



# Report of the internally-commissioned external review of the Africa RISING project in the Ethiopian Highlands

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The Africa Research in Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the U.S. government's Feed the Future initiative.

Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads an associated project on monitoring, evaluation and impact assessment.



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# Acronyms

AFAAS	African Forum for Agricultural Advisory Services
AGP	Agricultural Growth Program (Ethiopian Government)
AR	Africa RISING (Africa Research in Sustainable Intensification for the Next Generation)
ARDPLAC	Agricultural Research and Development Platform Learning Advisory Council
ASSP	Animal Sciences for Sustainable Productivity
ATA	Agricultural Transformation Agency
CAADP	Comprehensive African Agriculture Development Program
CIP	International Potato Center
CRP	CGIAR Research Program
CRSP	Collaborative Research Support Programs (USAID)
CSISA	Cereals-Based Initiative for South Asia
DA	Development Agent
DLS	Diffused Light Storage
EARBES	Ethiopia Africa RISING Baseline Evaluation Survey
EIAR	Ethiopian Institute for Agricultural Research
FGD	Focus Group Discussion
FtF	Feed the Future initiative
GFRAS	Global Forum for Rural Advisory Services
GRAD	Graduation with Resilience to Achieve Sustainable Development (USAID/CARE)
GTP	Growth and Transformation Plan
ICARDA	International Center for Agricultural Research in Dry Areas
ICRAF	International Center for Research in Agroforestry (World Agroforestry Center)
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
IITA	International Institute for Tropical Agriculture
ILRI	International Livestock Research Institute
IP	Innovation Platform
KII	Key Informant Interview
M&E	Monitoring and Evaluation
NARS	National Agricultural Research System
NGO	Non-governmental Organization
PCA	Participatory Community Analysis
PF	Program Framework
PIF	Policy and Investment Framework
PMMT	Project Mapping and Monitoring Tool
QQT	Qualitative, qualitative and time-bound
R4D	Research for Development
REST	Relief Society of Tigray
SAG	Science Advisory Group
SI	Sustainable intensification
SIMLESA	Sustainable Intensification of Maize-Legume Systems for Food Security in E&S Africa
SLATE	Sustainable Livelihoods Asset Evaluation Tool
SMART	Specific, Measurable, Achievable, Realistic and Time-bound
SNNPR	Southern Nations, Nationalities and Peoples' Region
TOC	Theory of Change
USAID	United States Agency for International Development
VC	Value Chain

## Executive summary

As part of its Feed the Future (FtF) initiative to promote global food security, the United States Agency for International Development (USAID) is supporting a multi-stakeholder agricultural research program entitled: *Africa Research in Sustainable Intensification for the Next Generation* (Africa RISING). The program's goal is to identify and validate scalable approaches for sustainably intensifying production from key farming systems in Africa that will improve the livelihoods of smallholder farmers whilst conserving or improving the natural resource base. Africa RISING is a five-year program comprised of three regional projects (in West Africa, central and southern Africa and in the Ethiopian highlands).

The program brings together a wide range of research and development partners from the CGIAR, national agricultural research and extension systems, farmers, private sector actors, and policy makers. The International Livestock Research Institute (ILRI) manages the Ethiopian highlands project, and the International Food Policy Research Institute (IFPRI) is responsible for monitoring and evaluation across all three projects.

### The review

This review is an internally-commissioned, external mid-term review of the Africa RISING project in the Ethiopian Highlands. The main purpose of the review is to assess the performance of the project in terms of its implementation against the Program Framework (PF), and to provide recommendations on how to address significant deviations. The approach used by the team was one of participatory enquiry, using qualitative methods. The three-person team reviewed selected documents held at the coordination office as well as materials assembled by project management and partners. The team held key informant interviews with Africa RISING management, Africa RISING research partners in the Ethiopian Highlands, USAID staff in Washington and IFPRI staff in Washington. Interviews were also held with site coordinators and with woreda and kebele innovation platform (IP) members. A joint meeting was held with CGIAR partners during which a project time-line was developed and questioned, and a draft project Theory of Change was presented and discussed. Field visits were made to Lemo woreda in the south, and Endemahoni woreda in the north. In each woreda, the two project kebeles were visited. Focus Group Discussions were held with participating farmers and woreda innovation platforms, and farm visits made. Following the field visits, a half-day workshop was held with project stakeholders to explore some critical issues. A round-up meeting was held on the last day in Ethiopia to present and discuss preliminary recommendations.

### Findings

The Review Team was given every opportunity to see and discuss project progress, achievements and challenges. The project is now in its fourth year out of a scheduled five. It has made significant progress.

The project has benefitted from a flexible management approach assisted by good communications systems that have encouraged creativity and productive multi-institutional partnerships, as well as enabling it to respond to farmer demand. This management arrangement is appropriate to a participatory, process project dealing with complex farming systems in a heterogeneous environment. The project has a wide range of CGIAR and local partners who have combined well to conduct research protocols at four contrasting sites. Innovation platform have been established at woreda and kebele levels. These have facilitated the research work, provided forums for sharing and learning, and are potential platforms for the coordination of scaling up and out of findings. Both CGIAR and local partners highlighted the multi-institutional approach and the participatory nature of the project as being two of the most important contribution of the project.

A rather long situation analysis period in which a number of surveys gathered a large amount of qualitative and quantitative information resulted in some survey overload of farming communities. Despite the fact that some aspects of this component are still not documented, the project has moved into “integrated systems improvement” activities at the research sites. While the participatory action research has been successful in enthusing farmers and testing useful technologies, the majority of these activities have been focused on single disciplines (food crops, livestock nutrition, high value crops, soil fertility, post-harvest storage etc.), with few protocols looking at whole farm or landscape situations. Although protocols have included at least two CGIAR partners as well as local partners, it is the view of the Review Team that these multi-institutional partnerships have yet to start re-designing farming systems or bringing in radical departures from present practice or available knowledge. In commenting on the draft of this report, senior project staff felt that project efforts towards systems development had not been fully recognized and that:

- Some protocols explicitly look at outcomes across several system components and will be interpreted within a systems context;
- Assuming data handling can be unified successfully, then the household engagement patterns that the project has will allow it to explore complementarity amongst component interventions as well as trade-offs between them;
- Farmers are genuine partners in the research. They manage their farms as a whole, and are aware of the linkages between components relating to every management decision. They scrutinize everything the project does, so that a systems perspective is, to some extent, hard wired.

While the Review Team agrees with these statements, it maintains that there is opportunity (provided by the contrasting sites, the trust of the farmers and above all the presence of a multitude of local and international research organizations) to go further and explore ways to improve community nutrient flows, water-use efficiency and energy budgets, and moderate GHG emissions through technical and organizational innovation.

There are some shortcomings around the planning and operation of field research activities, but farmers are very appreciative of the way that research is followed up to ensure tangible benefits to those involved. The project is covering aspects of crops, livestock and trees, but there are key areas that it is not addressing fully at present, such as human nutrition, post-harvest aspects of the value chain, animal health and livestock breed improvement. The project might also look beyond farming and enquire about the aspirations and strategies of rural families for coping with multiple external and local influences and shocks (education, social status, economic strategies, risk management etc.).

The four research sites and their innovation platforms are excellent nuclei for scaling-out (spatially and to more people) and scaling-up (to more organizations) of successful innovations. This has already started on a small scale, both formally (e.g. through community-based seed production and government training) and informally through farmer-farmer exchange of information and materials. The project has a draft scaling plan, but this has a long way to go before it is a comprehensive scaling strategy, and research into scaling will need to move quickly to ensure it documents the multiple scaling processes (some already emerging) from their starting points.

The project has mainstreamed gender, but so far has not been able to influence the low number of women involved directly in the IPs and on-farm trials. A gender specialist has been appointed and appropriate steps (training, gender champions, studies and a gender action plan) are being taken to improve the involvement of women. This should be extended to youth, who are often landless and who might be lost to agriculture if explicit attention is not paid to their specific needs.

There is a good culture of sharing of information between researchers involved in the project. However, the data gathered by each research team is kept separately and in different formats. The plan to create a central data repository for all the data generated by the project is a good idea in principle. Researchers are unsure where the resources to make this a reality are coming from, but the potential benefits (e.g. meta-analysis of the data across systems) make it a worthwhile goal.

A comprehensive baseline snapshot has been captured by the different surveys conducted (including the IFPRI Baseline survey). Unfortunately these did not look at trends, which would also be useful for guiding the research program and providing more realistic scenarios for the project to be evaluated against at intervals. Monitoring of project progress has been hampered by three main factors. Firstly a confused picture (to the outsider at least) of what progress should be monitored against (outputs, outcomes, hypotheses, components or themes are all mentioned in various program and/or project documents, and there are no quantified or time-bound indicators against which to assess progress). The lack of sustainable intensification indicators is also a concern for this and other SI projects. Secondly, the lack of a project framework for AR Ethiopia (logframe-, Theory of Change- or Outcome-based) needs to be addressed. Thirdly, the unenthusiastic involvement of researchers in providing data for the web-tool that is supposed to monitor project progress (the Project Mapping and Monitoring Tool). While the project partner monthly meetings are an excellent forum for reviewing and planning activities, the lead M&E organization is not present to discuss M&E plans and to involve research staff in them.

Communication has been given an unusually high profile in this project, to good effect. Information sharing is facilitated by mechanisms such as wiki and Yammer, especially for those with good internet connectivity, and all the fundamentals are in place for good communications support to scaling as that component takes off.

Project management structures are adequate to oversee and advise the project, although specific funds could be assigned for Program coordination (especially for activities such as the development of SI indicators and inter-project exchange visits). Otherwise the budget is adequate, although re-financing could be speeded up so that researchers can operate more effectively.

It was unreasonable to expect a participatory, systems research project to understand the context in depth, to establish research sites and identify demand, to develop appropriate innovations and to bring these to scale in five years. It is expected that by the end of the five year phase, the project will have completed two full years of on-site experimentation. Further years will be needed to consolidate the single discipline research and to integrate that knowledge into activities that provide real improvements in system efficiencies (of water, land, labor, nutrients, cash) at the household, community and landscape scales that meet the different needs of each type of farmer in this highly heterogeneous environment.

A second five-year phase is therefore recommended by the review team to build on the good work started in Phase I and to influence and document the scaling processes and structures that result (hopefully with complementary support from USAID bilateral development funding).



## Recommendations

Some 60 recommendations have been made to the project coordination team against the evaluation questions provided to the Review Team. The Review Team has selected ten of these as being those most critical for the project at the present time, as follows:

- Develop a theory of change- or outcomes-based rolling project framework with time-bound milestones and SMART indicators (including sustainable intensification indicators)
- Develop an exit strategy (set of actions to complete Phase I) as a contingency against the project closing in 2016. This would include a synthesis of the tangible outcomes expected from Outputs 1 and 2 and how to attain them during Phase I, and a road map for Output 3.
- Make more use of landscape/watershed level parameters in the system, for example nutrient, water and GHG budgets, to guide thinking and action on sustainable intensification.
- Develop the draft scaling plan further to include outcomes, milestones and indicators of success, and share it with all partners so that AR's role in scaling is clearly understood
- Start mapping (social and spatial) and quantification of adoption (formal and informal, planned and unplanned) as soon as possible so as not to lose information on the start of these processes
- Make further improvement on the integration of different disciplinary components in the research process. The wide range of disciplinary backgrounds should make better use of the opportunity provided at the sites to investigate the interaction, be it complementary or competitive, among the different components (crops-livestock-natural resource) of the farming system
- Improve the uptake of the PMMT for project monitoring and evaluation so that it is able to provide accountability to the donor, guide project management and assist learning as envisaged. The plan should enable the current flexible and adaptive approach to be maintained while providing a framework for tracking overall project progress against expected outcomes
- Provide an in-country M&E presence to engage with partners at the monthly meetings, to mainstream the monitoring of project progress and to lead the development of project indicators
- Expedite the elucidation of sustainable intensification indicators for the benefit of the project, the AR Program and other SI programs
- Develop a second phase in order to consolidate the work of Phase 1 and further develop and demonstrate the application of practical approaches to sustainable intensification at the household and landscape scales.

# Introduction

As part of its Feed the Future (FtF) initiative to promote global food security, the United States Agency for International Development (USAID) is supporting an innovative, multi-stakeholder agricultural research program entitled *Africa Research in Sustainable Intensification for the Next Generation* (Africa RISING). This program's goal is to identify and validate scalable approaches for sustainably intensifying production from some key, cereal-based farming systems in Africa that will improve the livelihoods (including nutrition, income, gender and social equity) of smallholder farmers whilst conserving or improving the natural resource base.

Africa RISING is a five-year program comprised of three regional projects that was launched in 2012.

The three projects are:

- Sustainable intensification of crop-livestock mixed farming systems in the Guinea-Sudan-Savanna Zone of West Africa – led by the International Institute of Tropical Agriculture (IITA);
- Sustainable intensification of cereal-legume-livestock integrated farming systems in East and Southern Africa – led by IITA;
- Sustainable intensification of crop-livestock farming systems in the Ethiopian highlands – led by the International Livestock Research Institute (ILRI).

This short review is concerned mainly with the Ethiopian highlands project.

The program brings together a wide range of research and development partners from the CGIAR, national agricultural research and extension systems, farmers, private sector actors, and policy makers. The projects are working to develop management practices and technology combinations that integrate crop (cereals, legumes and vegetables), livestock (including poultry), tree and shrub production more effectively within their target farming systems. These innovations are also being evaluated in the wider contexts of the landscapes in which they are practiced and the value chains that they form part of in order to facilitate wider scaling of the projects' successes. The International Food Policy Research Institute (IFPRI) is responsible for monitoring, evaluation, and impact assessment across all three projects.

The Africa RISING program is organized around three research outputs:

- Situation analysis and program-wide synthesis;
- Integrated systems improvement;
- Scaling and delivery of integrated innovation.

A fourth output deals with Monitoring and Evaluation (M&E).

## **Purpose of the review**

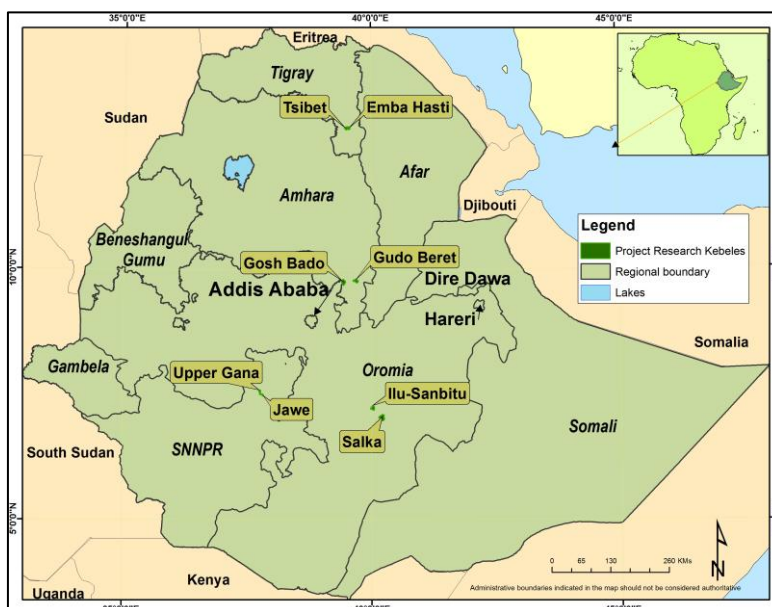
The overall purpose of this short internally-commissioned, external mid-term review is to assess the performance of the project in terms of its implementation against the Program Research Framework (PF) and to provide recommendations, where necessary, on how to address significant deviations. It is also to assist the management and partners of Africa RISING in the Ethiopian Highlands to improve the quality of the research conducted and its relevance to wider development outcomes.

## Approach and methods

The approach used by the team was one of participatory enquiry, using qualitative methods, including observation and the use of photographs. The review team reviewed selected documents held at the coordination office as well as materials assembled by project management and partners. The team held key informant interviews with Africa RISING management, Africa RISING research partners in the Ethiopian Highlands, USAID staff in Washington, USAID mission staff in Ethiopia and IFPRI staff in Washington. Interviews were also held with site coordinators and with woreda and kebele innovation platform (IP) members (for transcripts of interviews see Annex S2).

A joint meeting was held with CGIAR partners during which a project time-line was developed and questioned, and a draft project Theory of Change was presented and discussed (see Figure One).

Field visits were made to Lemo woreda in the Southern Nations, Nationalities and Peoples' Region (SNNPR), and to Endemahoni woreda in south Tigray (see map). In each woreda, the two project kebeles were visited. Focus Group Discussions were held with participating farmers and woreda innovation platforms and farm visits made.



Map showing the 4 experimental sites in 8 kebeles

Following the field visits a half-day workshop was held with project management, project CGIAR partners, site coordinators, woreda Innovation Platform facilitators and USAID Ethiopia desk staff. A round-up meeting was held on the last day in Ethiopia to present and discuss preliminary recommendations.

# Findings

## Project design

What implications does project design have for project outcomes?

“Not being well structured is both an advantage and disadvantage. It is a problem because people could go off-track, and it is an advantage because it helps us to be innovative and dynamic” (CGIAR Partner)

“The project is a good example of how chaos has led to flexibility and success” (CGIAR Partner)

“Without a logframe and a theory of change it is difficult to measure progress towards outcomes” (CGIAR Partner).

### *Design process*

The Africa RISING (AR) program is unusual in that funding<sup>1</sup> was released for the ‘broad concept’ before detailed planning occurred. The project did not go through the usual process of developing a concept note, project proposal or logframe before funding was approved.

USAID decided to fund research with a greater degree of geographical focus than the Humidtropics CGIAR Research Program. It therefore allocated funding to three international centers (IITA, IFPRI and ILRI) and assigned them areas or tasks within the Program. Initially there were 3 separate projects, but these came together to form a single Program with a Program Framework in 2012.

A project timeline was developed with the project coordinators and CGIAR partners.

Year / month	Activity	Related documents
2011: Oct	Initial meeting – funding already released!	
<b>2012:</b> Jan/Feb	Inception planning meetings	Sustainable intensification Ethiopia Concept Note (Jan 2012). Idea of AR Program coordination initiated.
March/April	Call for Quick Wins projects	
June	Program Research Framework Meeting	Africa RISING Program Framework 2012 – 2016 (November 2012)
October	Quick Wins projects completed	
October	Program level Monitoring and Evaluation plan.	Slide presentation <a href="http://www.slideshare.net/africa-rising/africa-rising-me-plan-oct2012">http://www.slideshare.net/africa-rising/africa-rising-me-plan-oct2012</a>
Nov/Dec	Site selection	
2013: Feb	Project partners meeting	AR Ethiopian Highlands Project Implementation plan 2012 – 2013 with Research Action Plan (no scaling element)
March	Diagnostic studies started	Value chain studies; Ex-ante impact assessments; Community assessment studies
May	On-farm demonstrations	
September	Cross project learning event	
October	Project Planning Meeting	Led to project Work Plan (identification of 7

<sup>1</sup> The funding was provided by USAID through the ‘Window 3’ mechanism for bilateral funding, with links to the HumidTropics CRP.

		Thematic areas – based on Humidtropics).
2014: Jan	Initiated IP establishment process	
Feb/March	33 research protocols approved	
April/May	Household/FRGs established	
August 2014	Gender workshop held in August 2014.	Gender Plan of Action -Annet Mulema
October	Program learning event	
November	Planning meeting	AR Scaling plan (2015)

The Program Framework (PF) was developed in the first year of the project. The Project Implementation Plan (2012 – 2013), developed in February 2013, is based on this framework but does not cover a number of areas discussed in the program. The key differences are:

- Project Implementation Plan does not envisage use of development domains for scaling.
- Project Implementation Plan does not mention research hypotheses (a core element in the program framework)
- A strategy for scaling is not developed in the implementation plan (while program design states that scaling will be embedded in the program, the 2012 – 2013).
- Program synthesis activities, e.g. meta data analysis, development of sustainable intensification indicators are not mentioned in the Project Implementation Plan.
- Monitoring plan and indicators for project activities are not discussed in the Project Implementation Plan (though an M&E plan for IPs has been developed)
- Use of control sites not included in the project plan (present in program plan and in other AR projects).

The Project Implementation Plan replaces the steering committee (described in the Program Framework) with a planned project coordination committee with a similar role. It doesn't specify who should be in this committee, and to our knowledge this committee was not set up.

The project has not developed a logframe or theory of change. The Review Team has attempted to represent the theory of change as expressed in project documents and discussions with the team and partners, in Figure 1 below.

#### *Strengths of the project design*

The looseness and iterative nature of the design process seems appropriate for the project's participatory and integrated systems approaches. It enables adaptive management and flexibility to respond to the opportunities and challenges provided by new partnerships and the research and scaling process.

Most partners appreciate the flexibility and 'freedom' of the project design. The fact that there was no rigid logframe has made it easy to bring in new partners and to respond flexibly to new opportunities and experiences. Despite the lack of logframe and theory of change, project partners described the project structure as clear and easy to implement. The work plan, themes and protocols were felt to be clear, although there is a shift from an Output framework (PF) to five components (project Implementation Plan) to seven themes (project Work Plan) that makes following project progress more complicated.

Several of the CGIAR partners have been involved in the project design from the start (e.g. ICRAF and ICARDA). Others are involved in adaptive management decisions on a regular basis through the monthly project partner meetings. This has led to a high level of ownership by all partners.

The provision of adequate budget for communication has been an asset to the project. Good communication is particularly important when design is loose and iterative.

#### *Challenges arising from the project design*

A result of the late and loose design process was that the integrated systems improvement activities (Output 2) directly linked to the project design and situation analysis activities, did not begin until the third year of this five-year project (June 2014). Even at the time of this Review (April 2015), not all situation analysis is available for partners (see discussion of Output 1 below). Nor have some elements of project design been completed. An example of this is the scaling plan (still at draft stage at time of this Review). The late development of the scaling design prevents this from being done systematically (though the Review Team noted that many partners were addressing scaling issues in the way they thought best).

Though the Review Team appreciates the value of an iterative approach to project design, the lack of clear planning has led to a very large number of survey activities (for example an additional gender survey has been designed because of gaps in the baseline and PCA surveys). Clearer and earlier planning would have allowed integration of survey plans, increased project efficiency, reduced overloading of farmers and reduced duplication of data collection.

A full project-level monitoring and evaluation plan with quantifiable and time-bound milestones and indicators has not yet been produced. As a result project-level outputs and activities are not being systematically monitored.

The fact that there is no logframe or theory of change for the project creates a number of challenges. The Review Team had the impression that project partners hold different understandings of the project's theory of change. For example some felt that the project should actively engage in scaling<sup>2</sup>, others were under the impression that the project's role was to develop scalable technologies only. It is also hard for new people coming into the project to understand their roles.

As noted above, the project has made some significant deviations from the Africa RISING Program Framework approach. While this not a problem in itself, the change of direction needs to be made explicit and linked to project goals and indicators for monitoring.

The Review Team also noted that the project does not have an exit strategy in place. The Review Team supports the project's plan to develop a second phase. However as a contingency against this not coming about, an exit plan should be developed.

The decision to separate the budget for monitoring and evaluation (made by the donors at the beginning of the program) is felt by all project partners to be a mistake.

#### *Final observations on project design*

The lateness of design and of the Output 1 activities mean that the project has made limited steps towards the desired outcomes (as represented in the Theory of Change in Figure 1). However, these steps are very promising ones, and the Review Team feel that by the end of this stage, the project will be in a strong position to carry forward Outputs 2 and 3 to a Phase II.

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<sup>2</sup> ICRAF staff for example talked about building nurseries and providing training beyond the AR research centers. IWMI felt it was not AR's role to be involved in scaling beyond facilitating the IPs. CIMMYT also felt engaging in scaling activities was beyond the mandate of AR.

In order to address these challenges described above, the Review Team suggests that the AR team develop a theory of change or outcomes plan (with QQT<sup>3</sup> indicators). This should be done as soon as possible in order to guide the monitoring and evaluation plan and to give direction to the planning of a second phase. The Review Team feels that the above tools are more appropriate to this type of project than a logframe, as they are more conducive to flexibility and adaptive management.

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<sup>3</sup> Qualitative, quantitative and time-bound (QQT)

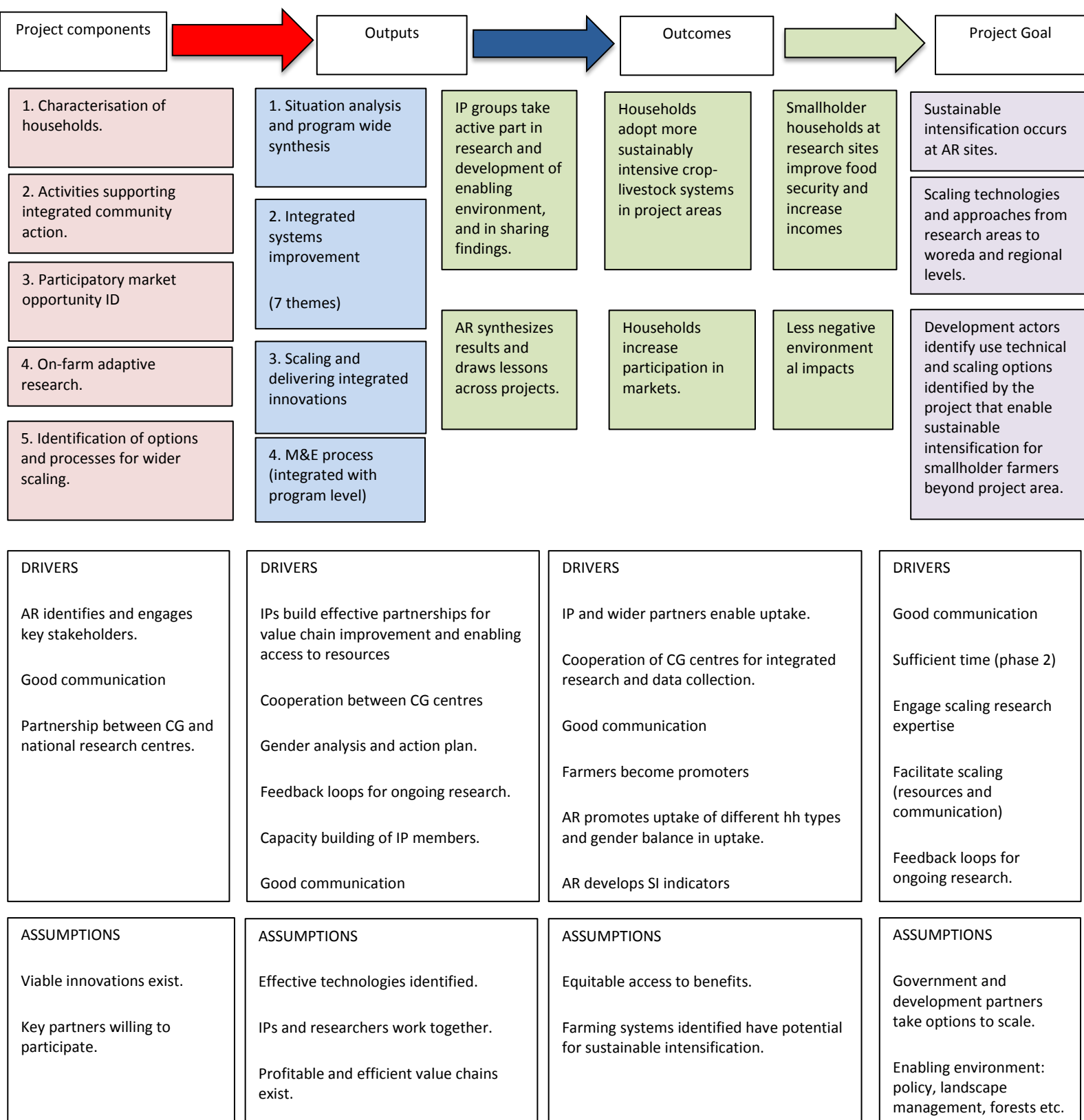


Figure 1: a theory of change for the project



## Project performance to date

### *Output 1: Situation analysis and program-wide synthesis*

The AR Program Framework (PR) identifies the main tasks of Output 1 as: (i) ensuring that best-bet or best-fit interventions are aligned to priority constraints – within development domains – to improved livelihoods and to the prevailing livelihood and production environment conditions, and (ii) developing a program-wide synthesis related to the lessons learnt across the various target areas<sup>4</sup>

The Project Implementation Plan (2012 – 2013) does not refer to the research outputs listed in the Program Framework. Figure 2 of the Project Implementation Plan shows a Research Action Plan made up of 5 components. The Review Team assumes that the 5 components contribute to the 4 outputs described in the Program Framework and will use these as the basis for review (see Figure 1, Theory of Change).

The table below summarizes progress observed for each activity under Output 1.

Output 1 activities (from the Program Framework).	<b>Progress observed</b> (RED/italics indicates the activity has not been completed or reports are still in draft form).
Construction of Development Domains within and across the project mega sites.	GIS mapping for site selection – commissioned by IFPRI. Site selection The concept of Development Domains has been questioned for extremely variable highland environments such as those in Ethiopia
Selection of Action research sites within the development domains of each mega- site.	Sites have been selected (2 kebeles in each of 4 research sites).
Establishment of R4D platforms	Innovation platforms at woreda and kebele levels (rather than R4D platforms) have been established in each of the four research sites (2014).
Baseline data collection	Participatory Community Assessment (June 2013) Value chain studies – sheep and dairy (2012), agribusiness in ruminant value chains, dairy, agricultural industrial by products- a total of six enterprises- three crop and three livestock related (2015) Quick Wins findings (2012) Review of farmers’ local knowledge of crop livestock, trees systems. Led by ICRAF. Various reports (2012 – 2013) Characterization of farming and livestock production systems and the potential to enhance productivity through enhanced feeding. Led by ICARDA working with local research centers. (2012) Baseline data for monitoring was collected by IFPRI between April – July 2014, and has been available on request to IFPRI since November 2014. However, as yet no summary of the analysis of the data has been completed. Landscape analysis (CIAT, 2014) Home garden assessment (ICRISAT, 2014). Gender analysis – protocol: Diagnosis and Characterization of the most important constraints hindering women and marginalized groups from achieving full productive potential and income generation (2014) Nutrition analysis. Protocol: Integrating nutrition actions into the crop/livestock farming systems of the Ethiopian Highlands for improved nutrition outcomes (2014)
Construction of Household	A number of household typologies have been constructed (from SLATE

<sup>4</sup> From the PF p 12

Typologies	surveys and PCA survey). However no overarching household typologies have yet been developed. According to the program framework, these were to be based on the baseline survey.
Inventories of innovations	Not observed.
Identification and prioritization of innovations addressing major constraints.	Yes, based on participatory community assessment (and some of the other baseline studies). However, farmers mentioned areas where they would like further support, such upgrading of livestock.
Program-wide synthesis and co-learning.	Annual learning workshops have been held. Data repository to allow meta-analysis and program synthesis planned. No program-wide synthesis of sustainable intensification indicators developed yet.

## Strengths

A large amount of qualitative and quantitative data has been collected. Data has been disaggregated to allow heterogeneity to be addressed effectively by the project.

The use of Quick Wins gave the project on the ground experience and was useful in building good will and initiating partnerships.

## Challenges

It can be seen from the number of incomplete or uninitiated activities in the table above that several key activities remain to be completed.

To a certain extent situational analysis should be an on-going process. However some key aspects of Output 1, such as the gender analysis, household typology development, sustainable intensification indicators, landscape analysis, nutrition analysis<sup>5</sup> and baseline data should have been conducted and made available at an earlier stage in the project in order to guide the development of Output 2, 3 and 4 activities. The lateness of these activities has impacted negatively on project performance. This is discussed in more detail in the sections to come.

As discussed above, the number of baseline surveys is larger than desirable: reducing project efficiency and overloading farmers.

Most of the surveys conducted provide a 'snapshot' view of the current farming system. To enhance the ex-ante evaluation of technologies it is important to understand the broader **trends**. For example in demography and migration, land holdings (are household plots getting smaller?), climate-related changes, land cover, land degradation and market opportunities. In order to do this, the Review Team recommends that current survey findings are supplemented by analyses of trends. Most of this information can be found without the need for further field survey work.

A second phase of the project, drawing on these findings, would maximize the benefits to be derived from the considerable work that has been put into situation analysis.

### *Output 2: Integrated systems improvement*

What progress has been made towards testing, validating, and adapting specific interventions aiming at farming system improvements in terms of productivity, income, and natural resource status?

Identification of research teams within the R4D platforms.

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<sup>5</sup> Nutrition specialist joined in December 2014 only. Gender specialist joined in late 2013.

Discussion with the project management and the research teams, and review of available reports, show that the research areas and main entry points for on-farm action research were identified and prioritized based on the various diagnostic surveys mentioned under Output 1. Though, as noted above, some key surveys came too late to guide the design of Output 2 activities. The project started work on this Output with 6 “Quick Win” research activities in 2012. Partnership with, and collaboration between, CGIAR centers started from the Quick Win projects as involvement of more than one CGIAR center was required. Collaboration was also initiated with a range of local partners. In October 2013, the partners held a project planning meeting in which the Work Plan was developed and seven research thematic areas were identified. Based on the Work Plan, 33 research protocols were developed and approved in February/March 2014 (in the third year of the project).

The process of establishment of the innovation platforms (IPs) began in January 2014. The purpose of IP establishment was to facilitate active engagement of the local partners and their ownership of the research for development (R4D) activities in order to ensure effective implementation and sustainability. The IPs were formed both at woreda (strategic) and kebele (operational) levels. Identification of households to be engaged in the on-farm action research activities and establishment of farmers’ research groups (FRGs) were accomplished in April/May 2014. Relevant research protocols were presented at kebele meetings and the farmers selected the protocol in which they wanted to be involved (rather than researchers selecting farmers based on any sort of farmer typology or sampling framework). Most farmers participated in more than one protocol and some participated in as many as five protocols. The farmers tended to be from more accessible sub-kebeles, and they were farmers who had the means (land and labor) to participate as well as the interest.

The research team from the CGIAR centers meets once a month for information sharing on the status of research activities. However, some researchers feel that the working relationship or communication between the research teams and the IP members is inadequate and seek improvement in the planning processes for timely and effective implementation of the research activities. This requires clearly defining the roles and responsibilities of each and the terms of collaboration among the different actors and establishing clear communication mechanisms.

Identification of modeling and decision-support tools for ex-ante technology identification, trade-offs analysis, evaluation of the ex-ante sustainability and resilience of options, and guiding future research

In 4 of the 33 research protocols there are indications of using modeling as decision-support tools for identification of suitable technology options for a given production setting and for evaluation of ex-ante sustainability and resilience of options. These protocols include:

- ***Mainstreaming land/soil management practices that counteract soil fertility depletion:***  
The plan was to use computer simulation tools (e.g. crop-soil simulation model) that provide options for fast and wide-scale assessment of soil fertility dynamics and impacts of fertilizer management practices in a predictive way. The tools are to be used in combination with other models (e.g. livestock production and household consumption models) to analyze soil fertility - agricultural production – livelihood trade-offs.
- Assessing the severity, spatial pattern and major drivers of soil erosion to recommend appropriate and sustainable land management options: In this study, it was planned to use participatory and modeling approaches to map the severity and spatial dynamics of soil erosion and identify appropriate land use and management options to tackle soil loss at representative kebeles of each Africa RISING district. The expectation is that the modeling and simulation results will help identify site-specific sustainable land management and soil and water conservation options that reduce soil erosion risk and improve productivity. Furthermore, the modeling outputs are expected to allow understanding of the benefits and

trade-offs of site-specific management options and may help to guide scaling up or scaling out to other sites.

- **Enhancing food security and environmental stability through landscape-based integrated water and land management:** In this study it has been planned to use community based participatory approaches as a basis for improving food security through targeted interventions and to use hydrological model and community evaluation to assess impacts of interventions and facilitate out-scaling and/or up-scaling.
- **Facilitating change in cropping systems to improve nutrition and food security:** This study has planned to use participatory modeling tools to evaluate household level food security and cash income, to assess trade-offs in resource (e.g. water, nutrient and labor) use while modifying the farming systems to achieve the desired objective and identify farm and landscape niches where interventions could be integrated in the system. It was also claimed that the model can be used to identify whether the communities who are the subject of the study are either below or above the poverty line with existing practices and to develop a scenario that can be used to lift them out of poverty.

However, so far there is no evidence of any of these models having been developed or used as indicated in the protocols except in the last one.

Participatory evaluation and adaptation of appropriate combinations of technologies and interventions

A large number of research protocols are being implemented in the different AR sites under this category. A total of 33 (22 action-oriented and 11 exploratory) research protocols were developed in February/March 2014 for implementation during the year. The protocols are clustered under the seven research themes identified to contribute to attainment of the objectives of the Africa RISING project.

Some important features of the project:

**Collaborative protocol development and participatory implementation:** There is a strong positive feedback from the different partners (CGIAR centers, local partners and farmers) emphasizing the collaborative protocol development process and demand-driven research in which farmers are given different options from which they freely choose the protocol they want to join or test on their farm. The protocols were developed jointly by researchers from the different CGIAR centers and the local partners from the national agricultural research system as well as some NGOs and the private sector. Farmers also participated in the generation of researchable problems, a case in point being the initiation of a research project on bacterial wilt of enset, which was taken on board by the project based on the strong demand of the farmers in Lemo district. The arrangement brings different partners together for sharing knowledge and experience. Farmers directly take part in the research process and directly observe the changes brought by different experimental treatments.

The research approach and modality of implementation (“action research”) significantly contribute to an increase in the relevance of the research being conducted and its ownership by the involved parties. This is believed to have a significant positive implication on adoption and spread of the technologies. The current working relationship shows that there is strong and positive partnership within the CGIAR centers as well as between the CGIAR centers and the local partners (research centers, universities, government offices particularly the office of agriculture and the Agricultural Transformation Agency) although still there is a room for further improvement. Some CGIAR centers like CIP, CIMMYT and ICARDA have formed a mini consortium by forging a special collaboration in trial management and data collection. Accordingly CIMMYT is responsible for management of protocols implemented by the 3 Centers in Debre Berhan, CIP for Lemo and Maychew, and ICARDA for Sinana. By so doing they can make very effective use of their staff and minimize time and cost of

travel by each Center for management of the protocols. The research components that each of the Centers are leading also complement one another – ICARDA leads participatory variety selection, CIP is the lead in community seed multiplication while CIMMYT looks at small scale mechanization. This is a move in the right direction towards systems integration.

***Innovation platforms:*** In each of the project sites, innovation platforms (IPs) have been established at district (woreda) and kebele levels and they are playing an active role in coordinating and supporting the research. The farmers taking part in similar research protocols are organized into farmers research groups (FRGs) to enhance communication and information sharing. However, the participation of women in FRGs and IPs is still low.

***Linking household level research activities with landscape level interventions:*** Most of the action research interventions carried out at the project sites focus on some major commodities and activities like the participatory variety selection of major crops like wheat, faba bean, potato and barley and fertilizer trial on wheat. Livestock related activities include crop residue management and utilization, irrigated forage (oats & vetch) production for sheep fattening and production of a multipurpose fodder tree (tree Lucerne) in available niches in the backyard. These interventions are implemented at the household level with the aim of enhancing sustainable intensification of the crop-livestock systems in order to improve food, nutrition and income security of the farm households. Some of the protocols go part of the way to integrating aspects of sustainable intensification. Thus there is a link between nutrition and the high value protocol that includes apple and avocado which is designed to address nutrition issues in addition to income generation. On the other hand, there are landscape level intervention in soil and water conservation and management in order to conserve and enhance the natural resource base for sustainable crop and livestock production. This shows that the commodity-based household level research activities are linked with the landscape level interventions through activities dealing with soil and water management. Hence the project is looking at commodities and landscapes, and plans to work at macro level through the sustainability indicators and monitoring. The Review Team feels that the Project should make more use of landscape/watershed level features of the system, for example water budgets, to guide thinking and action on sustainable intensification.

***Multidisciplinary and integrated collaborative research:*** Farmers expressed their interest to the Review Team in improving the different components of their farming system, and also in working towards integration and diversification of their farming systems. They see diversification as a means of spreading risk. The AR project is unique in that multidisciplinary professionals from different institutions come together to develop collaborative research projects on different components to enhance whole farm productivity rather than focusing on a single component or commodity. The arrangement offers enormous opportunity for simultaneous collection of data needed for analyzing different components of the farming system and for increasing resource-use efficiency in implementing the research activities in a more integrated approach. However, this requires more in-depth systems thinking and more integration of interrelated components in the protocol development. Apparently there appears to be no coordination between the protocols dealing with participatory variety selection (PVS) and those dealing with fertilizer recommendation. Close integration of the two aspects of the study on crops could lead to more robust findings leading to more sustainable intensification of the system. Similarly, while there are encouraging efforts in addressing the feed use aspect of crop residues, still there is room for better integration of the crop and livestock components of the systems in the design and implementation of the PVS protocols. For example, in addition to the crop residue yield currently considered as one selection criteria, palatability and softness (as indicator of digestibility) of the crop residues could be included as important additional measures of crop residue quality as animal feed. This is an area that deserves due attention because of the fact that crop residues make up some 50% of the diet of farm animals and livestock play a central role in the smallholder crop-livestock system of the Ethiopian highlands.

All diagnostic surveys of the Project and other previous studies (e.g. Tolera *et al*, 2012)<sup>6</sup> show that feed is a critical constraint for livestock production in the Ethiopian highlands. In this respect, it would also be worthwhile to consider the biomass yield and feeding value of potato vines that can be harvested at the time of tuber harvest. The AR project is in a good position to design and implement research activities in a more integrated approach by making effective use of the multidisciplinary team of experts working together in the project.

Although the multi-disciplinary and multi-institutional collaboration and participatory approach employed by the project has been appreciated by all parties, some have highlighted that there are some limitations with respect to timely communication and effective coordination of field activities. These appear to be minor incidences but they may negatively affect the quantity and quality of data collected if measures are not taken to improve the situation by next season.

A wide range of relevant options are being tested at the project sites and the farmers are very enthusiastic about the options being tested.

***The interventions include some original work:*** One of the protocols deals with analysis of the current landscape-scale level production against household food nutrition requirements. The aim is to see if the current land use and production system can meet food, nutrition and income security of the households and to determine any deficits or excesses of nutrients by assessing total amount of nutrients produced compared with the nutrient requirements of the households. It involves assessment of the current cereal dominated cropping system in the highlands in order to redesign the cropping system to improve nutrition, income and food security of the households. This research intervention aims to achieve these by assessing how to optimize nutrient availability by making some changes in the components of the farming system and using modeling tools. This requires quantifying trade-offs such as changes in water use, labour etc. The cereal dominated highland areas are expected to have an excess of carbohydrate and deficiency of vitamins, as fruits and vegetables are not commonly produced in the system. The study is employing scenario analysis; i.e. it will assess what will happen to nutrition, income and food security of the farm households if part of the current land used for cereal production is allocated for food legumes, fruits and vegetables.

***Some of the work is relevant to influencing government policy:*** An example for this is the protocol on fertilizer rates according to soil response in highly variable environments. This aims at bridging yield gaps through soil-test based nutrient amendments by assessing crop responses to application of different blends of fertilizers in different niches or soil fertility conditions i.e. good soils that may give high yield even without fertilizer, areas that respond to fertilizers at variable levels, and very poor soils that do not respond to fertilizer application. The evaluation team feels that this study will have the potential of influencing the Government, particularly MoA and ATA, on a more nuanced recommendation of fertilizer blend and rate than their grid square approach that recommends a fertilizer regime for each large square. Because of its participatory nature, the farmers can also learn first-hand which blend of fertilizers to use and where to apply on their farm.

***Some interventions are aligned with the development activities of the country:*** The protocols on soil and water management are aligned with and contribute to the sustainable land management program of the Ethiopian government.

***Animal feed related interventions:*** The three livestock feed related interventions (crop residue management and utilization, supplemental irrigated fodder production, and integration of tree Lucerne in the system) are highly relevant because of the centrality of livestock in the mixed crop-

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<sup>6</sup> Tolera, A., Yami, A. and Alemu, D. (Eds). 2012. Livestock Feed Resources in Ethiopia: Challenges, Opportunities and the Need for Transformation, Ethiopian Animal Feed Industry Association, Addis Ababa

livestock production system of the highlands and the fact that feed is the number one constraint affecting livestock production. This was corroborated by the fact that most focus group discussion (FGD) participant male farmers prioritized crop residue management and utilization as the most important contribution of the project so far. Farmers are very happy with the crop residues storage structure and feed troughs and we would expect that this work would be further strengthened by using the cultivated forages produced on the farms as supplements to the crop residue based diets. Improved forages, particularly forage legumes, could enhance the complementarities of the crop and livestock components of the farming system through their roles in providing high quality feed for animals and amending the soil fertility for improved crop production. It is necessary to look for appropriate niches for integration of forage production in the farming system in the face of critical shortage of land in most highland areas of Ethiopia that poses stiff competition between crop and forage production, which may not encourage adoption of forage production.

Shortcomings of the project:

***Project hasn't yet addressed sustainable intensification at the whole farm level:*** Although the achievements in bringing multidisciplinary team of researchers to work together on the same project is very commendable, still more work needs to be done to link the different components at household level. For example, there is lack of coordination between the protocol on participatory variety selection and the protocols dealing with crop fertilizer response and development of fertilizer rates. Fertilizer recommendations should be developed for the varieties selected by PVS. In general, there is a need to assess a combination of technologies and their integration. Integration can be considered at multi-scale level including at farm or community level and between research partners.

***Delay in implementation of some work plans:*** Implementation of some aspects of the work plan has been delayed due to absence of researchers who can lead these activities. Examples of such delayed activities include human nutrition and post-harvest technology. However, the project is taking measures to address the human resource gap by employing the required experts. Accordingly a human nutrition specialist has recently been employed and an animal health professional is in the recruitment process. Some of the CGIAR centers also use short-term experts as consultants in specific areas where the volume of work does not justify employment of a full time staff. Involving graduate students in circumstances of human resources limitation may contribute to alleviate the problem while at the same time contributing to capacity building.

***Scale of forage trials and animal species/type priority for use of improved forage:*** Scale of forage trials is too small to show significant change in animal performance and to understand the value of the improved forages in the system. Farmers should see improvements in milk yield or growth rate of animals to be convinced of the value of the forage and adopt it. The work also mentions use of irrigated forage for sheep fattening whereas the priority of most farmers is to use better quality feeds to milking cows and draught oxen. However, the Project has realized these limitations and has started taking remedial measures.

***Focus on limited number of commodities:*** The project focused on a limited number of commodities for the action research. From the crop aspect the focus was on limited types of crops (wheat, faba bean, barley and potato), whereas from the livestock side the focus was on sheep fattening. Such predetermined fixation narrows down the options available to the farmers for testing and may omit some crops that are important in particular areas such as field peas in Endamehoni district. The decision to use irrigated forage (oats-vetch) for sheep fattening also does not match with the interest of many of the farmers who prioritize dairy cows and draught oxen when feeding improved forages. However, it is very appreciable that the project positively responds upon identification of such problems. A good example is the additional protocol on enset that has been taken on board when the project realized its importance based on the demand of farmers in Lemo district. The

project also plans to widen the options of animal type or species (dairy cows, cattle fattening) in addition to sheep fattening.

**Overload of site coordinator:** At times the site coordinators are expected to handle coordination activities as well as to cover gaps in trial management. This may compromise quality of trials.

#### Gaps in research

Genetic improvement of livestock. This is a demand raised by farmers from all the sites. Animals that respond to improved management are necessary in order to fully realize the benefits of improvements in feed supply and feeding management. It would be unrealistic to expect the project to indulge in a large genetic improvement activity, but it can assess areas where contributions can be made (e.g. by linking farmers to breed improvement programs) in the area within the limits of time and resources available.

Link household research to landscape-level action. For example, role of IPs in restricted grazing, and mobilizing soil and water conservation activities in some contexts.

#### Facilitation of farming communities to engage with profitable markets

The project has received positive response for some of the technologies such as improved crop varieties (wheat, potato and faba bean), crop residue management and utilization and forage production and utilization just after the first season and some initial scaling has already started. The problem of seed supply for wider adoption of the technologies has been realized by the project and the community-based seed production system has been initiated as a responsive management mechanism. One of the roles of the IPs is to facilitate market linkages between farmers and traders or processors either directly or through farmers' cooperatives or unions. Accordingly the Licha Cooperative Union in Lemo and the Bokura Union in Endamehoni are members of the IPs at Woreda level.

#### Assessment of new research challenges and opportunities emerging from the activities

The positive response received for some of the technologies just after one season will create a huge demand for those technologies that have got high rating. This will create a favorable condition for scaling-up and scaling-out as more farmers will be interested to access the technologies, and those who have already tested may want to expand further. The challenge will be how to meet the increased demand created for seeds and planting materials of the different food crops, forage crops and fruit trees. As feed resources and feeding management are improved, farmers will be interested to have improved breeds of animals that can better respond to improved feeds and feeding management. As more farmers participate in the project and more farmers use improved crop varieties and technologies that enhance productivity, then storage, processing and marketing of these commodities will be an area that will require research and development intervention. With increased production of some easily perishable commodities such as horticultural crops and animal products, research in post-harvest processing and handling will have a significant role to play in enhancing efficient and effective resource utilization and in improving the livelihood of smallholder farmers.

#### *Output 3: Scaling and delivery of integrated innovations.*

What progress has been made towards the development of appropriate approaches for scaling of innovations, taking into account the often complex nature of system interventions?

The project intention to understand highly complex and variable farming systems and their contexts, to develop and test appropriate, sustainable intensification interventions in a participatory way **and**



to make significant progress towards developing approaches for scaling these within the 5-year project period was overly ambitious, and has been shown to be so.

However, the success of participatory approaches being used to achieve output 2 mean that many farmers, kebele officials, woreda, zonal and Federal staff, Research Center and University staff and others have been involved with the development and testing of technologies, processes and ideas. The field visits demonstrated the enthusiasm that this wide range of participants has for many of the interventions, and they are responsible for a localized, but rising, ground swell of scaling, some of which is explicitly supported by project activities and some of which is outwith its direct control.

The efforts and enthusiasm of local partners, and the inputs of project and CGIAR partners, have been increasingly channeled and coordinated through organizational structures instituted by the project at woreda and kebele levels. At woreda level, **woreda strategic innovation platforms** have been established that bring researchers, University staff, woreda and zonal government staff, private sector (as yet less well represented), project coordinators and kebele representatives together. These meet once a month and are an active forum for discussion of issues and progression of project activities. At kebele level, **kebele implementation platforms** have been established that bring together representatives of the farmer research groups, kebele administration and DA staff to support farmer needs and project activities. Each project initiative is supported by a kebele-level **farmer research group** that provides a forum for farmers to share experiences, gain mutual support and have a voice at the kebele implementation platform, and through this to the woreda innovation platform. A **national innovation platform** is now being established that should bring in Federal-level agencies (EIAR, Ministries) and national initiatives (e.g. ARDPLAC, AGP) that have hitherto not been so actively involved in the project. Thus a structural framework is in place from farmer to national level that can be used effectively to support, guide and drive both technology development and scaling (including where necessary influence on government policy and action at different levels). The structures are locally-owned (although their agenda at the moment is predominately that of the project) and malleable at this point. They are not formally integrated into government bureaucracy, which has advantages and disadvantages for sustainability and flexibility.

The working paper by Duncan *et al* (undated)<sup>7</sup> is a useful reflection on the use of IPs in scaling in complex situations, and the time it takes to work through the phases of adoption using a participatory approach that leads to local ownership and greater sustainability.

Other structures (hopefully as elements of the IPs) will be needed to supply information, material inputs (including finance), service provision along the value chain and marketing support<sup>8</sup>. Strong feedback loops will need to be established to guard against market failure, inequity, corruption, exploitation and natural resource degradation.

A conundrum faced by the project is how it can learn about scaling and have credibility on scaling without being itself involved in scaling. From the AR Scaling plan (Feb 2015) and discussions held, some pointers are emerging:

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<sup>7</sup> Innovation platforms as spaces to bring about smallholder dairy improvements at scale - reflections from the MilkIT Project in India and Tanzania by Alan Duncan, Nils Teufel, Thanammal Ravichandran and Saskia Hendrickx

<sup>8</sup> The urgent need to protect the reputation of newly established potato seed producer groups was noted during the field visits. It is important that farmers producing good, clean seed should brand their product, package it distinctively and ensure that their members conform to a strict set of standards and quality control. Similar support is required for the wheat and faba bean community seed producer groups, and for milk, apple and avocado producers in the near future.

- AR, as emphasized by the project coordinator, is a research project, so that, as stated in the PF, the project will be involved in the *development of appropriate approaches for scaling*, rather than the implementation of scaling – which is the responsibility of local organisations including the government and the private sector
- The project Scaling Plan (Feb 2015) does not spell out what the project will and will not be involved in, what research results and development outcomes it hopes to get out of the scaling component, what additional partnerships it will make in order to study and achieve scaling outcomes, what targets it has in terms of scaling out (numbers of farmers reached, technologies adopted, area covered...) and scaling up (organisations incorporating project innovations/processes, policies influenced, new structures created...), how it is going to compare the effectiveness of different scaling mechanisms (e.g. the cost effectiveness of each option) or what the indicators of success for scaling will be
- Serious involvement in research into scaling can only be countenanced if there is a second 5-year project phase
- There is an immediate need to start cataloguing and following (spatially, socially and quantitatively) the formal and informal mechanisms of scaling that have already started (e.g. the quantity and destination of community-based seed production, farmer-farmer exchange of information and materials, influences on and action by DAs, woreda and zone office of agriculture staff<sup>9</sup> etc.) and their consequences (e.g. the use of cash gained from the sale of produce<sup>10</sup>, the impact on water, soils and land cover, and impacts on migration and debt<sup>11</sup>)
- The PF specified a strong role for development domains in the development and scaling of innovations. One clear result from the characterization of the Ethiopian highland environment is the high degree of physical variability (rainfall, temperatures, soil fertility, slope etc.) that mean that there can be as much variability *within* a kebele as *between* kebeles. While development domains might work in more homogenous environments, they are not likely to be an effective tool in the Ethiopian highlands<sup>12</sup>.
- Project interventions at this stage of testing and “pioneer” scaling are appropriate to women and men farmers with a certain level of assets (especially land, labor and capital) and accessibility. Farmer information exists from the IFPRI baseline, PCA, SLATE and other studies to develop typologies of households (these will be different for each kebele). These can then be used to follow the adoption and adaptation of innovations, and the outcomes and impacts for different types of household. An important aspect of this will be to ensure that resource-poor or otherwise disadvantaged groups are not further disadvantaged by project interventions, and that there are innovations that are specifically tailored to their circumstances so that their livelihoods can also be lifted and made more sustainable. It may be that in some cases land-based agricultural livelihoods are not the best way to assist such groups<sup>13</sup>.
- A good start has been made at understanding some of the livestock and crop value chains. The value chains for the commodities for which the project has interventions need to be

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<sup>9</sup> The head of the South Tigray zonal agricultural office is supporting training in project technologies in the 94 kebeles of his zone

<sup>10</sup> In other countries, successful farmers have taken over the land or assets of those less able to respond to initiatives, effectively rendering them landless labourers

<sup>11</sup> Local savings and credit groups can help to reduce the need for borrowing from local lenders, who charge high interest rates

<sup>12</sup> Similarly, the division of the country into grid squares for fertiliser recommendations by government might also suffer from wide local variability making positive fertiliser responses patchy.

<sup>13</sup> In India, the most disadvantaged groups were assisted with preferential access to common-property resources (e.g. bamboo for making baskets for sale, trees for making disposable plates from leaves), training and materials in service provision (carpentry, blacksmithing, petty trading, raising vegetable seedlings etc.) to the landed farmers.

followed and analysis made to see where they can be improved (e.g. communication and trust, efficiency through scale or timing or reduced losses, quality of products, linkages to private enterprise, competence of service providers, potential to move farming families up the value chain – e.g. through on-farm or cooperative processing). There is also the potential to improve farmer profits from production through warehouse receipt schemes, provision of up-to-date market information, gross margin analysis of management options, collective marketing and the availability of appropriate inputs through the establishment of kebele agricultural shops.

- The communications component of the AR project is in good shape to make a big contribution to scaling at all levels through conventional media and innovative mechanisms (e.g. *Shamba Shape-up* and *Digital Greening*). The trick will be to support local partners in the coordination of **all** the components of support to value chain actors in concert (information, inputs, training, processing, storage and transport facilities, market opportunities...).
- While the project has a formidable array of talent within its present international and local partnerships, it will need to seek out the best partners to help develop and document appropriate approaches and mechanisms for scaling up and out. At the global level, GFRAS (Global Forum for Rural Advisory Services) provides advocacy and leadership on rural advisory services within the global development agenda. Its functions include supporting the development and synthesis of evidence-based approaches and policies for improving the effectiveness of rural advisory services (<http://www.g-fras.org/en/about-us/vision-mission.html>). Within Africa, AFAAS (the African Forum for Agricultural Advisory Services) has the mandate to implement the Agricultural Advisory Services aspects of the Comprehensive Africa Agriculture Development Program (CAADP). The objectives of AFAAS include ensuring the accessibility of appropriate and up-to-date knowledge on advisory services from a range of sources in Africa and internationally, and empowering country level advisory service stakeholders to determine their own priorities and lead efforts to improve their national and local advisory service systems and building partnerships at national, regional and international levels between agricultural advisory services and other institutions contributing to sustained growth and transformation of agriculture (<http://www.afaas-africa.org/about-program/>).
- Within Ethiopia, further alignment with the national Growth and Transformation Plan (GTP) would appear to be appropriate. The GTP aims to: a) Enhance productivity and production of smallholder farmers and pastoralists; b) Strengthen marketing systems; c) Improve participation and engagement of the private sector; d) Expand the amount of land under irrigation and e) Reduce the number of chronically food insecure households. The Agricultural Transformation Agency's (ATA) programs are designed to help all partners meet these targets. The Agency will measure its contribution to this effort through the metrics established in the GTP as well as in other national strategies such as the CAADP Compact and the corresponding Policy and Investment Framework (PIF) (<http://www.ata.gov.et/priorities/national-growth-transformation-plan/>).
- One aspect of scaling is influence on policy. Examples are already starting to come through the project. A good example is the work on fertilizer responses of different soils (AR Technical Report April-Sept 2014 p4/5). The results of this work, combined with an understanding of the variability of soils and climate might lead to advice to the government on how to modify its fertilizer recommendations so that the majority of farmers see positive biological and economic responses to their investment in fertilizers.
- Scaling has already started, but the indicators of sustainable intensification are still being developed. These indicators are vital for any meaningful analysis of the project's progress and outcomes, so the sooner they can be identified and assigned to the different project components the better.

### *How is the project contributing to the HumidTropics research program?*

The CGIAR research program (CRP) most aligned with AR is the “CGIAR Research Program on Integrated Systems for the Humid Tropics”. According to the CGIAR website (<http://www.cgiar.org/our-research/cgiar-research-programs/cgiar-research-program-on-integrated-systems-humid-tropics/>) the Program:

“seeks to transform the lives of rural poor in the humid lowlands, moist savannas, and tropical highlands in tropical Americas, Asia, and Africa. Humidtropics provides a new integrated agricultural systems approach, a single research-for-development plan, and a unique partnerships platform for better impact on poverty and ecosystems integrity....Humidtropics focuses directly on rainfed smallholder farming systems and their opportunities for sustainable intensification”.

It is therefore reasonable that the AR program should seek methodological and technological interaction with the Humidtropics program. The AR program is also related to a suite of other projects under the Feed the Future initiative – such as the Innovation Lab for Small-Scale Irrigation (Texas A&M) and the Innovation Lab for Sustainable Intensification (Kansas State University). A third affiliation is with other projects on sustainable intensification, such as SIMLESA (Sustainable Intensification of Maize-Legume cropping systems for food security in Eastern and Southern Africa). The three AR projects also started out as independent projects and have now been subsumed into a single AR Program with the intention of cross-learning.

There are therefore several directions in which the AR Ethiopia project could look in order to widen its influence, share its findings or seek information or support. At the moment there is limited interaction with the Humidtropics research program as the sites of each are different and there is little money for linkages. While research protocols should demonstrate that they have looked at what is being done in other programs such as the Humidtropics program when submitting their proposals, it is felt that there should not be a prescribed or contrived requirement to look preferentially in the direction of the Humidtropics program.

Rather, the entirety of research on sustainable intensification should be kept in view, and the project should constantly assess its work against research and statements coming from different perspectives (e.g. IIED Briefing March 2015 – *Sustainable Intensification Revisited* - <http://pubs.iied.org/17283IIED>).

## **Factors affecting performance**

### *How relevant and feasible is the current research approach?*

Aspects of the research approach used for implementation of the research activities of the Africa RISING Project in Ethiopia have been given in the following three documents:

- Program Framework (2012) – with **4 project outputs** and **5 hypotheses** (and research and development outcomes)
- Project Implementation Plan – setting out **5 research components** (6 with scaling)
- Project Work plan – setting out **7 research themes** (5 technology-based + 2 cross-cutting)

Thus the project is organized around five or six research components and seven research themes that address the program-wide hypotheses listed in the Program Framework that are expected to lead to the attainment of the four project outputs (including M&E). The seven research themes of the current work plan were identified when the work plan was developed collaboratively by the CGIAR and national partners during the annual planning meeting held in November 2013. The seven research themes give a useful framework for the research, and the researchers and farmer research

groups are buying into these. It has also been noted that the work plan can be reviewed periodically and may be updated depending on changing priorities.

The **flexibility** of the project was appreciated by almost all of the project partners. There is a high level of ownership by the partners and some CGIAR centers (e.g. ICRAF, ICARDA) were involved in the design with ILRI at an early stage of the project. However, communication needs to be good for everyone in order to make good use of a flexible design. The flexible and adaptive management makes the project responsive and able to meet opportunities and challenges. A good example of such flexibility was the decision made by the Project to take on board a research activity on “enset” in response to the demand of the community from the Lemo district to address the bacterial wilt problem affecting the crop. It also facilitates partnership and allows more integration of systems components (crops, livestock, natural resources) in a systems approach. In addition to developing the work plan by the collaborative action of the partners, some partners further collaborated in the development of different **multidisciplinary** and **multi-institutional** research protocols (assisted by the criterion that all protocols should contain multiple partners).

Although the flexibility has been much appreciated, there were also concerns about lack of clear framework for the project and its partners to follow - e.g. a logframe or Theory of Change or Outcome-based plan. There is no project M&E plan that provides a stepwise path to the Outcomes (i.e. lack of clarity on how to reach the expected Outcomes/Impacts). This leads to confusion at field level and elements of the project arriving late, thereby reducing efficiency, and it can be hard for new people coming into the project to understand where they fit.

The overall research approach of the project is **holistic** tending **towards being integrated** although not perfectly so. It brings together researchers with different professional and cultural backgrounds from different CGIAR centers to work together with researchers from the National Agricultural Research System (NARS) in developing work plans and research protocols for the various action research activities being implemented in the eight AR project kebeles. The approach has significantly improved the **collaboration** among different CGIAR centers, and between the CGIAR centers and the national partners and enabled researchers with different professional backgrounds to work together. However, although there is collaboration among the different CGIAR centers in the planning and implementation of the research projects, still there is room for further improvement of the integration of the different disciplinary components in the research process. The wide range of disciplinary backgrounds represented in the different research centers should make better use of this opportunity to consider the interaction, be it complementary or competitive, among the different components of the farming system (crops-livestock-natural resource) in each research site.

In addition to the researchers from the CGIAR centers and the national research centers and universities, the collaboration in the on-farm action research also involves active participation of farmers who are willing and able to test certain technologies on their farm. The farmers are given a basket of technology options to choose and test on their farm; this is very important as the farmers directly take part in the research process starting from the design stage up until the final results are obtained. This **demand driven** and **participatory approach** helps the farmers to develop keen interest for observing and evaluating what works and what does not work first hand. The Quick Wins helped to kick start the project and to see how to best complement what farmers are doing in addition to establishing linkages with the national and local partners.

The project uses **innovation platforms (IPs)** to support the research and development process. The approach requires building strong links between stakeholders, with local communities, development agents, researchers from nearby research centers and universities, NGOs and the private sector as partners. The project also encourages farmer to farmer extension of appropriate technologies and new knowledge through farmers research groups (FRGs), field days and exchange visits.

The choice of research activities for implementation at the different sites were based on prior site characterization studies using the rapid telephone survey, agro-ecological knowledge of the respective areas and the participatory community analysis. Different surveys were carried out in all the study sites at different times for the sake of characterizing the sites and the farming systems. This has helped in generating a large amount of information that is useful for designing an integrated research approach. On the other hand, the number of different surveys (PCA, SLATE, VC, AKT5, baseline survey by IFPRI, FEAST, etc.) conducted at each site must have been a burden on the farmers who had to respond to a number of these surveys, which are likely to repeat some questions each time to a certain extent. With prior planning and good coordination the number of surveys could have been minimized or repetitions avoided (see paragraph 26).

Most of the different research protocols are implemented at each research site where some of the farmers may be involved in as many as five research activities. This is very good for integration but may overload the selected kebeles and sub-kebeles and some of the participating farmers with different research activities. Some research activities are implemented at specific sites and it is not clear how far the results can be extrapolated to different areas. Overall, the project should place due emphasis on strengthening the rigor of science while maintaining the benefits of its flexibility and adaptive management.

*What research areas are missing or need to be strengthened?*

The Program Framework and other documents show that the overall purpose of the project is to provide pathways out of hunger and poverty for smallholder farm families through sustainable intensification of the farming system that will lead to improved food, nutrition, and income security, particularly for women and children, and conserve and enhance the natural resource base. In order to attain these stated aims, the project conducted situation analysis through different surveys and exploratory studies, which have identified the current state of affairs and the main challenges faced by men and women farmers and the youth as well as at family level.

Different participatory and multidisciplinary action research projects are being conducted at the research sites of the Africa RISING project in the areas of crops, livestock and natural resources management to address some of the major challenges identified in the situation analysis. However, research in some areas like human nutrition and post-harvest handling and management of crop and livestock products have lagged behind. There are reports of widespread malnourishment of the vulnerable groups, mostly children and women, in Ethiopia ([www.bioline.org.br/request?nd09041](http://www.bioline.org.br/request?nd09041)). Problems of post-harvest handling and storage and lack of value addition practices pose serious limitations on smallholder farmers hindering them from making effective use of their agricultural products for income generation, poverty alleviation and ensuring food and nutritional security. These challenges have been very clearly highlighted in the draft Home Garden Assessment Report and echoed by some of the CG partners interviewed.

The fact that the project has recently employed a nutrition expert is a positive development. However, the task ahead of the expert is enormous to catch up with the activities within the remaining life time of the project and to mainstream nutritional studies in the project as appropriate. Although post-harvest activities are not largely visible, there are certain aspects of post-harvest components embedded in the project. These include the diffused light storage (DLS) of potato seeds and crop residue storage shed and structures. There were strong positive compliments regarding the benefits of these two post-harvest management technologies by the participating farmers interviewed both in Lemo and Endamehoni districts during our field visit. In addition, there was a participatory assessment of different Faba bean storage techniques to control storage pests (weevils).

In the area of livestock research the focus has been on improvement of crop residue storage and feed troughs and some forage crops (oats & vetch and tree Lucerne). While these are very important interventions to address the livestock feed problem, the project should take this further by incorporating animal performance evaluations by supplementing the crop residues with supplementary feeds (forage crops or concentrate supplements) that are accessible to the farmers. In the work plan sheep fattening design was mentioned along with irrigated forage production. This was too prescriptive as farmers opt to use high quality fodder to feed either dairy cows or draught oxen. However, the project appears to be flexible to accommodate the interest of the farmers.

The forage research in all the sites has focused only on oat-vetch and tree Lucerne. The option could be widened, depending upon the agro-ecology of the sites in the different regions. For example, other forage crops with potential for high biomass production and adaptable to the agro-ecological condition could be considered as additional options.

Animal health and animal genetics are the other research areas missing from the project. Animal performance is a function of the feeding management, health and genetic potential of the animal. In addition to shortage of grazing land and limited access to feeds, animal health problems and lack of improved breeds were identified as major livestock production challenges in the Participatory Community Analysis. Again, it appears that the project has already realized research gap in the area of animal health and that it is in the process of hiring a veterinarian for this purpose.

Biomass use and energy efficiency also deserve research attention to improve the efficiency of the whole system. Scarcity of fuel wood forces farm households to use manure and crop residues as sources of energy and increases the workload of women to collect fire wood. Thus research in biomass and energy saving interventions would help to address these problems and spare the manure for soil fertility improvement and crop residues for use as animal feed or for mulching.

#### *What data gaps will compromise the scientific evidence of achievement?*

The **results of the baseline** survey conducted by IFPRI have only recently (November 2014) been made accessible to partners. This means the information could not be used in designing project activities contributing to output 2 prior to the 2014 main season. Moreover, no information was collected and provided by IFPRI to guide project management. There is also a concern on the content of the IFPRI baseline survey. For example, the experts in the discipline assert that the nutrition component of the survey is rather generic and won't be very useful as a baseline for designing nutritional studies. This criticism is surprising to IFPRI because they allowed two days for consultation in September 2013 on the proposed baseline survey content before the surveys were finalized and taken to the field. One of the shortcomings of the IFPRI baseline survey is that the survey did not encompass all farmers in the action research, which may make use of the baseline somewhat difficult as some of the farmers in the baseline survey are different from those in the action research. It was felt by a wider group of the CGIAR researchers that gaps in baseline data would limit the ability to fully understand the effects of interventions and the potential for fully using innovations. It is unfortunate that researchers should criticize the IFPRI baselines in this way as they were given the opportunity to contribute to the design of the questionnaires used to generate the baseline. In general, to fill the delay and shortfall of the IFPRI-led baseline survey, additional exploratory surveys were carried out to characterize the study sites and to complement the baseline for designing the on-farm action research protocols.

**No information on trends as assessment results focused only on snapshots.** Apart from the baseline survey conducted by IFPRI, different exploratory surveys including the Participatory Community Analysis (PCA), SLATE, Value Chain, AKT5 and Home Garden Assessment were carried out to assess the situation on the ground in the project sites. Most of these studies look at **snapshots** of information rather than looking at **trends**. Thus, there is a need for looking at trends

such as change in degradation index, biodiversity, soil cover, water infiltration, soil loss, land holdings, yield gap, migration etc., rather than dwelling on snapshots only (also see paragraph 42).

**Visioning of kebeles.** There is a need for more clear information regarding aspiration of the farmers for their families, farms and communities. What do they aspire to happen in the next five or ten years<sup>14</sup>?

*Are gender and diversity adequately covered?*

Attention to gender and diversity is critical to achieving the project's goals (see Figure 1, Theory of Change). In order to ensure gender and social equity of project outcomes, the project must identify and engage with members of different household types, men, women and young people at all stages (situation analysis, systems improvement activities, scaling and monitoring of outcomes and impact).

Gender and diversity issues in the Ethiopian highlands which the project is aware of include:

Cultural constraints on participation of women (particularly for women in male-headed households)

- Number of landless people in some project areas e.g. Tigray sites
- Issues faced by young people (landlessness, unemployment)
- Difference in accessibility to markets and inputs (risk of exclusion of some households)
- Few women in woreda level IPs (resulting from a scarcity of women in research and government positions).

The project is very aware of the need to address gender and diversity. The Participatory Community Assessment held in July 2013 disaggregated results between youth, women and men. However, the project team recognized (belatedly) that more needed to be done, and the decision was made to appoint a gender specialist (appointed in August 2014).

Since she has joined the project, the gender specialist has conducted a capacity building workshop on gender (August 2014) and has held training for partners (both researchers and other IP members). Tools and approaches for gender analysis have been shared<sup>15</sup> and a gender action plan for the project has been developed. The IP monitoring tools developed in 2014 include indicators for inclusiveness including participation by gender and representation of public, private and civil society actors.

The gender expert identified some gaps in gender analysis in the initial survey activities and has initiated a protocol to look at constraints to women's participation in research (not yet implemented at the time of the review).

In addition, the planned Nutrition protocol will contribute to gender and diversity analysis by identifying vulnerable households (in terms of nutritional status).

The Review Team observed that these activities have resulted in a growing awareness of gender issues amongst the project partners. An example of this is shown by the on-going efforts to involve both female and male farmers in participatory research (with an - as yet unmet - goal of 30% participation of women). In Tigray (Tsibet Kebele) the project is working together with a local NGO

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<sup>14</sup> Including education, employment, skills enhancement, financial stability, risk reduction, infrastructure and household improvements, social status, health, intra-family ways of working...)

<sup>15</sup> Publications: Putting gender at the heart of Africa RISING research in the Ethiopian Highlands, Mulema A, 2015. Developing Capacities for Gender responsive agricultural Programs in Ethiopia, Mulema A, 2014, report of 'integrating gender into agricultural programs workshop' Colverson, K et al, 2014. Gender plan of action for AR, Mulema A, 2014.



(REST) to conduct participatory research with a group of landless youth. There has been some integration of gender analysis in value chain work (looking at stages that women are involved in, and identifying value chains which can give the greatest benefits to women).

Some household typology analysis has been carried out as part of some of the surveys (PCA, SLATE). However, the project has not yet developed a standardized tool and indicators which would allow gender and diversity action to be harmonized across the sites, and effectively monitored.

#### Areas to be strengthened

The focus to date has been largely on women. The Review Team feels it would be useful to broaden the focus to give more attention to young people and to different household types (e.g. resource poor, less accessible households).

As discussed above, household typology indicators should be used to ensure inclusion of all typologies and to monitor differential participation and adoption of different social groups.

#### *What issues exist around data management and how can they be addressed?*

The Review Team did not have the opportunity to look at this issue in detail. However, it was striking that project partners emphasized the excellent ethos of information sharing within the project. One partner said: *"I can send a request for information by phone in the morning and get the information I need from another partner by the afternoon"*.

Several data issues were noted:

- Access to the IFPRI baseline data. The detailed and comprehensive surveys led to the generation of a huge amount of baseline data. While the Review Team did not see any analysis of this data or come across anyone who was using the data as part of their work (e.g. for sampling, for characterization of the farmers, for measuring progress or for identifying challenges), data has been available to researchers by request from IFPRI since November 2014. As yet no summary or synthesis of the Baseline data is available for Ethiopia (although this has been done by IFPRI for other AR countries/regions).
- It appears that each combination of partners in a protocol develops its own data management system. At the moment, data is kept in different formats in different places. It is envisaged that a project-wide data repository will be developed, and that all project data from all partners will be converted to a standard format and stored in the repository. This is a major task, and project partners were unsure who would do the time-consuming formatting. The theory is that once collected and formatted in a standardized way, the data can be subjected to meta-analysis to look at systems effects. Given that the data was collected by different people at different times in different ways, the Review Team is skeptical that meaningful meta-analysis will be possible. In contrast, the project coordination team feels that *assuming data handling can be unified successfully, then the household engagement patterns that the project has will allow it to explore complementarity amongst component interventions as well as trade-offs between them*.
- It has been noted previously that the work under Output 1 was not well coordinated so that a number of surveys collected similar data from the same farmers. Initially this put the farmers off, and their enthusiasm has only returned as they have seen the benefits afforded by the technologies and processes brought in under Output 2.
- While data is being collected against each protocol, there is little data being collected centrally for over-arching, project-level monitoring to show how the project is moving towards achieving the Outcomes it has set. IFPRI have developed a web-tool for monitoring progress against outcomes, but research partners in Ethiopia have been slow to use this, despite training in its use being conducted in all three AR program regions.

- There are no quantitative sustainable intensification targets or indicators. These are being developed, but belatedly and slowly. It is imperative that the project partners know what they are aiming for, and how far they have got along the way.
- As noted elsewhere, scaling has already started in small and informal ways as well as through deliberate project activities. This needs to be captured. There is still the opportunity to plan this so that data can be managed in ways that produces the best results in terms of research outputs.

*Is monitoring and evaluation adequately staffed, financed and implemented?*

Monitoring and evaluation should provide information for three main purposes: accountability to the donor, feedback to project management on whether the project is doing the right things in the right way at the right time, and provision of information to project stakeholders so that they can learn and share lessons about what has worked and what has not worked.

Successful M&E requires clear project objectives and a clear vision of what the project is trying to achieve. Ideally it needs to understand the situation at the start of the project, be able to track progress towards the achievement of agreed outcomes, and be able to identify the eventual outcomes and impacts of the project.

Unfortunately, the Review Team feels that there are major discrepancies between this ideal and the reality.

The Program Framework (November 2012) sets out a vision for the AR Program with 3 research outputs (plus an M&E output), research objectives, development objectives, program-level research outcomes, program-level development outcomes and 5 program-wide hypotheses, but these have not been distilled into a clear **project** framework that is easily tracked.

The Project Implementation Plan 2012-3 is the first project research plan. This takes the 3 research outputs of the PF and extends them to 5 research components (6 if scaling is included). It is a 2-year plan only without any documentation of the expected outcomes or impacts of the research, or any indicators against which to measure the contribution of the planned research. It is interesting that IFPRI are not mentioned in the document as a partner, or M&E as an activity.

The Project Work Plan (April 2014) changes to a technical focus, dividing activities between 5 technical themes and 2 crosscutting themes. Again, neither M&E nor IFPRI's role in these central project activities are mentioned in the document. It is understood that the research protocol partnerships monitor their own protocols at the farm/site level. However, this leaves a wider project level monitoring unaccounted for. How is the research plan as a whole contributing to progress towards achieving the project objectives and outcomes, and how can it be modified to perform better?

The project design section of this report has noted that there is no project logical framework against which to track progress. The Review Team agrees that this is not the most appropriate type of framework for a process project which is both demand- and experience-led. However, some other flexible framework, such as one based on a Theory of Change or around a series of expected outcomes together with a rolling set of time-bound milestones and a clear set of indicators, is necessary for following and learning from project progress and making adjustments as necessary. The multi-institutional nature of the project makes this more, not less, necessary so that there can be coherence of activities, increasing the potential for synergy and making most effective use of the rich resources available.

The continuing lack of Sustainable Intensification indicators is a serious deficiency in the ability of the project (and the Program) to be able to define if it has achieved or made significant progress

towards its stated objectives. However, it is understood that the inclusion of Kansas State University Innovation Laboratory has provided impetus to the process and the recent San Jose meeting made useful progress.

The Review Team notes that a great deal of effort and resources were put into situation analysis and establishing a Baseline. This included the comprehensive and complex IFPRI-led Ethiopia Africa RISING Baseline Evaluation Survey (EARBES), the Participatory Community Analysis<sup>16</sup>, the local agro-ecological knowledge studies conducted by ICRAF, and other specialized surveys, amounting to an impressive amount of qualitative and quantitative information.

However, it is only in 2015 (fourth year of the project, after the Quick Wins and the first full year of field experimentation) that the Baseline data is available to research partners<sup>17</sup>. A possible consequence of this is that the field experimentation has not to date fully applied the PF concept of Household Typologies to select participating farmers or to assess the impact of innovations (selection and targeting of households, critical points and entry points for research, trade-offs between innovations and the targeted scaling-up and scaling-out of innovations - as noted by Jeroen Groot for other AR projects at the Arusha November 2014 meeting).

The PF and the PowerPoint presentation by Naomi Sakana (Oct 2012) set out the planned M&E support to the AR Program. They include a set of suggested Program indicators (some from USAID and some additional ones from IFPRI, but none of them quantified or time-bound), and a set of M&E tools. A Program meeting was held in November 2014 to assess the M&E situation (<http://africa-rising.wikispaces.com/moneval3>), but this did not present an updated M&E plan for AR Ethiopia. However, IFPRI has been trying to get all the AR projects to adopt, contribute to and use the web-based Africa RISING Project Mapping and Monitoring Tool (PMMT)<sup>18</sup>. This is intended to help users understand where and how Africa RISING activities are taking place, and improve project strategies and partnerships for greater impact in their work. According to IFPRI, its features and functions have been designed to provide the following benefits:

Inform strategic and project management decisions. The PMMT can help inform decisions by allowing users to take geographic information about AR sites into account, whether it is the location of markets, related projects and partners, travel time, annual precipitation, or maize crop yields.

Communicate programmatic projects to key stakeholders. A primary benefit to users of the PMMT is to see the spatial layout of AR activities relative to geographic context. Users have the ability to add their projects to the PMMT database and then visualize those projects in a variety of ways.

Understand how programmatic efforts relate to other projects as well as to useful agricultural and socio-economic information. Users have the ability to browse and map other people's projects alone and alongside their own projects. This functionality provides the framework for multiple organizations to communicate vital strategic information together in a coordinated fashion.

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<sup>16</sup> Challenges and opportunities to the intensification of farming systems in the Highlands of Ethiopia: Results of a participatory community analysis. Jim Ellis-Jones, Kindu Mekonnen, Solomon Gebreselassie and Steffen Schulz. July 2013 (CIP/ILRI).

<sup>17</sup> EARBES data has so far been shared with: Mirja Michalscheck (WUR); Neville Clark (Texas A&M); Vine Mutyasira (Colorado State University); -Bekele Kotu (IITA)

<sup>18</sup> The URL for the PMMT tool is : <http://dev.harvestchoice.org/africarising/> ; The user's guide is at: [http://dev.harvestchoice.org/africarising/downloads/AR-PMMT\\_User\\_Guide\\_v1\\_06242014.pdf](http://dev.harvestchoice.org/africarising/downloads/AR-PMMT_User_Guide_v1_06242014.pdf) and the video tutorial for the users is at: <https://vimeo.com/99056777>

The Africa RISING PMMT is composed of two functional modules which perform specific and complementary functions:

- Mapping Application – This allows users to contextualize where AR activities are taking place and view data related to them
- Data Entry Application – Users with the appropriate credentials can add additional data to the PMMT through an intuitive, step-by-step interface

Training on the use of the tool (<http://africa-rising.net/2014/10/22/pmmt-training/>) was conducted in Ethiopia in November 2014. The training focused on:

- The data management component, which allows users to upload their research outputs (e.g., data, tools, documents) to a secure online catalogue in any format;
- The data entry application, which allows users with the appropriate credentials to add project-related data (e.g., indicators as well as customs indicators) through an intuitive, step-by-step web interface;
- The mapping application, which allows users to contextualize where Africa RISING research activities are taking place and provide them the opportunity to view and overlay various socio-economic, biophysical, and agriculture-related data.

However, IFPRI have received few data entries against the PMMT from the Ethiopian researchers and have therefore not been able to make a good assessment of project progress against Program indicators (N.B. there is no project monitoring plan, as the monitoring is done at Program level). A second wave of trainings is envisaged to give researchers more confidence and skills in uploading data into the PMMT.

Additional monitoring tools could be considered, including the case-study approach used by the CSISA (Cereals-Based Initiative for South Asia) team. However, according to IFPRI, resources are limited and they are a small team covering six countries

One specific aspect of M&E is being actioned. This is the M&E for Innovation Platforms, which has been assigned a dedicated researcher (Elias Damtew, with support from Alan Duncan), who has drawn up a participatory monitoring and evaluation plan (Feb 2015)<sup>19</sup>. M&E Champions have been selected at woreda level, and these appear to be functioning.

A second useful tool for monitoring project progress has been the monthly meeting of project partners in which progress is reviewed and plans discussed. This would be even more valuable were there a (rolling) project framework against which to assess progress and make plans, and if there was an in-country M&E person to engage with partners on an equal basis at the monthly meetings, to mainstream the monitoring of project progress and to contribute to the development of QQT or SMART<sup>20</sup> project indicators (including sustainable intensification indicators) against project outputs, components or themes depending which the project decides to judge its performance by. IFPRI agreed that an in-country presence has advantages, and that this is something that should be discussed in the forthcoming AR retreat in June.

Based on the assessment of M&E in Phase I, the Review Team feel that M&E should be an integral, mainstream activity of any Phase II, rather than a separate, contracted-out activity.

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<sup>19</sup> Participatory Monitoring and Evaluation framework: Measuring Africa RISING innovation platform contributions to project outcomes, Feb 2015. Elias Damtew and Alan Duncan (ILRI).

<sup>20</sup> QQT = **Q**uality, **Q**uantity and **T**ime; SMART = **S**pecific, **M**easurable, **A**chievable, **R**ealistic and **T**ime-bound

*How adequate are the available human resources for successful implementation?*

**Wide range of skills and expertise in the partnership:** The Africa RISING research project is a collaborative effort among researchers from different CGIAR centers. Thus, it brings together researchers with different professional backgrounds and different institutions for planning and implementation of the different research protocols in the project sites. In this way, the project brings together a wide range of skills and expertise from the different CGIAR centers in the partnership. By so doing the project is setting an example of how different institutions can pool together their expertise and skills to carry out integrated multi-disciplinary research projects to address the multiple challenges faced by the farming community. The fact that different CGIAR centers are working together and that every protocol is implemented by more than one Center gives a broader perspective and provides a fertile ground for further collaboration towards more integrated approach. However, because of the multidisciplinary nature of the research activities, the CGIAR centers may not have all the expertise required to address all the different components of the project. For example, some gaps were indicated in the areas of post-harvest technology, human nutrition and animal health. The project has already felt these deficiencies and has started taking corrective measures - human nutrition expert has recently been employed and that of animal health is in the pipeline.

**Use of local research organization and university staff:** The researchers from the CGIAR centers are working in partnerships with researchers from the National Agricultural Research System (Agricultural Research Centers and Universities) located in the vicinity of the project sites. This arrangement brings additional expertise for joint planning and implementation of the research protocols. The CGIAR researchers and the NARS researchers can strongly complement each other by pooling the international experience of the former and better understanding of the local condition by the latter. In addition to effective implementation of different Africa RISING research protocols, the collaboration of the CGIAR and NARS researchers will also have a strong capacity strengthening component for the NARS researchers because of experience sharing through closely working together from the design through the implementation and reporting of the research work.

**Use of consultants and students to fill gaps:** The project also engages short-term consultants in certain aspects that require external expertise when the amount of work does not justify employment of a full time staff. A limited number of PhD and MSc students are associated with the project to work on some components of the project that will contribute to the fulfillment of their Thesis requirement. The use of graduate students is an effective and efficient way of implementing a research project as the students are very keen to collect sufficient and good quality data for their Thesis. It also has a strong capacity building component to nurture and shape future researchers.

What expertise needs to be strengthened or added?

- Specialist in post-harvest technology to lead the different activities of the project on post-harvest handling and management of different agricultural produces (cereals, vegetables, fruits and animal products).
- Site-level, part-time accountancy support is needed (according to site coordinators)
- M&E staff who are answerable to project management and who attend planning and partnership meetings
- Local expertise for trial management (some protocols partner with local researchers, which works, and some depend on site coordinators, which overloads them)
- Additional partners qualified for research into scaling. Could consider e.g. GFRAS - Geneva (for advisory services; scaling issues) and AFAAS- part of FARA - based in Uganda. The Project also needs to identify and involve appropriate national stakeholders (may include Federal agencies such the Ministry of Agriculture, Ministry of Forestry and Environment, Ministry of Water and Energy, EIAR, ATA etc.)

**Capacity building activities:** The Project has used a range of short and long-term capacity building activities for human resources development and for strengthening the capacity of local partner institutions. It has put strong focus on cross learning events through field days, workshops, experience sharing visits, regular meetings and short-term training programs as short term capacity building activities for the project stakeholders. In addition, the project is supporting MSc and PhD students to carry out their research work as part of the Project in addition to assessing and filling some gaps of the local partner institutions in basic facilities to strengthen their capacity.

*Is there an adequate Communication and Dissemination strategy?*

An effective communication and dissemination strategy is critical to the success of this project. As mentioned above, the project's loose design structure and iterative approach requires constant communication between partners. The program goal of 'embedding scaling' in all project outputs means that stakeholders who are critical to scaling need to be engaged, and communicated with at all stages. Communication at program, project, national, woreda and kebele level are all essential.

Communication for scaling is an important driver for project outcomes. The ability of the project to facilitate or encourage development partners to adopt these communication approaches to take scaling further is a key driver for the project goal (see Figure 1, TOC).

What has been achieved?

The communication team is extremely active, and the project benefits from sufficient budget for communication. The Review noted the following activities:

Program level

- Annual learning meeting
- Program coordination team meetings– 6 monthly meetings (virtual and face-face)

Project level

- Monthly meetings of project partners
- Internet tools (wiki, Yammer etc.)
- Production of regular briefs, papers, photo reports and videos by AR and project partners (documenting the process)
- Planning for dissemination - building on existing, identifying potential partners; e.g. *Shamba shape up, Digital Green?* Participatory video, radio...

Communication Champions have been appointed at IP level.

Strengths

Project partners appeared very happy with the communication and information sharing mechanisms.

The Review Team was impressed by the quantity, clarity and accessibility (to those with internet access) of the communication material. The project process has been clearly documented, and useful tools have been shared. This is in itself a useful project output.

Communication on technical outputs and outcomes has not yet begun. However the communications team has already begun thinking about the best way to do this (see plans for dissemination above).

Areas to be strengthened

The Review Team was concerned that partners (particularly at the government and kebele level) who do not have ready access to internet might not be able to access information as easily as the research and international community. The team recommends hard copy updates e.g. quarterly newsletters for sharing information with these partners. Other options would be use of mobile phone or CD Roms.

As the project generates technologies and approaches to be shared, the communication team should put resources into sharing communication approaches, and facilitating their adoption, by key development partners.

*How effective are the collaborations, coordination, and working relationship among key partners? Are the current research and development partners adequate for a successful project?*

Partnerships are essential at every stage of the project's Theory of Change (see Figure 1). CGIAR partners, national and local research organizations, farmers and their organizations, NGOs and the private sector are all key partners in situation analysis and integrated research. The private sector, development agencies and organizations with specialist skills in scaling, will become increasingly important as promising technologies and approaches are identified.

Partnership building activities to date

- ✓ Partnerships with sister projects under AR Program, the Feed the Future family, USAID innovation labs and other CGIAR Research Programs (especially the Humid Tropics program).
- ✓ Partnerships with CGIAR project partners<sup>21</sup> for project design, situation analysis, integrated systems research and monitoring and evaluation.
- ✓ Partnerships with National and regional Research Centers and Universities: joint research, capacity building and support to masters and PhD studies.
- ✓ Partnership with local agricultural and other relevant government offices at kebele, woreda, zonal and regional level<sup>22</sup>.
- ✓ Some private sector partnerships e.g. with cooperatives in Tigray.
- ✓ Some NGO partnerships e.g. GRAD/REST in Tigray, SOS Sahel in Lemo.
- ✓ Formation of Innovation Platform groups to coordinate partners at site level (see discussion under each output.)
- ✓ Some progress in developing partnerships for scaling, for example with ATA at national level, and with zonal government staff in southern Tigray to scale promising activities.

How effective are the project's partnerships?

The Review Team observed that the project design and management approach is conducive to good partnerships. Project partners interviewed were extremely positive about the inclusive, 'open door' management style, the good communication and the multidisciplinary approach. Most of those interviewed agreed that the relationship between partners is characterized by an open, trusting and sharing relationship that enables good interchange of ideas and information.

With regard to private sector partnerships, the Value Chain experts interviewed noted that private sector partners cannot be expected to take an interest until new products or opportunities reach a

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<sup>21</sup> Current CGIAR partners are ICRAF, ICARDA, CIAT, ILRI, CIMMYT, CIP, IWMI, IFPRI and ICRISAT. Partnerships are encouraged through protocol criteria (>2 CGIAR Centers). Some CGIAR centers working together for implementation (ICARDA, CIP and CIMMYT).

<sup>22</sup> Government staff members are key members of the IPs. The project has also worked with government 'campaigns' in Lemo to implement Integrated Watershed Management activities.

critical scale. Engagement with these partners needs to be an iterative process through regular review of partnerships and opportunities/need for new partnerships.

A partnership that appears problematic is that between the project and its Monitoring and Evaluation Partner, IFPRI. Interviewees noted that IFPRI does not attend the regular monthly meetings (IFPRI says that it is not invited to these or other events). The separate budget and lack of an in-country presence make it difficult for the Project Coordinator to manage IFPRI in an integrated way.

Are current partnerships adequate?

While current partnerships are strong and productive, the Review Team noted that there will be a need to invite more partners to the table to embed scaling into the project's activities. The Review recommends that the project conduct a stakeholder analysis of potential scaling partners, which should include potential partners from the strategic thinking and methodology level, national level programs (e.g. AGP, ARDPLAC, ATA), and site/value chain level and communication actors.

*How relevant is the program and project management structure in terms of enhancing the implementation of the project?*

The Program Framework envisaged a Program Coordination Team, an external Science Advisory Group and a Project Steering Committee.

The Program Coordination Team comprises Peter Thorne, Peter Ballantyne (communications), Jerry Glover (USAID Agricultural Systems Adviser, USAID "Activity leader" and *de facto* head of the Program), Carlo Azzarri (IFPRI lead on M&E) Bernard Vanlouwe (IITA) and Siboniso Moyo (Program leader for ASSP, ILRI). The team meets every six months (alternating virtual and face-to-face meetings). Apart from providing feedback to USAID<sup>23</sup> and discussing up-coming activities and strategy, cross-project issues are discussed. For example, there is a cross-project discussion group (including Kansas State University Sustainable Intensification Innovation Lab) that is developing sustainable intensification indicators, which are necessary for all the AR projects. A further example of interaction between Program projects is the visit by E. and W. Africa projects to the Ethiopian work on watershed management. However, there is no project budget line for Program coordination, reducing the impact that it could have.

There is a Science Advisory Group for the Program, comprising Maggie Gill, Christine Okali, Salvador Fernandez Rivora (ex-ILRI), Moses Tenu (?) and Dave Harris (ICRAF). This meets every six months and responds to requests for advice from the three projects. It also reviews important documents. The first meeting was in June 2014, and a second has been held since.

There is potential to collaborate more with the CGIAR Research Programs (CRPs) and also with the relevant USAID Innovation Laboratories (successors to the CRSPs), such as the Small Scale Irrigation (Ethiopia, Ghana and Tanzania) which is using modelling methods for ex-ante analysis that could be adopted by AR (using IFPRI baseline data).

There is no Project Steering Committee as this was deemed unnecessary. However, some of the functions of such a committee are fulfilled by the project monthly partner meetings that track progress and discuss future activities.

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<sup>23</sup> All sub-contractors (mainly CGIAR centres) send quarterly technical and financial reports to Peter, who then synthesizes them for USAID.



The flexible, adaptive management style of project management is appreciated by most partners, and enables project responsiveness to opportunities and challenges. It is appropriate to a participatory, integrated systems approach in a dynamic and complex environment. This has to be accompanied by good communications between all partners at all levels (which is happening), and a suitably crafted M&E system that keeps all partners abreast of progress towards agreed outcomes (which is not in place - or not yet functioning if one counts the PMMT). Where management is too loose, there is a danger of some project elements being out of step with others, or not delivering a product that is needed by other partners.

#### *Financial planning and management*

Funding for Africa RISING is through CGIAR Window 3 (where contributions are allocated by Fund donors – in this case USAID - to specific CGIAR Centers – in this case to ILRI for Africa-RISING).

The Africa RISING project falls under the ILRI Animal Sciences for Sustainable Productivity (ASSP) program for its financial management and contracts. The Africa RISING project is a large, complex project involving seven CGIAR centers, multiple local partners and four field sites, and has got more active in terms of day to day financial management since the site coordinators were recruited and the participatory trials got underway.

According to CGIAR partners, the budget for the project is adequate for the work planned and they don't feel that funding compromises the scope or quality of their work. The 2015 budget is presented in Annex 5. The total amount for 2015 is US\$2.65million. 55% of the budget is earmarked for staff costs (ILRI + other Centers) and 23% for research costs by CGIAR and local partners). A further 4% is for "gap filling" for local partners. Through this the project provides operational support to local partners (e.g. purchase or repair of equipment, provision of transport and per diems). This means that local partners (Research Centers, Universities, Woreda offices etc.) are, in turn, willing collaborators, and are able to work effectively with the project. Salaries are **not** paid to local partners.

2.5% is for student attachments (PhD and MSc) which helps build capacity of Ethiopian organizations and provide useful information to the project. There is no budget for Program coordination or for collaboration with other programs such as Humidtropics, but this might be added if a Phase 2 is negotiated.

For the Quick Wins, funds were given to partners, but now most of the funds are handled centrally to improve efficiency, reduce duplication and improve the timely availability of funds. It also helps to increase the coherence of activities between partners.

IFPRI receives funds separately to the rest of AR Ethiopia and is therefore not under the Project Coordinators control. From the project management perspective, this is not logical as M&E is a central component of project management.

The ILRI financial staff feels that the system is working well, and they have received no complaints. However several CGIAR partners told the Review Team that it could be slow getting funds from the system, and that this has delayed work on some occasions. The two site coordinators we interviewed also told us that they spend too much time getting funds for site operations. They would like the cash float to be increased from 40,000Birr to 100,000Birr, especially for the busy periods of the agricultural calendar. They also ask for accountancy support (possibly part-time) to reduce the workload and free them up for facilitating the field work.

The ILRI financial staff feels that it would be helpful to have a more structured budget (like other projects they manage), with the budget linked to the project objectives, as not having this link causes a problem with the auditors who request to see and scrutinize the donor budget.

## Conclusions

This short (10-day) external review of the Ethiopian AR project was given every opportunity to see and discuss project progress, achievements and challenges. The project is now in its fourth year out of a scheduled five years. It has made significant progress.

The project has benefitted from a flexible management approach assisted by good communications systems that have encouraged creativity and productive multi-institutional partnerships, as well as enabling it to respond to farmer demand. This management arrangement is appropriate to a participatory, process project dealing with complex farming systems in a heterogeneous environment. The project has a wide range of CGIAR and local partners who have combined well to conduct research protocols at four contrasting sites. Innovation platform have been established at woreda and kebele levels. These have facilitated the research work, provided forums for sharing and learning, and are potential platforms for the coordination of scaling up and out of findings. Both CGIAR and local partners highlighted the multi-institutional approach and the participatory nature of the project as being two of the most important contribution of the project (see Annex One).

A rather long situation analysis period in which a number of surveys gathered a large amount of qualitative and quantitative information resulted in some survey overload of farming communities. Despite the fact that some aspects of this component are still not documented, the project has moved into “integrated systems improvement” activities at the research sites. While the participatory action research has been successful in enthusing farmers and testing useful technologies, the majority of these activities have been focused on single disciplines (food crops, livestock nutrition, high value crops, soil fertility, post-harvest storage etc.), with few protocols looking at whole farm or landscape situations. Although protocols have included at least two CGIAR partners as well as local partners, it is the view of the Review Team that these multi-institutional partnerships have yet to start re-designing farming systems or bringing in radical departures from present practice or available knowledge. In commenting on the draft of this report, senior project staff felt that project efforts towards systems development had not been fully recognized and that:

Some protocols explicitly look at outcomes across several system components and will be interpreted "systematically"

Assuming data handling can be unified successfully, then the household engagement patterns that the project has will allow it to explore complementarity amongst component interventions as well as trade-offs between them

Farmers are genuine partners in the research. They manage their farms as a whole, and are aware of the linkages between components relating to every management decision taken. They scrutinize everything that the project is doing so that the systems perspective is, to some extent, hard wired.

While the Review Team agrees with these statements, it maintains that there is opportunity (provided by the contrasting sites, the trust of the farmers and above all the presence of a multitude of local and international research organizations) to go further and explore ways to improve community nutrient flows, water-use efficiency and energy budgets, and moderate GHG emissions through technical and organizational innovation.

There are some shortcomings around the planning and operation of field research activities, but farmers are very appreciative of the way that research is followed up to ensure tangible benefits to those involved. The project is covering aspects of crops, livestock and trees, but there are key areas that it is not addressing fully at present, such as human nutrition, post-harvest aspects of the value chain, animal health and livestock breed improvement. The project might also look beyond farming

and enquire about the aspirations and strategies of rural families for coping with multiple external and local influences and shocks (education, social status, economic strategies, risk management...).

The four research sites and their innovation platforms are excellent nuclei for scaling-out (spatially and to more people) and scaling-up (to more organizations) of successful innovations. This has already started on a small scale, both formally (e.g. through community-based seed production and government training) and informally through farmer-farmer exchange of information and materials. The project has a draft scaling plan, but this has a long way to go before it is a comprehensive scaling strategy, and research into scaling will need to move quickly to ensure it documents the multiple scaling processes (some already emerging) from their starting points.

The project has mainstreamed gender, but so far has not been able to influence the low number of women involved directly in the IPs and on-farm trials. A gender specialist has been appointed and appropriate steps (training, gender champions, studies and a gender action plan) are being taken to improve the involvement of women. This should be extended to youth, who are often landless (especially in Tigray) and who might be lost to agriculture if explicit attention is not paid to their specific needs.

There is a good culture of sharing of information between researchers involved in the project. However, the data gathered by each research team is kept separately and in different formats. The plan to create a central data repository for all the data generated by the project is a good idea in principle. Researchers are unsure where the resources to make this a reality are coming from, but the potential benefits (e.g. meta-analysis of the data across systems) make it a worthwhile goal.

A comprehensive baseline snapshot has been captured by the different surveys conducted (including the IFPRI Baseline survey). Unfortunately these did not look at trends, which would also be useful for guiding the research program and providing more realistic scenarios for the project to be evaluated against at intervals. Monitoring of project progress has been hampered by three main factors. Firstly a confused picture (to the outsider at least) of what progress should be monitored against (outputs, outcomes, hypotheses, components or themes are all mentioned in various program and/or project documents, and there are no quantified or time-bound indicators against which to assess progress). The lack of sustainable intensification indicators is also a concern for this and other SI projects. Secondly, the lack of a project framework for AR Ethiopia (logframe-, Theory of Change- or Outcome-based) needs to be addressed. Thirdly, the unenthusiastic involvement of researcher in providing data for the web-tool that is supposed to monitor project progress (the Project Mapping and Monitoring Tool). While the project partner monthly meetings are an excellent forum for reviewing and planning activities, the lead M&E organization is not present to discuss M&E plans and to involve research staff in them.

Communication has been given an unusually high profile in this project, to good effect. Information sharing is facilitated by mechanisms such as wiki and Yammer, especially for those with good internet connectivity, and all the fundamentals are in place for good communications support to scaling as that component takes off.

Project management structures are adequate to oversee and advise the project, although specific funds could be assigned for Program coordination (especially for activities such as the development of SI indicators and inter-project exchange visits). Otherwise the budget is adequate, although re-financing could be speeded up so that researchers can operate more effectively.

It was unreasonable to expect a participatory, systems research project to understand the context in depth, to establish research sites and identify demand, to develop appropriate innovations **and** to bring these to scale in five years. It is expected that by the end of the five year phase, the project will have completed two full years of on-site experimentation. Further years will be needed to

consolidate the single discipline research and to integrate that knowledge into activities that provide real improvements in **system** efficiencies (of water, land, labor, nutrients, cash) at the household, community and landscape scales, especially considering that each farmer typology in this highly heterogeneous environment will require different technologies and tailor-made recommendations (as is already being highlighted by innovative fertilizer work).

A second five-year phase is therefore recommended by the review team to build on the good work started in Phase I and to influence and document the scaling processes and structures that result (hopefully with complementary support from USAID bilateral development funding).

# Recommendations

The recommendations below are directed to the AR Ethiopia Project Coordination Team in particular. They are listed in the same order as the report sections. Please see the relevant sections for further information.

Given the large number of recommendations, the Review Team has selected a “Top Ten” that it considers most critical at this stage of the project. These are provided in the Box below.

## “Top Ten” most critical recommendations

- Develop a theory of change- or outcomes-based rolling project framework with time-bound milestones and SMART indicators (including sustainable intensification indicators)
- Develop an exit strategy (set of actions to complete Phase I) as a contingency against the project closing in 2016. This would include a synthesis of the tangible outcomes expected from Outputs 1 and 2 and how to attain them during Phase I, and a road map for Output 3.
- Make more use of landscape/watershed level parameters in the system, for example nutrient, water and GHG budgets, to guide thinking and action on sustainable intensification.
- Develop the draft scaling plan further to include outcomes, milestones and indicators of success, and share it with all partners so that AR’s role in scaling is clearly understood
- Start mapping (social and spatial) and quantification of adoption (formal and informal, planned and unplanned) as soon as possible so as not to lose information on the start of these processes
- Make further improvement on the **integration** of different disciplinary components in the research process. The wide range of disciplinary backgrounds should make better use of the opportunity provided at the sites to investigate the interaction, be it complementary or competitive, among the different components (crops-livestock-natural resource) of the farming system
- Improve the uptake of the PMMT for project monitoring and evaluation so that it is able to provide accountability to the donor, guide project management and assist learning as envisaged. The plan should enable the current flexible and adaptive approach to be maintained while providing a framework for tracking overall project progress against expected outcomes
- Provide an in-country M&E presence to engage with partners on an equal basis at the monthly meetings, to mainstream the monitoring of project progress and to lead the development of project indicators
- Expedite the elucidation of sustainable intensification indicators for the benefit of the project, the AR Program and other SI programs
- Develop a second phase in order to consolidate the work of Phase 1 and further develop and demonstrate the application of practical approaches to sustainable intensification at the household and landscape scales

## **Project design and management structure**

Retain a responsive, demand-driven project management style, but track progress more effectively

Develop a theory of change- or outcomes-based rolling project framework with time-bound milestones and SMART indicators (including sustainable intensification indicators)

Develop an exit strategy (set of actions to complete Phase I) as a contingency against the project closing in 2016. This would include a synthesis of the tangible outcomes expected from Outputs 1 and 2 and how to attain them during Phase I, and a road map for Output 3.

## **Output 1 (Situation analysis)**

Issues referring to Output 1 are crosscutting and covered in the sections below

## **Output 2 (Integrated systems improvement)**

Improve the planning process for field research activities (timing and coordination). Ensure clarity of roles, responsibilities and communication between researchers and local IPs

Consider selecting farmers by typology or other sampling framework so that technologies are tested by a variety of farmers – or at least classifying current participating farmers according to their typologies

Develop simple tools for identifying niche opportunities (including rapid economic and market analysis)

Increase the size of forage trial plots so that farmers can assess animal performance over an appropriate period of time

Increase diversity of enterprise improvement innovations, in line with farmers' interests, to avoid over reliance on a limited number of commodities e.g. potential importance of dry season vegetable production

Include further research into post-harvest handling, storage, processing and marketing of commodities

Increase integration and complementarity of the different components of a farm in future protocol designs to attain better integration of the different components

Make more use of landscape/watershed level parameters in the system, for example nutrient, water and GHG budgets, to guide thinking and action on sustainable intensification.

## **Output 3 (Scaling)**

Clarify the message that AR is a research project and that AR's role in scaling is to conduct research into scaling processes, structures and outcomes (while at the same time actively influencing and encouraging those processes, structures and outcomes)

Develop the draft scaling plan further to include outcomes, milestones and indicators of success, and share it with all partners so that AR's role in scaling is clearly understood

Start mapping (social and spatial) and quantification of adoption (formal and informal, planned and unplanned) as soon as possible so as not to lose information on the start of these processes

Conduct stakeholder analysis of potential additional scaling partners at international (e.g. GFRAS, AFAAS) and national (e.g. AGP, ARDPLAC, ATA) levels, and at site/value-chain levels

Engage partners and facilitate scaling structures and processes to gain experience and credibility in scaling (e.g. value chains, innovation platforms, community-based seed production, kebele agricultural supply shops, market information systems etc.)

Continue and further develop the use of varied and innovative communication approaches to promote scaling e.g. partnerships being developed with *Digital Green* and *Shamba shape up* (see also recommendations under the communications section below).

### **Links with Humidtropics**

Search the whole sustainable intensification landscape for information and support rather than looking only to the Humidtropics and FtF projects for approaches, methods and technologies

Assess the project's work against research and statements coming from different perspectives (e.g. IIED Briefing March 2015 – *Sustainable Intensification Revisited* - <http://pubs.iied.org/17283IIED>).

### **Research approach**

Ensure the planning process for protocols is aligned to the farming calendar and allows sufficient time for development of integrated innovations, presentation and feedback from IPs

Link the process of developing protocols to a more structured consideration of landscape, value chain, nutrition, health, gender, labor availability, environmental impact aspects, and alignment to government policy. AR team to develop traffic light system, or similar, for researchers to use when developing protocols and facilitate IPs to have this discussion as they assess the protocols

Support IPs towards having the capacity to be pro-active in terms of decision making, innovation and their own evolution

Make further improvement on the **integration** of different disciplinary components in the research process. The wide range of disciplinary backgrounds should make better use of the opportunity provided at the sites to investigate the interaction, be it complementary or competitive, among the different components (crops-livestock-natural resource) of the farming system

### **Missing research areas**

Broaden analysis from commodities to systems by assessing sustainable intensification at whole farm level (using tools such as farming systems diagrams, labor, water and nutrient budgets, and whole-farm economic analysis). Such analysis should take demographic, land size, land cover, input and credit supply, market demand and policy **trends** into account

Test additional forage crops with potential for high biomass production and adaptability to the agro-ecological conditions of the research sites

Consider responding to farmer demand for animal health and animal genetics innovations to improve the efficiency of farming systems

Continue to increase efforts to reduce wastage through post-harvest innovations and risk through diversification

Identify strategies (e.g. mix of cash and food crops, diversification, nutritionally enhanced crops [like Quality Protein Maize and Orange-Fleshed Sweet Potato as well as fruit and vegetables], education) and technologies to improve human nutrition

Consider including biomass use and energy efficiency as a means of improving efficiency of the whole system in future integrated research designs

## Data gaps

Use existing information sources to characterize important trends at project sites e.g. population data, land cover, land holding size, migration etc. as the Baseline only covers a snapshot of the situation over the 12 months prior to the survey

Identify the aspirations of the members of different types of farming households for their families, farms and communities (farming and non-farming aspirations). What do they aspire to happen in the next five or ten years?

## Gender and diversity

Provide a synthesis of household typology and diversity data to guide partners in integrating gender and diversity issues. Can draw on experience from the Zimbabwe project and SIMLESA<sup>24</sup>

Encourage partners to look beyond women to other groups/individuals who may have particular technology needs or constraints to participation (e.g. landless, those with poor accessibility to inputs and markets)

Use household typologies and diversity analysis to plan for and monitor participation (e.g. women, youth and less accessible households), to disaggregate research results, and to follow adoption of innovations

## Data management

Continue with plans to establish a project data repository for all project data, and make the data accessible to all partners to avoid the need for duplication of survey questions, and for potential meta-analysis

Rule that any new survey proposals must demonstrate that they have drawn on existing data sources

## Monitoring and evaluation

Improve the uptake of the PMMT for project monitoring and evaluation so that it is able to provide accountability to the donor, guide project management and assist learning as envisaged. The plan should enable the current flexible and adaptive approach to be maintained while providing a framework (see below) for tracking overall project progress against expected outcomes

Develop a theory of change or outcomes -based rolling framework with time-bound milestones and SMART indicators – including sustainable intensification indicators.

Provide an in-country M&E presence to engage with partners on an equal basis at the monthly meetings, to mainstream the monitoring of project progress and to lead the development of project indicators

Use existing information sources to characterize important **trends** at project sites e.g. population data, land cover, land holding size, migration etc. as the Baseline only covers a snapshot of the situation over the 12 months prior to the survey

Expedite the elucidation of sustainable intensification indicators for the benefit of the project, the AR Program and other SI programs

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<sup>24</sup> See [simlesa.cimmyt.org/](http://simlesa.cimmyt.org/)



Consolidate qualitative evidence from Phase I using a tool such as the Most Significant Change in workshop(s) that would gather narratives from different types of project actor (CGIAR researchers, local researchers, NGOs, private sector, woreda agricultural staff, kebele administrators, women and men farmers and youth) to complement quantitative information from the PMMT

Human resources

Provide accounting support to site coordinators

Provide specialists in post-harvest technology to lead the different activities of the project on post-harvest handling and management of different agricultural products (cereals, vegetables, fruits and animal products)

Identify additional partners qualified for research into scaling

### **Communication and dissemination**

Allocate resources for sharing communication approaches, and facilitating their adoption, by key development partners

Provide hard copy updates, e.g. quarterly newsletters, mobile phone updates or CD Roms, for sharing plans, events, experiences and information with those partners who have no or limited internet connectivity

### **Partnerships**

Continue to use and support graduate students for research work

Produce co-authored peer reviewed papers with local partners to strengthen ownership and capacity

Engagement with partners needs to be an iterative process through regular review of partnerships and opportunities/need for new partnerships.

### **Financial planning and management**

Improve flow of finance to partners and site coordinators (rate of replenishment)

Consider increasing the float to site coordinators from 40-100,000Birr

Consider accountancy support to site coordinators

Include M&E funding under the main budget in Phase II

Consider structuring the budget on output or outcome lines

Include an appropriate amount for Program coordination in Phase II

### **Recommendations for Phase II**

Develop a second phase in order to consolidate the work of Phase 1 and further develop and demonstrate the application of practical approaches to sustainable intensification at the household and landscape scales

Emphasize research into scaling processes, structures and outcomes (while at the same time actively influencing and encouraging those processes, structures and outcomes), backed up by further research into integrated crop/livestock/tree farming systems

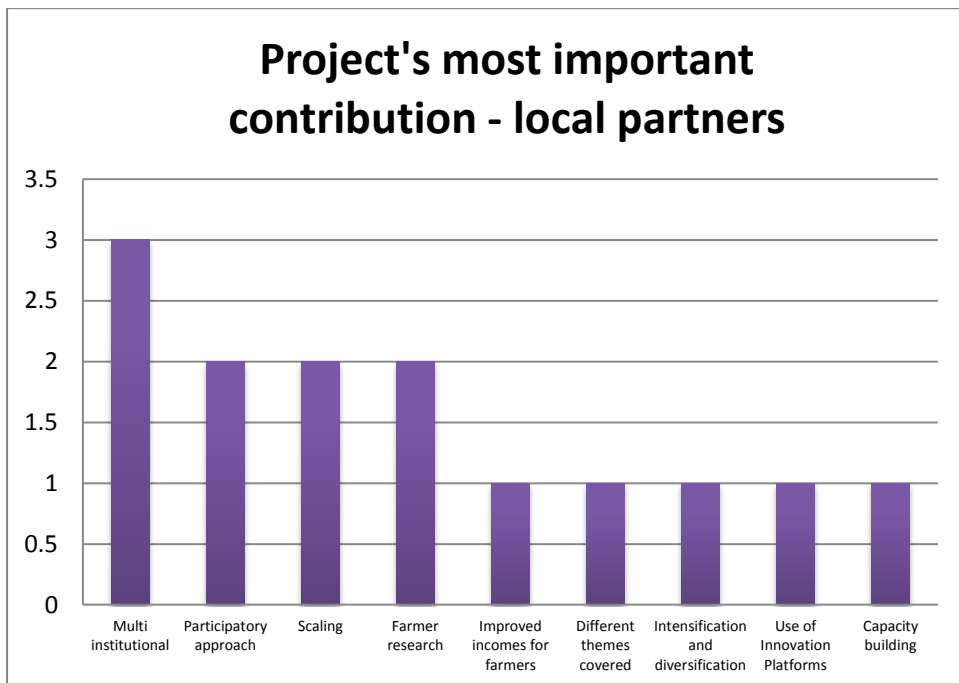
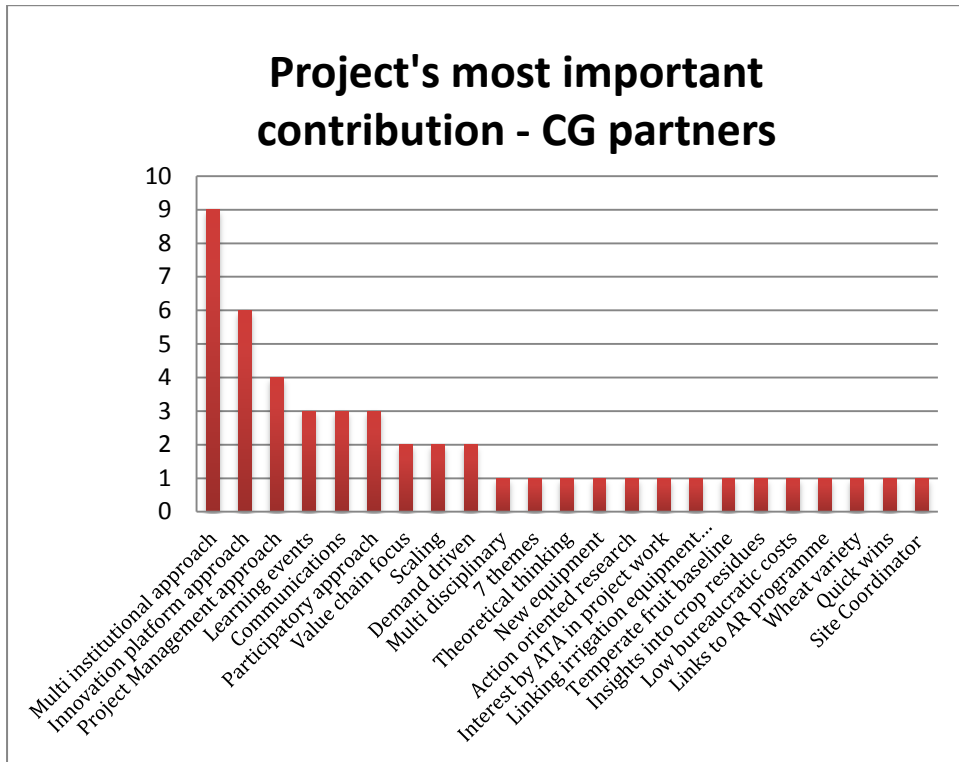
Retain the flexible approach used in Phase 1 while including a framework (discussed above) that enables monitoring, a logical phasing of activities and provides a clear and consistent vision

Retain a similar geographical focus to Phase I, so that in-depth, site-specific experiences can be fully investigated and documented

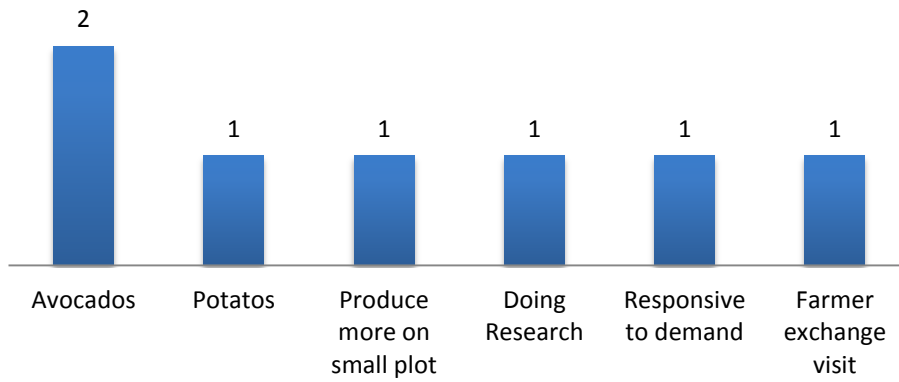
Link research into scaling with USAID bilateral development funding to Ethiopia

# Annex 1: Most important contributions

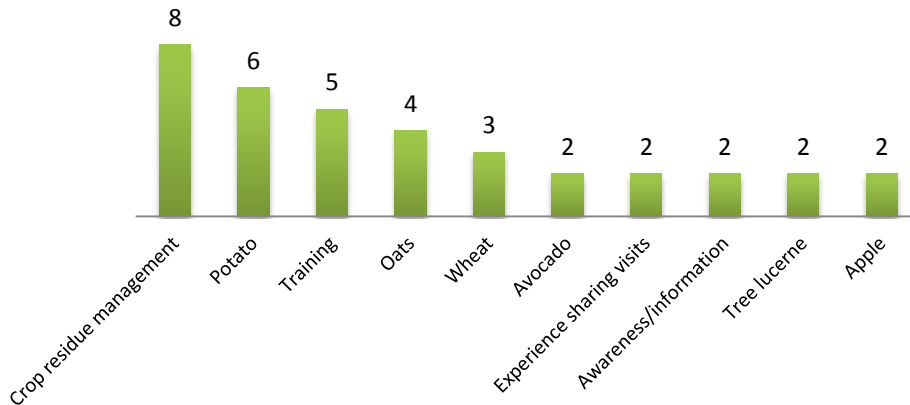
Stakeholders were asked what the single most important contribution has been of the project to date. These have been graphed below by frequency of response)



### Project's most important contribution - Women Farmers



### Project's most important contribution - Male Farmers

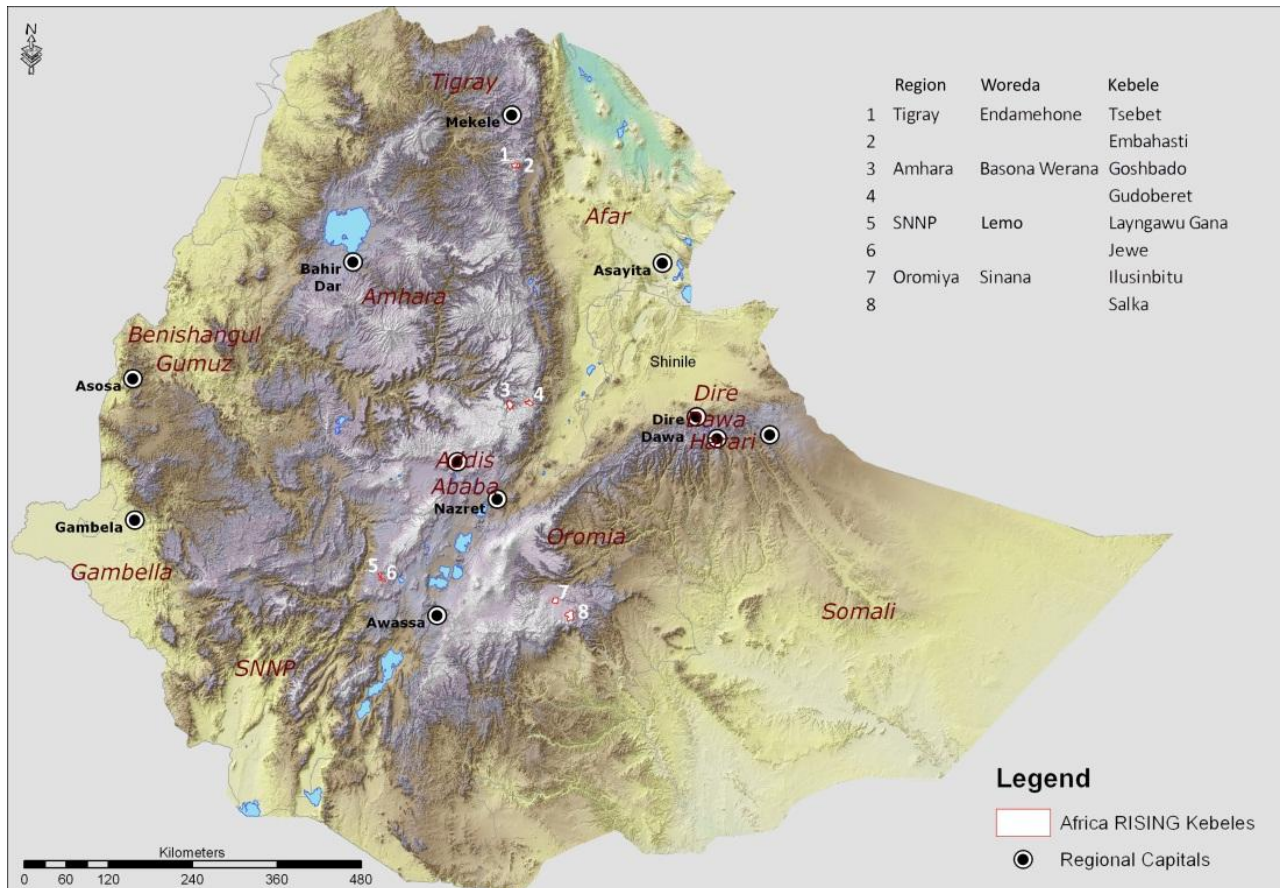


## Annex 2: Terms of reference

Terms of Reference for an Internally Commissioned, External Mid-Term Review of the Africa RISING Project in the Ethiopian Highlands

Africa RISING in the Ethiopian Highlands

This project, managed by the ILRI, is currently centered on eight communities (kebeles) in the four main highland regions of Ethiopia; Amhara, Oromia, Southern Nations, Nationalities and Peoples’ Region (SNNPR) and South Tigray.



### Overview

The main aim of the project is to identify and validate solutions to the problems experienced by smallholder crop-livestock farmers. Some problems arise from the difficulties facing farmers in managing natural resources and achieving efficiencies from managing crops, trees, water and livestock together. These efficiencies are often influenced by other factors such as access to inputs and the reliability of markets.

To address this complexity, Africa RISING takes an integrated approach to strengthen farming systems. It conducts participatory research that identifies technologies and management practices that work for farmers and take account of contextual issues like markets for inputs and outputs, community and other institutions and of the policy environments that influence farm households.

## Core Issues

Highland kebeles are dominated by an integrated crop-livestock system that is a significant source of food and cash for the household. Major crop production challenges include a lack of improved seed, low and declining soil fertility, problems of pests, disease and weeds, a lack of draft power and equipment and the high cost or lack of agricultural inputs for all enterprises. These problems are compounded by increasingly erratic rainfall, drought, floods and land degradation. Key informants in Africa RISING kebeles have also raised concerns about lack of crop storage facilities, post-harvest pest and disease problems, lack of knowledge about processing with little or no access to processing equipment; all compounded by low market prices, inadequate access roads and poor transport facilities. Livestock-related problems include feed shortages, parasites and diseases, poor access to veterinary services leading to high animal mortality rates, compounded by a the poor genetics of available animals and inadequate watering points in many areas. Marketing challenges include low prices, having to sell when prices are low and a general lack of market information.

Major trends in crop production across the four Regions are mixed with some increases in planted areas and productivity resulting from improved market access and consumer demand. This has been the case for wheat, lentil and some vegetable crops. However, other crops such as barley, inset and potatoes are decreasing in area and yield due to low prices or disease problems. A severe lack of grazing and available fodder is leading to a decline in numbers of most livestock species, although poultry production is increasing in some kebeles.

A limited number of research and development (R&D) agencies and kebele-based organizations (CBOs) were identified during our diagnostic studies. These are dominated by Government (kebele and woreda administrations), kebele cooperatives and unions and some more recent government development initiatives. A few non- governmental organizations (NGOs) are operating at a local level but there appears to be little influence of private organisations at community level. A number of CBOs including men's, women's, mixed gender and youth groups have been identified, some operating independently but many requiring on-going support and capacity building. This includes the recent government 1 : 5 initiative based on the formation of groups of five farmers each being "adopted" by a lead farmer.

## Specific Research Focus

The implementation of Africa RISING's research in the Ethiopian Highlands is focusing on seven major research themes:

- Feed and forage development;
- Field crop varietal selection and management;
- Integration of high value products into mixed farming systems;
- Improved land and water management for sustainability;
- Improving the efficiency of mixed farming systems through more effective crop-livestock integration;
- Cross-cutting problems and opportunities;
- Knowledge management, exchange and capacity development.

These research themes are further elaborated in the project's revolving [work plan](#). More detailed research protocols have been formulated by partners to address specific issues identified in the work plan.

## Expected Outcomes

By 2017, the project will have delivered the following:

- Knowledge and skills in farming communities will have been strengthened equitably, allowing all family members to benefit.
- We will see farmers operating systems that are 'sustainably intensified, that is, levels of production and productive efficiency have increased in ways that can be maintained both environmentally and economically over the longer term.
- Improved partnerships among farmers, support services and other value chain actors will have reduced uncertainties about market function; more reliable input supplies will support more resilient production that will ensure a more consistent profit from produce sold at market.

## Purpose of the review

The overall purpose of this review – commissioned after extensive diagnostic studies and two field seasons – is to assess the performance of the project in terms of its implementation against the PF and to provide recommendations, where necessary, on how to address significant deviations.

The review should include a consideration of progress towards achieving program objectives and the likely delivery against the outcomes specified in the PF. Important research areas that are not, in the opinion of the reviewers, being adequately addressed should be highlighted and the relevance of the partnerships formed (both for research implementation and scaling) should be critically examined. The current management structure at the project level (but in the context of program management) and the capacity of human resources to implement the project should also be reviewed. Any data gaps and data handling and sharing issues as well as the implications of these for effective monitoring and evaluation (particularly for generating evidence of contributions to development outcomes) should be highlighted.

It is anticipated that the review team's outputs will provide some practicable indications that will assist Africa RISING in the Ethiopian Highlands management and partners to improve the quality of the research conducted and its relevance to wider development outcomes.

## Specific Evaluation Questions

- What progress has been made towards the Africa RISING program objectives and outcomes?
- What can realistically be achieved within the given time frame?
- How relevant and feasible is the current research approach to achieving the three research outputs and the anticipated outcomes?
- What data gaps will compromise the scientific evidence of achievement for the three research outputs and the outcomes?
- What issues exist around data management and how can they be addressed?
- What research areas are missing or need to be strengthened?
- How adequate are the available human resources for the successful implementation of the project?
- What expertise needs to be strengthened or added?
- Are the current research and development partnerships adequate for a successful project?
- How effective are the collaborations, coordination, and working relationship among key partners?
- How relevant is the program and project management structure in terms of enhancing the implementation of the WA project?
- What lessons have key partners learned so far?

- How is the project contributing to the CGIAR's Humidtropics research program;
- How should the science be further developed as the project continues; potentially into a second phase?

#### Evaluation Approach

The approach will include but does not have to be limited to:

- **Document Reviews:** selected project documents held at the coordination office as well as materials assembled by partners (e.g., baseline data, research protocols, data analysis documents, etc.);
- **Key Informant Interviews:** Africa RISING researchers in the Ethiopian Highlands, Africa RISING management, selected Program Coordination Team (PCT) and Science Advisory Group (SAG), ILRI DDG-Research and DG's representative in Ethiopia, management of partner organisations, USAID staff in Washington, USAID mission staff in Ethiopia;
- **Focus Group Discussions:** with farmers engaged in the project and others at project sites, development agents and other change agents operating at site, innovation platform actors;
- **Stakeholder Analysis:** to determine the effectiveness of partnerships and institutional collaborations forged by the project;
- **Field visits:** to two project sites in the participating regions of the Ethiopian Highlands.

#### Composition of the Evaluation Team

The review team should consist of three acknowledged experts who, collectively, can cover the following issues as broadly as possible, preferably with some experience of the production systems of the Ethiopian Highlands:

- Mixed crop-livestock systems;
- Agronomy and cropping systems;
- Livestock production;
- Socio-economics, gender and value chains;
- Household agricultural production in a broader, natural resource management context;
- Managing multi-partner, agricultural research projects;
- Monitoring and evaluation of complex agricultural research projects.

#### Deliverables

The review team will submit the following deliverables:

- Short presentation of interim findings for the debriefing meeting;
- Draft report, of not more than 50 pages, detailing the findings of the review and recommendations for comment from the Africa RISING team;
- Final report of not more than 50 pages.

#### Timing of the Review

This is currently indicative and will be negotiable, to some extent, depending on the availability of the team.

- Document reviews: early March 2015 – 4 days;
- Key informant telephone interviews: early March 2015 – 1 day;
- Travel to Ethiopia to meet with further key informants and conduct field visits: late March 2015 – 10 days;



- Presentation of interim findings and debriefing meeting in Addis Ababa: early April after field visits – 2 days;
- Draft Report: by mid-April 2015 – 4 days;
- Final Report: by end April 2015, 2 days

## Annex 3: People met

Name	Organization	Position	Contacts
Peter Thorne	ILRI	Project Coordinator	<a href="mailto:p.thorne@cgiar.org">p.thorne@cgiar.org</a>
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Gabrehiwot Haile Mariam	CIP	IP Facilitator – community based seed multiplication, Tigray	
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Abiro Tigabie	Debre Birhan Agricultural Research Center		
Tsigemariam Bashe	Debre Birhan University		
Endale Lemma	Head, Basona Worena Woreda Office of Agriculture	Head, Basona Worena WoA	
Abiye Astatkie	Debre Birhan	Private entrepreneur	
Takele Tadesse	Sinana Agricultural Research Center (SARC)		
Ahmed Aliye	Madawalabu University (MWU)		
Suleyman Duri	Head, Sinana Woreda Office of Agriculture	Head, Sinana WoA	
Eyasu Abraha	TARI	Director General	
Gebrezgabher Aregawi	Zonal Office of Agriculture	Head, South Tigray ZoA	
Yohannes Horamo	Wachamo University	Instructor and agroforestry	
Ashenaif Yohannes	Wachamo University	Outreach, Water resource management. (Lemo IP facilitator)	
Hamid Jemal,	Woreda research center	Vet	
Lobe Haile	Lemo Agricultural Office	Animal science expert	
Tamrat Erjima	Lemo Agricultural Office	Agronomy expert	
Tefera Ergano	Lemo Agricultural Office	Natural Agricultural Resources	

Belaynech Osire	Lemo Agricultural Office	Plant science expert (IP chair)	
Girma Aba	Lemo Agricultural Office	Natural Resource Management	
Fikre Dare	Hadiya Zone Agricultural dept.		Natural Resources coordinator
Zerihun Yemataw	Areka Research Center	National Enset research coordinator	
Berket Zeleke	Areka Research Center	Center Director, Livestock Feed Resources	
Admasu Belayneh	SOS Sahel	Rural Development and Agric. Ext.	
Habtamu Hagos	Woreda Office of Agriculture (WoA)	IP member. Focal person for AGP.	
Abera Demsie	WoA	AGP, IP Member	
Melese Harifa	EIAR	Center Director, MRC, IP member	
Abreha Negash	Maichew Agricultural College	Research and Technology Head	
Yibrah Woldegiorgis	Agricultural College	IP Member	
Tesfay Hagos	TARI	M& E Champion	
Gebre Aregawi	Zonal Office of Agriculture	IP member	
Haftay Kahsay	REST-GRAD	Gender Champion	
Haile Mariam	EIAR – Mehoni research center	Member and researcher	
Atsbeha Yohanis Gebre/ezzihbher	Maichaw ATVET	MaTVET	
Jewe kibale project participating women and men farmers, kebele staff and development agents			
Upper Gana kebele project participating women and men farmers, kebele staff and development agents			
EmbaHasti kebele project participating women and men farmers, kebele staff and development agents			
Tsibet kebele project participating women and men farmers, kebele staff and development agents			

## Annex 4: Review Itinerary

Day	Activity
22 March 2015	Team arrives at Addis ILRI campus. Accommodation at Beshale Hotel (Sunday to Weds)
23 March	Am: Evaluation team meeting to finalise methodology Pm: Meeting with project CGIAR partners
24 March	Individual meetings with project CGIAR partners and Finance officer
25 March	Am: Travel to Lemo site (SNNPR region) Pm: Meet with local partners from Wachemo University, Areka and Worabe Regional Research Centers and Min of Agriculture, Lemo Woreda Office. Overnight at Lemma International Hotel, Hosanna.
26 March	Am: Visit to Upper Gana kebele to see on-farm action research. Pm: Visit to Jawe kebele to see on-farm action research.
27 March	Am: Return to Addis Ababa. Pm: Meetings with remaining project CGIAR partners
28 March	Review team meeting. Writing up
29 March	Am: Writing up Pm: Travel to Mekelle
30 March	Am: Travel to Maichew. Meet with local partners from Mekele University, Alamata Regional Research Centers and Min of Agriculture, Maichew Woreda Office. Pm: Visit to EmbaHasti to see on-farm action research.
31 March	Am: Visit to Tsibet to see on-farm action research. Pm: Travel back to Mekele to catch return flight to Addis Ababa.
1 April	Am: Prepare for workshop Pm: Half-day workshop with CGIAR and local project partners
2 April	Am: Evaluation team work to prepare initial presentation of preliminary recommendations. Pm: Wrap up meeting with AR team. Presentation of preliminary recommendations Team disperses.
20 April	Skype with IFPRI M& E team USAID

## Annex 5: Africa RISING 2015 budget breakdown

Activities	Quantity	Details	Allocation (USD)	Percentage
Trainings (site level)	20	Trainings for farmers, DAs and extension experts	10000	Less 1%
Trainings (Addis based)	5	Biometry and TOT trainings for researchers and instructors	50000	2%
Conferences/workshops (in country)	5	Workshop with decision makers of the national partners	100000	4%
Conferences/workshops (International)		Learning event, review and planning annual workshop	75000	3%
Mid-term review	1	Review project activities and management	50000	2%
Student attachments	15	10 MSc and 5 PhD students from local partners	70000	2.5%
Research fund for CGIAR + local partners		Allocation for action and exploratory type of research	600000	23%
Staff cost (ILRI)			500000	19%
Staff cost (Other centers)			960000	36%
Input purchases		Fertilizer, seed, water harvesting and lifting related and others	30000	1%
Spare parts for AR vehicles		Tyers, oil filters, air cleaners and others for 6 field vehicles	10000	Less 1%
Consultancy fees		studies that will support the current research activities	50000	2%
Gap filling for local partners		14 local partner institutions	100000	4%
Field days		Mid and end season evaluation of on-farm research activities	20000	Less 1%
IP meetings		12 woreda and kebele level meetings	30000	1%
<b>Total</b>			<b>2655000</b>	