expected that complex issues that involve gender will emerge as SI interventions are scaled out. Various SI interventions or combinations of SI interventions will almost certainly have different outcomes with respect to gender, and those outcomes might vary between farming systems, environments and cultures. While SIMLESA II maintains its overall focus on productivity increases and risk reduction, it should also consider which interventions, or combinations of interventions are more likely to have positive or negative gender outcomes, and especially identify those that provide most benefit to women in various locations and systems.

The gender research activities proposed by ARC are far too ambitious and in the view of the MTR are a lower priority than practical measures to improve female participation, influence and benefits at all levels, including the AIPs and a focus on building greater gender balance as SI interventions are scaled out.

With only 56 AIPs across the five countries it is clear that scaling out is really only on a pilot scale, with its success depending on what is learned and what comes after it. In this regard the AIPs should be seen as an action learning initiative rather than a true scaling-out mechanism. True scaling-out will only be possible through linkages with the investment projects and programs mentioned earlier. However gaining deep understanding of scale-out of SI interventions and the biophysical and socio-economic factors that enable and constrain successful scale out is likely to be critical in defining the SIMLESA legacy and ongoing financial support from ACIAR and/or other donors.

Recommendation 11: Objective 4

11.1 The CGS and the Objective 4 team members should prepare a comprehensive scaling out plan that harnesses appropriate program elements and associated activities of public, business and NGO organisations that support scaling-out. Particular focus in the plan should be given to gender, M&E and communication.

11.2 AIPs should be regarded not only as a mechanism for adoption of SI systems, but also should be monitored and recorded, for learning and improvement, and provide lessons for good practice options as public knowledge contribution. A key part of this would be providing information on the likely benefits and risks with respect to gender from introducing various SI practices.

11.3 Although the AIPs will continue to be an important vehicle for scaling-out, in some situations national extension systems and NGOs have the capacity to take a meaningful role in the scaling-out process. Data, evidence and lessons (including do's and don'ts) from AIPs need to be gathered, analysed and reported so that they can inform scaling-out efforts through all channels.

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

At the science level the capacity building through SIMLESA I and II has 65 post graduate degrees (MSc and PhD) either completed or continuing, with the PhD success partly being through alignment of SIMLESA with the Australia Awards in Africa program. Those training opportunities have been competitive, but over 50% of candidates have come from Ethiopia. Nevertheless all participating countries have benefitted through either Australian or African university postgraduate placements. Similar achievements across all countries have been recorded through various short course training for national staff and the training of farmers through field days and exchange visits.

A spinoff from the MSc and PhD training in Australia has been the establishment of an on-line statistical package; "BeST" (Bespoke eStyle R Software). The availability of a quality statistical package with "how to" tutorials was seen as missing link in post-graduate studies. This University of Queensland (UQ) developed package is available to users free of charge.

SIMLESA has probably underplayed its achievements in less formal capacity building outcomes. The MTR was impressed by the collaborative feel of the program, the quality of the partnerships, the deep understanding of the program by all participants and the interdisciplinary nature of some of the activities. These are some of the capacity building outcomes that deserve greater recognition and assessment through revised M&E plans.

The capacity building plans presented to the MTR nominated further formal training for professionals in SI, gender, and extension services along with undefined national priorities. These plans need to be reassessed with a view to having far more focus on scaling out. While formal postgraduate training should remain supported, emphasis should move to having the AIPs operate effectively and the training of extension staff, associated private sector partners and farmers that are so vital for implementing the SI technologies/packages.

Training on research leadership is a priority for SIMLESA II but there do not appear to be specific plans for that. SIMLESA should make this a priority for the final few years, as it has obviously done in its recent gender training initiatives. One option for research leadership

capacity strengthening might be to support more placements in the annual short course *Australia Awards Africa: Increasing the Development Impact of Research* program. One SIMLESA team member is attending the 2015 course.

SIMLESA should also look for opportunities for the current group of post graduates to be supported when they complete their studies and re-join their national programs.

Recommendation 12: Objective 5

12.1 Capacity building should continue its current commitments for post-graduate students but focus new training on improving the broad range of skills that will be required to directly support scaling-out of the SI technologies/practices in each location/country. The priority skill sets will likely range at least from AIP facilitation and governance, to agronomy, systems analysis, communication and extension.

Attachment 1: Project outputs

Objective 1: To enhance the understanding of CA-based intensification options for maize-legume production systems, value chains and impact pathways.

No.	Activity	Outputs/ Milestones	What has been achieved?	What has not been achieved?	Are there additional outputs that could have been achieved?
Output 1.1					
Refined understanding of CA-based intensification and feed options in selected farming systems					

Activity 1.1.1	<p>Create a continuously updated database of productive and risk reducing CA-based intensification options based on:</p> <ul style="list-style-type: none"> i) review of the literature and other projects; ii) stocktaking of SIMLESA-1 experiences, including surveys and empirical evidence from on-station and on-farm experimentation, and; iii) Ongoing SIMLESA activities. 	<p>A dynamic web-based database of CA-based intensification options (agronomic practices, varieties, crop choices/diversification, fodder/forage) established.</p>	<p>508 research villages/communities were characterized for demonstrating and evaluating technologies during SIMLESA-1 and 2.</p> <p>Comprehensive household, plot and village level survey data from 3, 613 farm households [3020 male and 563 female] and 28 districts were collected in the five SIMLESA countries.</p> <p>SIMLESA website now up and running.</p>	<p>Work in still in progress to populate a web-based database of CA-based intensification options.</p> <p>PDFs of these policy briefs will be available on SIMLESA website</p>	<p>Milestone is due to be updated annually.</p> <p>Web publishing (planned for the next few months)</p> <p><i>MTR comment: It will be critical to have a common understanding of what this database should contain, and how it will be accessed and interrogated. The design of such a database may in itself be a major challenge.</i></p>
-------------------	--	--	---	--	---

			<p>In 2014, 6 CIMMYT policy briefs summarizing the empirical work in SIMNLESA II were published in hard copies and PDFs and these have been shared extensively in SIMLESA and Adoption Pathways meetings. These briefs provided policy information on:</p> <ol style="list-style-type: none"> 1. The need for integrated technology development and dissemination of CA based technologies 2. How to resolve trade-offs in crop residue use 3. The win-win risk and productivity impacts of CA based practices 4. The key market, asset and public sector drivers of on- farm adoption of CA based technologies 5. How to close the gender gaps in the benefits of technology adoption 6. The crucial role of improved varieties in household food security 		
--	--	--	---	--	--

Activity 1.1.2	A meta-analysis of CA-based intensification options focusing on productivity, yield stability/risk, profitability, sustainability and adaptability.	<p>One peer reviewed synthesis of performance of CA-based intensification options</p> <p>Implications of CA-based intensification options on crop failure analyzed and documented</p>	<p>The first task in this activity undertaken in SIMLESA-II was to consolidate the socioeconomic work in SIMLESA-1</p> <p>10 technical briefs have been drafted by all country teams and are being processed for publication</p>	<p>Ten (10) technical briefs are in production and to be published in SIMLESA website in February 2016.</p> <p>A peer-reviewed synthesis of performance of CA-based intensification options has yet to be delivered.</p>	<p>Milestone was due for delivery in 2014, and is to be updated in 2016.</p> <p>Publishing. To be done in Q1 of 2016</p> <p><i>MTR comment:</i></p> <p><i>A. This is a major assignment and given what was presented at the MTR, and the analyses already published, it would seem unlikely that this will be achieved by March 2016.</i></p> <p><i>B. The meta-analysis and the database in the previous output should consider issues of gender and especially the potential risks and benefits of SI interventions.</i></p>
-------------------	---	---	--	--	--

			<p>Aspects covered included</p> <ol style="list-style-type: none"> 1. Adoption Monitoring 2. Markets and Value Chains: 3. Agronomic and financial Impacts of CA based intensification 4. Testimonials and Success Stories <p>A journal grade article on the meta analysis and documentation of the CA-based intensification options is on-going.</p>		
Activity 1.1.3	Evaluation of crop-livestock interactions, feed demand and supply options in 6 farming systems, through quantitative and participatory data collection and use of analytical tools. (Ethiopia, Kenya, Tanzania)	Synthesis of feed demand, and feed intervention options	<p>A work plan was developed in consultation with key stakeholders in Ethiopia, Kenya and Tanzania in 2014. This activity has been sub-contracted to ILRI.</p> <p>Preliminary work was shared during the MTR meetings</p>	Data have been collected for the target countries, but the evaluations and analyses for the target countries have yet to be completed.	<p>Milestone was due for delivery in 2014, and is to be updated in 2015.</p> <p><i>MTR comment: This activity is far from being achieved with its delivery dependent upon a comprehensive redesign of the livestock component of SIMLESA II</i></p>

Output 1.2					
Understanding maize, legume and fodder/forage value chains, focusing on institutional/agribusiness constraints and opportunities, costs and pricing patterns (gender specific)					
Activity 1.2.1	Analyses of agricultural input accessibility (fertilizers, herbicides, pesticides) in enhancing CA-based intensification options, including agribusiness opportunities and constraints.	Agricultural input supply options, constraints and (agribusiness) development opportunities identified	A work plan was developed by agri-business specialist in 2014	Agribusiness opportunities and constraints have yet to be fully explored.	Milestone was due for delivery in June 2014. <i>MTR comment: This activity is unlikely to be delivered soon but should be considered in parallel with AIP activities under Objective 4</i>

Activity 1.2.2	Update the analysis of opportunities and constraints for output market and agribusiness development	Report on (gender specific) output markets constraints and (agribusiness) development opportunities for maize, legumes and fodder	<p>An analysis of value chains was completed in 2014 in Kenya and Ethiopia.</p> <p>The key findings from this work were completed in May 2015. The results focussed on the need to formalise as much as possible the maize and legume value chains within economic realities of Ethiopia and Kenya.</p> <p>Key recommendations include:</p> <ul style="list-style-type: none"> • Need for more formal price information systems • Market development policy should focus on improving auxiliary services such as credit, forward sales, transportation, post-harvest handling and grading. • Options for reducing the length of the value chains or to enable farmer be more fully integrated into wider markets <p>A journal paper draft on the above is under review in Journal of Agribusiness in Developing and Emerging Economies</p> <p>An interim technical draft completed and is being processed by CIMMYT communication.</p> <p>Similar survey is completed for Tanzania and data are being entered.</p> <p>For Ethiopia, a report on the input-output value chain of maize-legumes system has been prepared for publication in the Ethiopian Crop Science Journal.</p>	<p>An interim technical brief is under preparation. Full results to be shared upon completion of peer review process</p> <p>Tanzania report to be completed in Q1 of 2016</p> <p>Similar survey planned for Mozambique in Q1 of 2016</p>	<p>Milestone was due for delivery in June 2015.</p> <p><i>MTR comment: A report should be able to be delivered soon (2016) based on work undertaken to date</i></p>
-------------------	---	---	--	--	---

Activity 1.2.3	Determine local, national and regional institutional/agribusiness constraints (incl. policy) in the delivery and uptake of CA-based intensification options (by different farm types and farming systems)	Documentation of institutional/-agribusiness constraints to the delivery and uptake of CA-based intensification options	<p>A policy brief from Objective 1 was among 6 other policy briefs presented at a regional high level policy forum October 27-28, 2015, summarising the key policy action points for Sustainable intensification as based on SIMLESA work. These were included in the Communique signed by 5 ministerial representatives from Kenya, Mozambique, Rwanda, Tanzania and Uganda.</p> <p>The policy action points were:</p> <ul style="list-style-type: none"> • Take an integrated approach to sustainable intensification to include CA based practices combined with seeds and fertilize • Increase extension to farmers ratios • Develop inclusive input finance for smallholders and improve market access for agricultural inputs <p>Databases of productive and risk reducing CA-based intensification options have been updated. These quantify productivity and risk trade-offs faced by farmers under different risk attitudes, and provide analysis of agricultural input accessibility in enhancing CA-based intensification options, including agribusiness opportunities and constraints.</p> <p>In Tanzania, for example, it was revealed that long distance from markets, high inputs costs and lack of capital remain as major challenges.</p>	Country specific follow-up planned for each country	<p>Milestone due for delivery in June 2015.</p> <p><i>MTR comment: Given the diversity of countries and systems the country specific reports should be a priority in advancing policy implementation in particular.</i></p>
-------------------	---	---	--	---	---

Activity 1.2.4	Testing of alternative value chain interventions for developing competitive and efficient market system	Alternative input and output delivery options identified and report produced and shared with program members and other stakeholders	<p>Work to identify and test alternative value chain interventions is in progress.</p> <p>Two issues identified and discussed with Mozambique and Malawi country teams.</p> <p>Draft survey instruments have been developed</p> <ol style="list-style-type: none"> 1. In Mozambique the need to produce a spatially explicit map of herbicide supply chains with a view to identifying the key concentrations of supply and constraints for reaching smallholder farmers 2. In Malawi the need to analyse farmer collective action in legume markets to promote market access has been identified. 	A report on alternative input and output delivery options has yet to be delivered.	<p>Milestone due for delivery in October 2015.</p> <p><i>MTR comment: Although due only last month, it would appear from this milestone delivery will be significantly delayed.</i></p>
-------------------	---	---	--	--	---

Output 1.3

Understanding farm risks (perception, attitude, exposure, sensitivity, interactions) and management responses/-innovations under different biophysical, socioeconomic and institutional settings

Activity 1.3.1	Assess farmers' attitude towards risk and perception of risk sources and risk management strategies under different farm household types, resource condition (e.g. farm size) and agro-ecology	Survey instruments to collect data on risk perception and risk management strategies and carry out risk experiment survey to elicit risk attitude. Country synthesis report on farmers risk attitude and perception of risk sources and risk management strategies under different risk attitude behaviour produced and shared with stakeholders	Work on surveying farmers' attitudes towards risk is in progress. Country synthesis reports on risk are due for delivery by the end of 2015.	Analytical capacity constraints are binding for this work. QAAFI team needs to take the lead and help the country teams	Milestone due for delivery in December 2015. <i>MTR comment: Risk analysis in relation to SI practices and climate variability has not been prioritized. This is crucial work towards many other activities (databases etc.) Risk and benefits of new practices with respect to gender should also be examined.</i>
Activity 1.3.2	Estimate cost of risk and its impact on welfare and the contribution of variability (variance) and downside risk to cost of risk under different CA-based SI technologies adoption and agro-ecology	Two papers documenting risk implications of CA-based SI investment options and contribution of downside risk and variance produced and discussed with stakeholders	Results on the analysis on the impact of CA based techniques on the cost of risk have been published in Journal of Agricultural Economics 66 (3): 640–659. QAAFI team have shared interim results on this.	Empirical results published in 2015 (in collaboration with Adoption Pathways Project) First paper is due for delivery in February 2016.	Due for delivery in February 2016 and June 2017.

Activity 1.3.3	Quantify productivity and risk trade-offs farmers face under different risk attitude, exposure and sensitivity regimes including CA-based SI technologies adoption	Productivity and risk trade-offs farmers face under different risk attitude classes and CA-based SI technologies adoption estimated	Work in progress		Milestone due for delivery in October 2017. <i>MTR comment: crucial work for AIPs and policy agendas.</i>
Activity 1.3.4	Estimate the relationship between farmers' perception of risk sources and attitude towards risk against farm and farmer socio-economic characteristics and the cost of risk and risk attitude on technology adoption	A working on factors influencing risk perception and attitude to risk and associated costs	Preliminary work on factors influencing risk perception and attitude to risk and associated costs, has been undertaken under Activity 1.3.1	Farmers' perceived risks still need to be analysed against socio-economic characteristics in the target environments.	Milestone was due for delivery in July 2015. <i>MTR comment: See previous notes with respect to gender and risk/benefits.</i>

Activity 1.3.5	<p>Exploration and refining of opportunities for investment in maize, legume and forage value chains through a better understanding of climate and market risks</p> <p>i) Two participatory modeling workshops at SIMLESA sites identifying opportunities for the on farm demonstration of profitable and risk reducing CA-based intensification opportunities,</p> <p>ii) Risk analysis and investment options discussed at farmer group and public-private partnership meetings.</p>	Risk implications of CA-based investment options quantified and discussed with stakeholders	<p>A participatory modelling workshop was run by John Dimes in Ethiopia's Central Rift Valley in collaboration with Solomon Hassen (QAAFI PhD student) and EIAR extension and research staff.</p> <p>A participatory modelling workshop was run by John Dimes in Malawi in collaboration with Donwell Kamalongo and the Malawi research and extension team.</p> <p>Work with farmers' groups is still on-going.</p>	Much has happened here and needs to be consolidated in different types of publications	<p>Milestone due to be updated annually, 2014-2018.</p> <p><i>MTR comment: Not well documented especially in relation to market risks. Very little reported apart from two short modelling workshops, although a comment of much having happened.</i></p>
-------------------	--	---	---	--	---

Output 1.4					
Functional farm-household typologies matched to CA-based intensification options					
Activity 1.4.1	Adjusting structural typology of SIMLESA-1 to a functional typology based on adoption constraints of CA-based intensification options for different farm household types (incl risk profiles) and farm systems, building on additional survey data and interviews with identified representative case study households (i.e. output from SIMLESA-1),	A typology of farm households developed and validated Matched CA-based intensification options with identified farm typologies for potential out-scaling	<p>Farm-household typologies were largely completed in SIMLESA Phase 1.</p> <p>More work has been ongoing since mid-2015 by both QAAFI and CIMMYT teams</p> <p>Interim results have been shared during MTR and SIMLESA 5th APRM</p>	Work on validation of the typologies, and matching these with CA-based intensification options, has not been reported.	<p>Milestone due for delivery in June 2015.</p> <p><i>MTR comment: this work is very advanced and should be informing AIPs and policy, and being validated in the AIPs.</i></p>

Activity 1.4.2	Quantify the benefits and trade-offs of alternative CA-based intensification options for different farm household types (incl risk profiles) and farm systems	Report on benefits and trade-offs of alternative CA-based intensification options for different farm household types	<p>Work has continued on modelling household and two abstracts were submitted to the Farming Systems Design Conference to take place in Montpellier, France, September 2015. A third paper using input from SIMLESA was published in PNAS in 2015.</p> <p>[Rodriguez D, Bekele A, deVoil P, Herrero M, Kassie M, Power B, Rufino M, van Wijk MT (2015) Pathways for the sustainable development of agriculture: Simple rules to inform best-fit interventions http://fsd5.european-agronomy.org</p> <p>Rodriguez D, deVoil P, Herrero M, Kassie M, Odendos M, Power B, Rufino M, van Wijk MT To mulch or to munch?. Modelling the benefits and trade-offs in the use of crop residues in Kenya http://fsd5.european-agronomy.org</p> <p>Frelat R, Lopez-Ridaura S, Giller K, Herrero M, Douxchamps S, Djurfeldt A, Erenstein O, Henderson B, Kassie M, Paul B, Rigolot C, Ritzema R, Rodriguez D, van Asten P, van Wijk MT 2015 Drivers of household food availability in sub-Saharan Africa based on big data from small farms PNAS www.pnas.org/cgi/doi/10.1073/pnas.1518384112</p>	Milestone due for delivery in December 2015.
-------------------	---	--	---	--

Output 1.5					
Identified and refined recommendation domains and adoption and impact pathways for 15 maize-legume-forage/fodder production systems					
Activity 1.5.1	Identification and refining of recommendation domains (including 15 maize-legume-forage/fodder production systems) for scaling out of CA-based intensification options, through spatially-explicit analyses of similar systems (based on agro-ecological, demographic, economic and institutional conditions). Building on on-farm experiments and soil health research	Recommendation domains for scaling out of CA-based intensification options.	<p>This is an on-going activity</p> <p>Recommendation domains available for Ethiopia and Malawi under CCAFS as published under CCAFS.</p> <p>So not need to duplicate.</p> <p>Replicating CCAFS work for other SIMLESA countries discussed with CCAFS scientist.</p>	Plans to replicate CCAFS recommendation domains for Kenya, Mozambique and Tanzania are to be further explored.	Milestone due 2015, to be refined annually
Activity 1.5.2	Adoption and impact assessments to refine impact pathways and facilitate learning, priority setting processes for 15 maize-legume-forage/fodder production systems. In partnership with the Adoption Pathways Project .	<p>Report on annual Early Adoption monitoring survey</p> <p>Documented best-fit adoption and impact pathways</p>	<p>Adoption Monitoring surveys were completed in 2013.</p> <p>The decision was made to conduct next series two years post 2013 surveys.</p>	Adoption Monitoring surveys will be conducted in 2016 as per agreed schedule. A final series is planned for 2018 (at project end)	Milestones to be updated annually, 2015-2018

PC = Partner Country, A = Australia

Objective 2: To test and adapt productive, CA-based intensification options for sustainable smallholder maize-legume production systems.

No.	Activity	Outputs/ Milestones	What has been achieved?	What has not been achieved?	Are there additional outputs that could have been achieved?
Output 2.1					
Annually 150 evaluated on-farm trials of sequenced and refined CA-based intensification options for different types of farms across 15 maize-legume-forage/fodder production systems					

Activity 2.1.1	Annual on-farm exploratory trials to verify co-identified promising CA-based intensification options in terms of productivity, yield stability/risk, profitability and sustainability (excl. variety evaluation. see 2.1.2) - at least 3 sites per SIMLESA country testing at least 3 refined options every year	Verified CA-based intensification options under smallholder farmer conditions.	<p>Intensification component trials have been conducted in each of the regions in the participating countries, and the results reported. Protocols were refined to address emerging issues in each agro-ecology and streamlined to focus on sites where the quality of research was of an acceptable form. As a result some sites were dropped while new ones were established.</p> <p>New components incorporated include the following:</p> <ul style="list-style-type: none"> -Testing of newly released varieties for CA readiness -Crop establishment methods -Techniques for coping with waterlogged conditions -One publication addressing yield stability across environments was produced (Nyagumbo et al., 2015) 	Findings to be reported annually, 2014-2018
Activity 2.1.2	Annual on-farm participatory evaluation trials of released improved maize, legume and forage/fodder varieties under CA practices to identify most suitable varieties with male and female farmers – with at least 3 sites per SIMLESA country testing at least 3 refined options every year	Improved maize, legume and forage/fodder varieties suitable for CA-based practices identified.	<p>CA-based improved variety component trials have been conducted in each of the participating countries, and the results reported.</p> <p>Forage studies established in Ethiopia and Tanzania based on partner demands.</p> <p>Varieties were introduced and combined with 2.1.1 in some countries and implemented in collaboration with objective 3</p>	Findings to be reported annually, 2014-2018

Activity 2.1.3	<p>Annual adaptive on-farm experiments with CA-based intensification options to:</p> <p>(1) smart-sequence options and;</p> <p>(2) integrate options at farm-level. This is done for different farm types in different agro-ecological conditions – with at least 2 farm types for 5 main farming systems in ESA, and at least one refined set per SIMLESA country every year.</p>	Verified strategies to smart-sequence and integrate CA-based intensification options for different farm types and agro-ecologies	Country work plans have been developed for this activity. Farm type studies initiated in Mozambique and Ethiopia in 2014 based on identified typologies and priorities.	Work is still in progress to define strategies to smart-sequence and integrate CA-based intensification options.	Findings to be reported annually, 2014-2018
Output 2.2 Understanding productivity and soil health dynamics of CA based intensification practices					

Activity 2.2.1	Annual continuation of on-station long-term trials under conditions representative of the agro-ecologies to monitor the medium to long-term productivity, yield stability/risk and soil health dynamics of CA based intensification practices, including effects on disease, pest and weed dynamics.	Precise data on the effects CA-based intensification practices focusing on crop productivity, water and soil health dynamics.	Long-term trials have been continued as planned. The benefits of CA in terms of moisture conservation and consequently water productivity are apparent in most of the studies conducted in the five countries. For example, significant soil moisture increases in CA ($p<0.05$) were measured in Malawi and Mozambique. Improved moisture conservation translated to higher rainfall water use efficiency with the highest being measured in maize-soybean intercropping systems in Ethiopia. Malawi and Mozambique the on-station trials were modified to include potential CA-ready varieties while smaller basins were also incorporated as split plots. In Tanzania in long term trial, higher moisture levels were recorded in conservation (CA) compared to conventional (CONV) practice. Also gradual increase in OC over time was observed in CA although the difference between CA and CONV was not significant. In addition monitoring of active carbon and mineral N has been included.		Trials to be repeated annually, 2014-2018
-------------------	--	---	---	--	---

Activity 2.2.2	Annual on-station evaluation of maize/legume varieties for CA-based intensification (released varieties only)	Suitable varieties for CA-base systems identified	Ongoing. Suitable varieties of maize and legumes have been identified for CA-based systems for each of the participating countries. New variety on-station trials were established in Mozambique and Malawi to address diseases and pests in CA.	In Tanzania this activity ended in phase one.	Trials to be repeated annually, 2014-2018
Activity 2.2.3	Understanding soil responsiveness (incl. micro nutrient deficiencies) in SIMLESA sites through annual refined fertilizer trials and participatory mapping of with farmers.	Responsive and non-responsive sites/soils properties characterized and their respective areas in SIMLESA sites assessed. Priorities for responsive vs non-responsive activities determined. Rehabilitation options and phased CA implementation for non-responsive soils identified.	This activity is being pursued as a low priority, as only the Kilosa trial in Tanzania has been deemed non-responsive. A database on maize response to micronutrients in SSA has been assembled by CIAT.	Most of the countries suggest that none responsiveness was not an issue of concern although there were some pockets in some countries where the problem exists. No more elaborate activities will be undertaken to address this.	Experimental work to be adjusted annually, 2015-2017
Activity 2.2.4	Developing and refining nitrogen application options under CA practices	Nitrogen response and management strategies for CA-based intensification of responsive soils identified	Good progress is being made on understanding nitrogen response and CA management strategies, with input from CIAT soils specialists. The focus of this activity is on 6 selected on-station replicated trials in Kenya and Tanzania. Other work is being conducted on demand from partners, for example in relay-cropping in Mozambique.	More work on nitrogen immobilisation under different residue management levels is being pursued by QAAFI.	Experimental work to be adjusted annually, 2015-2017

Activity 2.2.5	Testing and refining the value of existing seasonal climate forecasting (risk) tools for Sub Saharan Africa	A report on the value of existing seasonal climate forecasting tools and native knowledge available across all five SIMLESA countries, and identification of how this information could be used to inform practice change across SIMLESA activities.	A collaborative work plan was developed for the strategic implementation of activities 2.2.5 and 2.2.6 across environmental gradients and time in Eastern and Southern Africa. These activities are aligned with Australian activities 2.2.7 and 2.2.8 for the benefit of both African and Australian farmers.		Experimental work to be adjusted annually, 2015-2017
Activity 2.2.6	Developing and refining site specific crop nutrient management tools under conservation practices	Development, calibration and validation of simple site-specific crop nutrient management tools for farmers and extension officers e.g. leaf color charts for maize (as developed by IPNI for rice - Witt et al., 2005), in collaboration with farmers Objective 2 and 3	<p>Additional funds have been secured from the MAIZE CRP through a QAAFI-CIMMYT collaboration to develop a modelling approach capable of identifying the crop management and phenotype required to exploit the prolificacy characteristic across a fertility and environment gradient in selected SIMLESA countries.</p> <p>Collaboration was established with IIAM-Mozambique and CIMMYT-Harare) for trial sites and data sharing to develop simple N tools for smallholder maize farmers.</p>		Experimental work to be adjusted annually, 2015-2017

Activity 2.2.7	Developing and refining more sustainable and profitable intensification options in summer rainfall dominated environments of Queensland	A participatory study on the opportunities to reduce Queensland farmers' dependence on the use of nitrogen fertilizers. A communication program in collaboration with Conservation Farmers Inc. (www.cfi.org.au) reaching more than 300 farmers from Northern New South Wales and Queensland.	Legume species have been evaluated for opportunistic cover or grain crops in summer and winter rotations. Three summer legume trials harvested and sites prepared for cereal planting. DTMA parental lines imported from CIMMYT by the SIMLESA program have been crossed to produce hybrid seed that will be evaluated in the 2016/17 season in collaboration with seed companies from Queensland.		Experimental work to be adjusted annually, 2015-2017
Output 2.3					
Lessons from CA-based intensification experiments shared and linked to targeting strategies					
Activity 2.3.1	Fine-tuning the implications of the tested options through analyses of trade-offs and synergies at intra-household, farm scale (in terms of resource allocations and seasonality) and village scale.	Detailed adoption constraints of CA-based intensification options at intra-household, farm and village scale	Adoption constraints have been identified. Analysis is ongoing.		Milestone due December 2014 and annually thereafter
Activity 2.3.2	Aligning and refining on-farm experimentation and soil health dynamics research to recommendation domains.	Updated recommendation domains	Recommendations have been updated, and will continue to be refined.		Milestones 2014-2018, refined annually

Activity 2.3.3	Development of an interdisciplinary monitoring protocol for on-farm experiments of CA-based intensification options focusing on productivity, stability/risk, profitability and sustainability, and including some farm and household indicators.	An interdisciplinary monitoring protocol for on-farm experiments of CA-based intensification options that can be used beyond the project's lifespan.	In country specific protocols have been developed and reviewed for application in SIMLESA countries. Such protocols are reviewed annually and adjusted to accord with desirable data.	<p>An interdisciplinary monitoring protocol has not yet been delivered. The focus of this interdisciplinary protocol will be on designing and implementing farm-scale studies and this will be achieved with the contribution of QAAFI from the experiences being generated in Ethiopia and Mozambique.</p> <p>The work in Mozambique is progressing with farmers engaged, interviewed and co-designed trials planted on two of the three case study farms.</p>	Milestone due December 2014, refined 2016
-------------------	---	--	---	---	---

PC = Partner Country, A = Australia.

Objective 3: Generate To increase the range of maize, legume and fodder/forage varieties available to smallholders.

No.	Activity	Outputs/ Milestones	What has been achieved?	What has not been achieved?	Are there additional outputs that could have been achieved?
Output 3.1					
Stress tolerant maize varieties, higher yielding legume varieties and fodder/forage varieties available to farmers in the selected farming systems					
Activity 3.1.1	Prioritize available stress tolerant maize varieties for SIMLESA sites annually	Per farming system, revisit 2-3 newly released hybrids and OPVs with potential suitability for the targeted farming system	<p>Prioritisation of varieties has been completed for all participating countries, and will be reviewed annually.</p> <p>In each country a number of maize varieties have been identified from the DTMA project and other projects for scaling-up. The varieties are suited for the various agro-ecologies in each country.</p>		Milestone due for delivery in December 2014 and annually until the end of the project
Activity 3.1.2	Potential legume species and varieties for the target environment in the program countries analyzed with TL II partners annually.	Per farming system, 1-2 potential legume species and 2 varieties each for the target communities identified.	<p>Seed plans for legume species and varieties were developed with relevant key stakeholders in 2014.</p> <p>Potential legumes species (cowpeas, pigeon pea, Soybean, beans and groundnuts) have been identified for the targets environment in each country.</p>	The challenge has been producing sufficient quantities of breeder and foundation seed for scaling up.	Milestone due for delivery in December 2014 and annually until the end of the project

Activity 3.1.3	Identify and refine best bet forage/fodder species and varieties suitable for target AEZs for use in maize-legume-forage production systems	Per farming system in eastern Africa, 2-3 forage/fodder spp. identified and acquired from available sources	ILRI developed a plan for best bet forage fodder species for target zones, and agreed to support this activity with SIMLESA 1 funds balance.	Few best bet forage/fodder species have identified in Tanzania and Ethiopia. Identification of best bet forage/fodder species needs to be scaled to other countries.	Milestone due for delivery in December 2014 and annually until the end of the project <i>MTR comment: Best bet forages should be identified in the first instance through SoFT database and discussion with some forage experts once the "system" is reasonably defined (soil/climate/management/animal type etc.)</i>
Activity 3.1.4	Increase farmer access to promising but underinvested material (improved maize, grain legume and forage/fodder species and varieties), through seed increase at relevant stage of seed production pipeline.	Seed for promising but underinvested maize, grain legume and forage varieties increased annually to meet country demands.	This milestone has been met and will continue to be delivered annually.		Milestone to be delivered annually (Jun 2014-Jun 2017) <i>MTR comment: The focus here should be on pulses and forages as seed supply or planting material is sure to be a major constraint to progress. Should SIMLESA consider specialization of seed production and supply under the AIPs. It works elsewhere.</i>

Activity 3.1.5	Identify, tackle and refine seed availability bottlenecks of improved maize, legume forage/fodder varieties (from sister projects such as DTMA and TL-II), including seed systems and agribusiness support and Improved seed distribution road maps in each of the 5 countries.	Farmer (m/f) access to improved maize, legume and forage/fodder varieties	Plans for improving farmers' access to seed of maize and legumes were developed with relevant key stakeholders in 2014.	Sub-grants and seed road maps are being developed to address lack of breeder and foundation seed for legumes.	Milestone to be delivered annually (2014-2017) <i>MTR comment: see comment above. E.g. land-constrained households might see a niche for themselves in supply of specialist services (seed).</i>
-------------------	---	---	---	---	---

PC = Partner Country, A = Australia

Objective 4: To support the development of local and regional innovations systems and scaling-out modalities.

No.	Activity	Outputs/ Milestones	What has been achieved?	What has not been achieved?	Are there additional outputs that could have been achieved?
Output 4.1					
Developed policy options and organizational models for the delivery of CA-based intensification options (also building on existing Innovation Platforms [IP])					
Activity 4.1.1	Formulation and advocacy of policy options to address institutional constraints for CA-based intensification options	Policy brief(s) and other advocacy materials on institutional constraints for CA-based intensification. Policy workshops	Seven policy briefs have already been produced and circulated. These cover a wide range of themes relating to sustainable intensification and the work conducted in SIMLESA. Three high level round table policy meetings were held in Botswana, Rwanda and Uganda. These round tables focussed on institutionalisation of AIP-based approaches, and integration of new CA-based technologies in extension programs.	Policy workshops with key policy champions to formulate and share and discuss key constraints to be done, starting January 2016	Milestone due for delivery in March 2016, June 2016; and December 2016 <i>MTR comment: see recommendations re a SIMLESA focusing on implementation of policy.</i>

Activity 4.1.2	Evaluation of different organizational models (incl. IPs) for scaling out CA-based intensification options in terms of reach, farmer use and sustainability	Institutional/organizational models (incl. policy options) for scaling out of CA-based intensification options identified and evaluated on potential.	<p>Organisational models for scaling out are being developed in consultation with the program partners.</p> <p>An integrated framework, developed based on country planning meetings is guiding the scaling work in SIMLESA II. The 5 key approaches are: Agricultural Innovation Platforms; Extension (public, private, business-led); Participatory techniques (including use of demonstrations and trials, field days, exchange visits); Public Private Partnerships (business models, such as service provision, use of ICT); and through Policy (as mentioned in 4.1.1)</p>		<p>Milestone due for delivery in December 2016</p> <p><i>MTR comment: AIPs seem to have most attention at this stage and important that that effort not be diluted</i></p>
Output 4.2 Strengthened multi-stakeholder interaction mechanisms for uptake and scaling out of CA-based intensification options (incl. 15 innovation platforms and value chain interventions)					
Activity 4.2.1	Establish new or strengthen and refine strategic (public-private) partnerships to facilitate uptake of CA-based intensification options (incl. forward and backward value chain linkages and interventions)	<p>Identified stakeholders for value chain based scaling-out strategies of CA-based intensification options</p> <p>At least one new and/or strengthened strategic partnership with public and private institutions.</p>	<p>Different pathways for scaling out are being examined, taking a strategic approach to identify service providers and other commercial partners. (see 4.1.2)</p>		Milestone due for delivery in 2015-2018

Activity 4.2.2	Develop, refine and/or upgrade commercially viable (unsubsidized) business models to deliver CA-based intensification options to smallholders (e.g. herbicides)	Strengthened viable service providers of CA-based intensification options.	<p>Commercially viable business models are being explored, taking account of differing constraints in the partner countries.</p> <p>The first steps have been to understand capacity constraints, and carry out targeted training to enhance the orientation of existing AIP actors to take on board new business-based roles. NGOs, private sector and key actors in scaling are involved.</p> <p>This work is based on lessons drawn from three workshops on mentoring capacity for AIP actors.</p> <p>Strategies to build commercially viable business models in Tanzania were initiated in May 2015 and a second program is planned for December 2015.</p>		Milestone due for delivery in 2017-2018
-------------------	---	--	--	--	---

Output 4.3					
CA-based intensification options scaled-out more widely through competitive and commissioned grants in each of the 5 countries					
Activity 4.3.1	Annual competitive and commissioned grants to bring in new partners to scale-out CA-based intensification options in each of the SIMLESA countries (grants protocol includes a commitment to data collection for comparative research into scaling out models)	CA-based intensification options scaled-out by new partners.	<p>The competitive grants scheme for scaling out has been developed in consultation with ACIAR. .</p> <p>The first call for project concepts will be made in November 2015. Based on the process outlined in the process document, we plan to have the projects rolled out by March 2016.</p>		Milestone due for delivery in 2016-2018
Output 4.3					
Knowledge sharing of relevant program innovations					
Activity 4.4.1	Develop SMS-based tools for site-specific decision support to deliver: (1) simple heuristics for crop management and other information at key times during the year to registered mobile users (service includes information from global seasonal climate forecasts, and in-crop nitrogen management tools). (2) technical, social networking (e.g. information on field days, trials, farmer to farmer exchanges (m/f), etc.), and market information to farmers, extension officers and other participants in the maize-legume value chain.	SMS services established in at least three SIMLESA countries	<p>Approaches to SMS delivery are being discussed with project partners.</p> <p>Content development has been done in Kenya, based on QAAFI-led process in Mozambique. The programme will be operational in few weeks.</p> <p>The process will rolled out in Tanzania (November 2015), in collaboration with CABI. CABI has existing sms programmes in Tanzania, and possess valuable lessons. Plans were being laid for similar work in Malawi and Ethiopia.</p>		Milestone due for delivery in 2016

Activity 4.4.2	Development of gender sensitive, user-friendly leaflets (visuals, local language) on specific CA-based intensification practices, for farmers, agronomists and agribusinesses	Developed simple and attractive leaflets for different stakeholders in the uptake and out-scaling of CA-based intensification.	<p>Leaflets have been developed and tested under other CIMMYT Projects (CCAFS). Based on this experience, a workshop is needed to provide feedback and further validation. This process will involve Objectives 2 and 3 as key contributors, for instance Objective 2 has a field CA manual with valuable information.</p> <p>Project partners are being consulted, for development to further strengthen leaflets that contain specific CA-based intensification practices information, and disseminate them widely..</p>		Milestone due for delivery in 2017
Activity 4.4.3	Cross-participation in annual research workshops between program members and other programs (other Australian food security initiatives) and effective working relations will be strengthened with 6 other related projects	Shared understanding of regional research challenges and products; sharing of innovative agronomy, breeding and socio-economic research methods and maize legume system products	<p>Excellent communication within SIMLESA is being fostered through regular meetings and workshops, including the annual meeting for all project participants (most recently Harare, March 2015)</p> <p>Full advantage is often taken during other events, for instance the Beating Famine conference in Malawi, and the DTMAS Project meeting in Ethiopia.</p>		Cross-participation in all years

Activity 4.4.4	Annual exchange visits of farmers (m/f) and extension agents between different sites to discuss experiences with CA-based intensification practices	Farmer-to-farmer networking and knowledge exchange facilitated. At least one farmer study visit will take place in each country per year (gender sensitive selection of participants)	Annual exchange visits have been organised in all countries. Vital lessons include the need to strengthen collaboration with other projects in sustaining this approach. In Tanzania Annual exchange visits have been taking place every year including during farmer's field days and other events.		Annual activity, 2014-2018
-------------------	---	---	---	--	----------------------------

PC = Partner Country, A = Australia

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

No.	Activity	Outputs/ Milestones	What has been achieved?	What has not been achieved?	Are there additional outputs that could have been achieved?
Output 5.1					
Training of at least 100 professionals on CA-based sustainable intensification, provided to build and enhance capacity of national and regional programs					
Activity 5.1.1	Technical training on: (1) CA-based Intensification in smallholder agriculture; (2) farm and household typologies and system analysis (incl risk profile and interdisciplinary farming systems analysis); (3) recommendation domains (including GIS skills); (4) biomass management incl fodder/forages in CA-based intensification; (5) soil quality in CA-based intensification; (6) value chain analysis; (7) adoption, risk and impact analysis; and (8) emerging topics. Supported by on site/on the job training.	Socio-economic, agronomic research skills of program partners in the national and regional programs enhanced - Systems agronomy research skills of program partners in the national and regional programs enhanced. - Interdisciplinary research	65 students have been trained in SIMLESA (Phases 1 and 2). 42 MSc level, and 23 PhDs. Technical training is being provided in socio-economic research and in systems agronomy.	Long term MSc/PhD support of young scientists is no longer part of SIMLESA Phase 2. Phase 2 focusses on in-house/workplace capacity building. NARS management with the assistance of CIMMYT and ARC-SA identify gaps as well as development of capacity building strategy at country level.	Milestone due for delivery in June 2015, follow-up June 2017

Activity 5.1.2	Free on-line training courses on: Experimental design, basic statistics and use of R (free statistics software) Soil and weather monitoring	Experimental design and basic statistics using R free course available on line Soil and weather monitoring free course available on line	On line courses in experimental design and statistics are being developed. Free statistics software is being provided by Australian partners. All SIMLESA Countries were informed about the on-line training in the first year of SIMLESA 2.		Milestone due July 2015, with follow up support to June 2018
Output 5.2					
50 Trained professionals on Gender mainstreaming					
Activity 5.2.1	Trainings on gender mainstreaming, supported by on site/on the job training	Trained relevant NARS and extension staff	SIMLESA is promoting the role of women in the implementation and decision-making structures of SIMLESA. 5th International Gender Summit Africa took place in February 2015. Gender Mainstreaming and Planning Workshop was held in August 2015.		Milestone due 2015-2016
Output 5.3					
25 Trained professionals on seed systems					
Activity 5.3.1	Seed producers training courses	In-country and regional training course involving at least 10 seed company/producer participants	In country and regional training is planned for seed systems, facilitated through Objective 3.		Milestone due December 2015, and repeated every 2 years per country
Output 5.4					
10 Trained research managers					

Activity 5.4.1	Management training for NARES staff in SIMLESA (incl. 'soft-skills', leadership and team building, M&E, administration and prioritization).	Trained managers from NARS	ARC South Africa is participating in this activity to provide management training for SIMLESA country coordinators and CIMMYT management staff.		Milestone due December 2016
Output 5.5 50 Trained extension and scaling out professionals					
Activity 5.5.1	Annual extension capacity building based on country-specific training needs and short courses	Identified training needs, and provided relevant training	Country-specific training needs have been identified and short courses are being planned. Trainings are being carried out in-country by local staff and ARC South Africa.		Milestone due 2015- 2018

Annex 1. Presentations made to the MTR meeting Beshale Hotel Addis Ababa October 2015

No	Title	Authors
1	SIMLESA: Promoting sustainable intensification through system integration to enhance impact	Mulugetta Mekuria SIMLESA Program Leader
2	SIMLESA Ethiopia	Ethiopian Team
3	Kenya Highlights 2010-2015	<i>C. Nkonge, A. Micheni, G. Ayaga, M. Odendo, J. Ouma, E. Ngoroi, C. Ndinya, R. Juma, V. Woyengo</i>
4	Uganda SIMLESA Project Highlights	Drake N. Mubiru, William Nanyeenya, Godfrey A. Otim, Jalia Namakula, Joselyn Kashagama, and Milly Nakafeero
5	Highlights and results of phase I & Important operational thrusts for Phase II in Mozambique	Maria, Dias, Fato, Chiocho, Custodio, Angelo, Mulima, Gundana
6	To enhance the understanding of CA-based intensification options for maize-legume production systems, value chains and impact pathways	Objective 1 Team
7	Testing and adapting productive, resilient and scalable CA-based sustainable intensification options in ESA	SIMLESA Objective 2 Team
8	Improving Farmers Access to Improved Maize and Legume	SIMLESA TEAM
9	Objective 4: To support the development of local and regional innovations systems and scaling-out modalities	M. Misiko and D. Kahan
10	Capacity Building, Objective 5 SIMLESA	Gift Mashango & Yolisa Pakela-Jezile
11	Gender Integration in SIMLESA	Dr. Rahma Adam and Dr. Vongai Kandiwa
12	CIAT activities towards improved crop productivity and environmental sustainability	Job Kihara, Lulseged Tamene Desta et al
13	ILRI -SIMLESA II activities in Ethiopia and Tanzania	<i>Endalkachew Wolde-meskel, Melkamu Derseh, Elias Damtew, Ben Lukuyu, and Peter Thorne ILRI, Ethiopia/Tanzania</i>
14	QAAFI Highlights MTR	Daniel Rodriguez, Peter deVoil, Joe Eyre, James McLean Stuart Irvine-Brown, Miranda Mortlock
15	Communicating in SIMLESA Program	Johnson Siamachira: Communications Specialist
16	SIMLESA Monitoring and Evaluation	Sebastian Gavera

Annex 2	Perspective Participants list SIMLESA MTR Meeting 30-31 October 2015 @ Beshale Hotel
---------	---

Addis Ababa, Ethiopia

#	Participant Name	Organization	Occupation	e-mail address
1	David Young	ACIAR	Agric Economist	dfyoung@tpg.com.au
2	Fentanun Mengistu	EIAR	Director General	Fentahunmen@yahoo.com
3	Hussein Mansoor	MAFC -Tanzania	Agric DRD	Hussein.mansoor@gmail.com
4	Bruce Pengelly	ACIAR	Farm Systems	Bruce.pengelly@gmail.com
5	Eric Craswell	ANV	Visiting Fellow	Eric.craswell@anv.au
6	Sebastian Gavera	CIMMYT	M&E specialist	s.gavera@cgiar.org
7	Mulugetta Mekuria	CIMMYT	Project Leader	m.mekuria@cgiar.org
8	Mandivamba Rukuni	BEAT	Professor	weshambo@gmail.com
9	Richard Brettell	ACIAR	ResManager	richardbrettell@hotmail.com
10	Cyprian Mwale	Malawi	National Coord	Mwalecyprian@gmail.com
11	Domingos Dias	IIAM	National Coord	djosedias@gmail.com
12	Moti Jaleta	CIMMYT	Agric. Economist	m.jaleta@cgiar.org
13	Rehima Massema	EIAR	Gender Special	rehimamasema@gmail.com
14	Drake N Muburi	NARO- Ug	Research Officer	drakenmubiru@yahoo.com
15	Isaiah Nyagumbo	CIMMYT	Agronomist	i.nyagumbo@cgiar.org
16	Charles Nkonge	KALRO	National Coord	charlesnkonge@gmail.com
17	Peter Setimela	CIMMYT	Seed systems	p.setimela@cgiar.org
18	Yolisa Pakela-Jezile	ARC	Cap Build Coord	pakelay@arc.agitc.za
19	Frank Mmbando	SARI	Agriculture Econ	fmmbando@gmail.com
20	Adam Bekele	EIAR-Ethiopia	Agriculture Econ	adbk2012@gmail.com
21	Bedru Beshir	EIAR-Ethiopia	National Coord - Ethiopia	Bedrubeshir2009gmail.com
22	Elias Damtew	ILRI-Ethiopia	Res Associate	e.ddamtew@cgiar.org
23	Endalkachew Woldemeskew	ILRI-Ethiopia	ILRI-SIMLESA	e.woddemeskew@cgiar.org
24	Liz Ogutu	ACIAR	ACIAR Reg Mgr	liz.ogutu@aciarc.gov.au
25	Johnson Siyamachira	SIMLESA	Communications	j.siamachira@cgiar.org
26	Gerahegn Rogale	EIAR-Ethiopia	Maize Breeder	pezahagenrogazale@gmail.com

27	Gift Mashango	CIMMYT	Project Manager	g.mashango@cgiar.org
28	David Kahan	CIMMYT	Agric Bus Specialist	d.kahan@cgiar.org
29	Michael Misiko	CIMMYT	Scientist	m.misiko@cgiar.org
30	Rahma Adam	CIMMYT	GenderSpecialist	r.adam@cgiar.org
31	George Mburati	ACIAR	AgricEcon	gmburati@gmail.com
32	Hae Koo Kim	CIMMYT	Crop Physiologist	hk.kim@cgiar.org
33	Stuart Irvine Brown	QAAFI-CIMMYT	Soil Scientist	s.irvinebrown@nq.edu.au
34	Joseph Eyre	QAAFI-CIMMYT	Crop Physiology	j.eyre@uq.edu.au
35	Paswell Marennya	CIMMYT	Economist	p.marennya@cgiar.org
36	Dagne Wegary	CIMMYT	Seed Secialist	d.wegary@cgiar.org
37	Job Kiharn	CIAT- Kenya	Scientist	j.kiharn@cgiar.org
38	Luiseged Tamene	CIAT		it.desta@cgiar.org
39	Melkamu Bezabih	ILRI		m.derseh@cgiar.org

Annex 3: Members of the SIMLESA Program Steering Committee (PSC) and the SIMLESA Program Management Committee, November 2015

Program Steering Committee

Timothy Simalenga - Co Chair CCARDESA (Botswana)
Eric Craswell – Co-Chair (Australia)
Hussien Mansoor - DRD MAFC (Tanzania)
Inacio Maposse - IIAM (Mozambique)
Wilkson Makumba - DARS (Malawi)
Fentahun Mengistu - EIAR (Ethiopia)
Felister Makini - KALRO (Kenya)
Olaf Erenstein - CIMMYT (Mexico) – as Chair of the PMC
John Dixon – ACIAR (Australia)
Rob Taylor – QAAFI representative, Australia
Mulugetta Mekuria CIMMYT (Zimbabwe)-- secretary

ASARECA nominee to be determined

Program Management Committee

Olaf Erenstein - CIMMYT (Mexico) - Chair
Bruno Gerard CIMMYT (Mexico)
Daniel Rodriguez QAAFI (Australia)

Mulugetta Mekuria CIMMYT (Zimbabwe)

Annex 4. Comments by the 2015 MTR on progress by SIMLESA against each of the recommendations from the 2012 MTR.

R1.1: Much stronger inter-disciplinary teamwork is pursued in SIMLESA's research for development agenda.

This is clearly happening in some areas, for example soils, in the scale-out work through AIPs, and in the research on household typologies. The new livestock component is also bringing in new expertise, but this area needs to be re-focussed to match the program goals.

R1.2: SIMLESA takes concrete steps to overcome current socio-economic research staff constraints especially in the areas of value chains, informal analyses, business management and participatory agronomy and breeding research.

The recommended steps have been taken with the appointment of several new senior staff in the area of socio-economics, including Dr Moti Jaleta and Dr Michael Misiko.

R1.3: Greater reliance is placed on qualitative and semi-formal socio-economic research methods.

This message has been taken on board.

R2.1: Emphasis should be placed on generating CA technologies that provide short-term income to small scale farmers while improving long-term soil health.

SI technologies are being promoted that offer improvements in short-term income, specifically improved agronomy (including intercropping) and new varieties. These are not quick fixes, but are improvements that can be sustained.

R2.2: The mulch rate response function is evaluated for erosion control and soil health benefits with a view to establishing minimum mulch amounts.

This evaluation is occurring; residue trials have been reported for Ethiopia.

R2.3: Representative and effective IPs with clear roles, structures and functions should be established and made operational.

Effective IPs (i.e., AIPs) (56) are now up-and-running and are the basis for the scale-out program that will be partly supported through the Competitive Grant Scheme (CGS).

R2.4: Leadership of IPs at the Program and national level is clearly identified, raised in profile and linked with an ability to generate a wide array of partnerships; that the possibility be explored of creating a sixth Program Objective to lead and coordinate IPs with the help of staff from Objectives 1, 2 and 3.

A decision was taken not to institute a sixth objective during the development of SIMLESA II but to treat AIP leadership as a cross-cutting issue across the existing objectives.

Observations during limited country visits by the MTR in 2015 indicated that AIP leadership was functional and that AIPs generally were being supported by national and objective leadership.

R3.1: All hybrids, OPVs and legume varieties used in Objective 2 on-farm trials and leading varieties developed under Objective 3 are evaluated for compatibility with intercropping; that the importance of G x M interactions in breeding is determined by growing a representative set of segregating progenies under zero vs. conventional tillage. This recommendation has been taken on board, with new trials (post 2012) having a greater emphasis on G x M interactions.

R3.2: Serious consideration be given to transferring SIMLESA resources committed to the QAAFI/DEEDI maize breeding program to the Murdoch University initiative designed to improve the BNF of grain legumes and legume forages in ESA.

This recommendation was not accepted and has not been implemented. Murdoch University is not a partner in SIMLESA II and the support of the QAAFI/DEEDI (now QDAF) maize breeding program is proving to be a most valuable asset and outcome of SIMLESA.

R4.1: Program Management monitor and formally assess the performance of the newly introduced M&E system during 2012.

The 2012 M&E design was considered too cumbersome to be implemented. Responsibility for program M&E has been passed from ASARECA to CIMMYT. That revised M&E is the subject of recommendations from this (2015) MTR.

R4.2: SIMLESA staff prepares a critical publication-quality review of CA methodologies and their expected costs and benefits tailored specifically to the smallholder conditions of Eastern and Southern Africa.

This recommendation has not been delivered and is still relevant. The 2015 MTR reinforces this recommendation with its own (Recommendation 5: Science)

R5.1: ARC, ICRISAT and CIMMYT agronomists design a crop systems agronomy research short course focused on CA principles for SIMLESA agronomists.

Training of agronomists is being implemented with ARC South Africa. In May 2013, fifteen young agronomy scientists from SIMLESA countries (including spill-over countries Uganda and Rwanda) participated in short-term training at ARC institutes in South Africa.

R6.1: Small diagnostic interdisciplinary field teams are formed in each SIMLESA field site to diagnose in new sites and monitor/evaluate in ongoing sites, and report annually on constraints to production and adoption of CA technologies at the farm level through iterative investigation and informal survey techniques.

This recommendation was accepted. Interdisciplinary teams of scientists at country team level and regional level (CIMMYT and ICRISAT) have undertaken backstopping, and monitoring and evaluation visits to field activities in each country. Discussions were held with partners and host farmers and extension personnel. Based on feedback from these field visits, recommendations and suggestions were made to streamline ongoing activities.

7.1: SIMLESA, in conjunction with all partners, urgently develop a data management policy that addresses quality assurance, data archival, annotation, ownership, and timely access to others within and outside SIMLESA.

This recommendation has only been partly implemented and should be pursued as a matter of urgency.

R7.2: a) One or two additional high level Administrative Officers with adequate skills in budget management, itinerary development and day-today program management are recruited locally to support the SIMLESA Coordinator; and b) a locally recruited science writer/communication expert be based in Harare with primary responsibility for SIMLESA publications.

This recommendation has been implemented with the appointment of new administrative and support staff in Harare. A new Communication Officer for SIMLESA, Johnson Siamachira, joined CIMMYT in October 2014.

R7.3: The PMC insists upon, and monitors, detailed annual workplans of ALL partners submitted on time for approval to the Program Coordinator, and that travel plans within the region and between Australia and SIMLESA's target ESA countries be discussed and approved promptly by the Program Coordinator.

This recommendation has been taken on board in some respects but the MTR (2015) further recommends that the PMC should take a closer and more hands-on role in project management. Note too that travel reports are still only rarely being sent to ACIAR as requested by the ACIAR Research Program Manager.

R7.4: National Coordinators be given the opportunity to attend an advanced management training course.

This recommendation is being implemented but as yet there are no real specifics. However the 2015 MTR has suggested that as an alternative, or as an addition, national coordinators would find value in participating in SIMLESA II management (through the PMC).

R8.1: SIMLESA develop a clear and documented strategy on how risk can be reduced through adoption of key components of the CA package.

This recommendation has been taken on board to some extent but more needs to be done to address this key element of SIMLESA (see MTR 2015 Recommendation 5.4).

R8.2: The Program investigates and adopts a science based strategy/approach for reducing the number of soil samples collected from trial sites.

This recommendation was accepted. A more systematic approach is now being taken for the collection and analysis of soil samples from trial sites.

R8.3 Program management act now to develop a strategy for increasing expenditures responsibly to match budget expectations in consultation with ACIAR, with special emphasis on increasing scaling out at the national level and facilitating spill-overs to additional countries.

Expenditures have been increased and the program does face financial challenges owing to the depreciation of the Australian dollar. Although new scaling-out initiatives have been designed, actual scaling out activities and budgets do not seem to have been significantly increased during 2013-2015 as recommended. The Competitive Grant Scheme (CGS) is to be initiated this month (November 2015) and those limited funds are now widely perceived within the program as a major (perhaps prime) contribution to scale out. It may be that the CGS funds are insufficient to meet scale-out ambitions. Spill over countries are now active partners in the Program.