Bringing evidence to bear on negotiating ecosystem service and livelihood trade-offs in sustainable agricultural intensification in Tanzania, Ethiopia and Zambia as part of the SAIRLA program

Addis Ababa, Ethiopia National SHARED Workshop, March 30th – 31st 2017 Workshop report

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The Sustainable Intensification of Agricultural Research and Learning in Africa (**SAIRLA**) Programme is a UK Department for International Development-funded initiative that seeks to address one of the most intractable problems facing small-holder farmers in Africa - how to engage in the market economy and to deliver sustainable intensification of agriculture, that is, which avoids negative impacts on the environment. SAIRLA will generate new evidence to help women and poor African smallholder farmers develop environmentally and financially sustainable enterprises and boost productivity. The research will focus non-exclusively on 6 countries (Burkina Faso, Ethiopia, Ghana, Malawi, Tanzania and Zambia), thus complementing other research efforts in these regions.

1. Official opening

Dr. Wubalem Tadesse, the Director General of the Ethiopian Environment and Forest Research Institute (EEFRI), officially opened the workshop. He provided some background to the workshop by outlining that the Sustainable Agricultural Intensification Research and Learning in Africa (SAIRLA) project is a five-year programme (2015 to 2020) funded by the UK Department of International Development. The project seeks to generate new evidence and design tools to enable governments, investors and other key actors to deliver more effective policies and investments in sustainable agricultural intensification (SAI) that strengthen the capacity of poorer farmers', especially women and youth, to access and benefit from SAI. SAIRLA has commissioned research and will facilitate multi-scale learning to understand different ways of achieving SAI and its developmental implications. In Ethiopia four research projects are being implemented and these are:

- Bringing evidence to bear on negotiating ecosystem service and livelihood trade-offs in sustainable agricultural intensification led by ICRAF
- Smallholder Risk Management Solutions (SRMS) Led by ICRISAT
- What works where for which farmer: combining lean data and crowd sourcing for household- specific targeting of agricultural advisory services Led by Bioversity International
- Research and Learning for Sustainable intensification of Smallholder Livestock Value Chains Led by Environment and Climate Research Center/ ECRC

Photo: Dr. Wubalem Tadesse, Director General of the EEFRI

Dr. Wubalem Tadesse informed the group that the overall objective of the ICRAF led SAIRLA project is to build interdisciplinary research programme, to increase the uptake of context appropriate SAI innovations in East and southern Africa through evidence generation, data analytics and the development of innovative tools for stakeholder engagement with evidence.

He said he was confident that the findings and results of these activities that are being implemented in Ethiopia will provide the added knowledge, technical knowhow and capabilities for Ethiopia dry land area to better conserve and manage land resources, as well as to ensure that proper land resource utilization is sustainable in the long term.

Finally, he thanked ICRAF Ethiopia office in particular, as well as the organizers for their excellent arrangements for holding the National Workshop and wished the group fruitful deliberation in bringing evidence to bear on negotiating ecosystem service and livelihood trade-offs in sustainable agricultural intensification in Ethiopia Project and for UK Department of International Development future support and funding.

2. Introductions and workshop objectives

Dr. Mamusha Lemma asked individuals from the national and local government, NGO's, research centers and the World Agroforestry Center (ICRAF) to introduce themselves (see Appendix 1 for the participants information). Expectations from the group were to learn and share information and to see how evidence can be used to support the community.

2.1. Workshop objectives and flow

Dr. Mamusha Lemma shared the workshop objectives with the group:

- Engage country stakeholders using the SHARED methodology to reflect on current Sustainable Agricultural Intensification (SAI)-relevant interventions, scaling mechanisms and indicators including evidence and gaps.
- Capture and discuss current and potential policy and investment decision making approaches to enhance scaling of SAI-relevant interventions in Ethiopia.
- Reflect on important tradeoffs themes and indicators for SAI interventions in Ethiopia.
- Discussion around the SAI Dashboard to be developed.

He also outlined the workshop agenda (see Appendix 2 for the full agenda).

Workshop flow
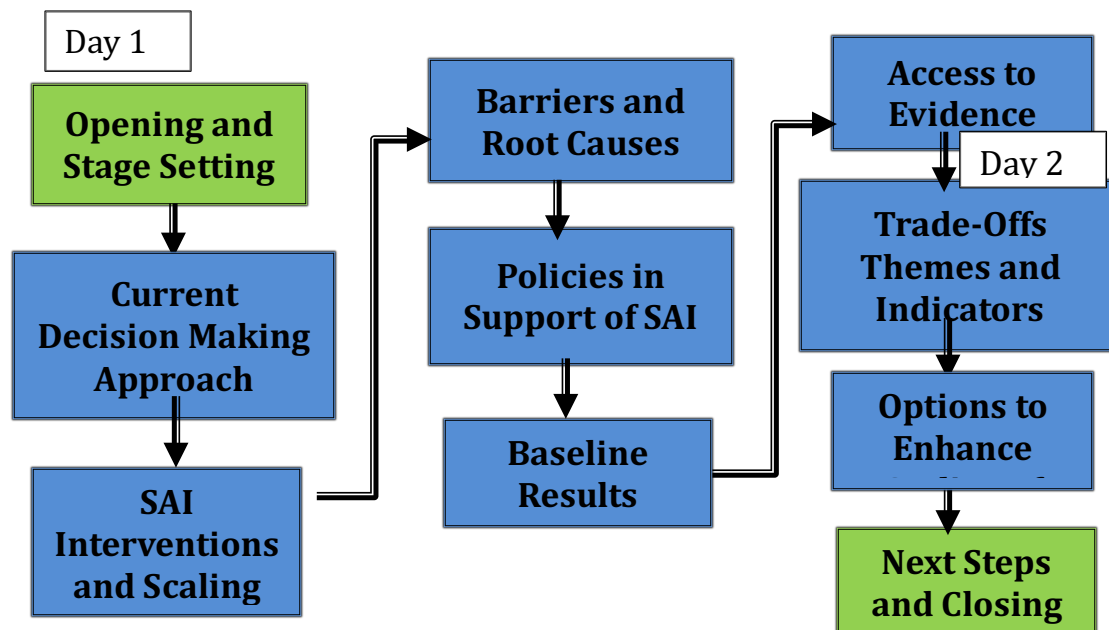
Figure 1: Workshop Flow – for Day 1 and Day 2.

House rules for the workshop
- Phones on silent or off
- No side talks
- Effective use of time
- Active participation expected from all participants
- Be punctual as much as possible and assign a time manager
- Attention and focus
- Respect others ideas and opinions
- Computers off
- Share experiences
- Avoid moving in and out in the middle of presentations

2.3. Introduction to the project

Dr. Mamusha introduced the project, including the aim, activities and conceptual framework. He outlined that in Ethiopia historically there was expansion into new lands but with greater populations of humans and livestock this is no longer possible. To feed the increasing population, now we need to intensify agricultural practices to increase production, this must be done sustainably.

The concept of SAI developed in response to the need for approaches that increase food production in response to the demand of a growing population while conserving critical ecosystem services. A key premise is that increased food production should not lead to encroachment into protected biodiversity hotspots.

The project aims to build an interdisciplinary research programme to increase the uptake of context-appropriate SAI innovations in East and southern Africa through evidence generation, data analytics and the development of innovative tools for stakeholder engagement with evidence.

He outlined the project is part of a larger programme: the Sustainable Agricultural Intensification Research and Learning in Africa (SAIRLA) funded by the UK Department for Integrated Development fund and managed by Wyg and University of Greenwich. The whole program has eight projects in six African Countries, four of which are in Ethiopia. In Ethiopia, this ICRAF led SAIRLA project is in Ziway.

Five major project activities:
1. Baseline assessment, including use of and existing evidence on the effectiveness of SAI
2. Engage stakeholder groups using the SHARED approach to reflect on SAI-relevant policies & interventions
3. Multi-scale, socio-ecological trade-off analysis conducted on promising SAI interventions and results communicated and assessed with stakeholders using the SHARED approach.
4. Facilitate piloting of promising, innovative SAI interventions, using mixed methods to assess their cost-effectiveness
5. Develop an interactive, open access platform—'SAI Dashboard'— for project action sites to support the engagement of decision makers to interact with evidence.
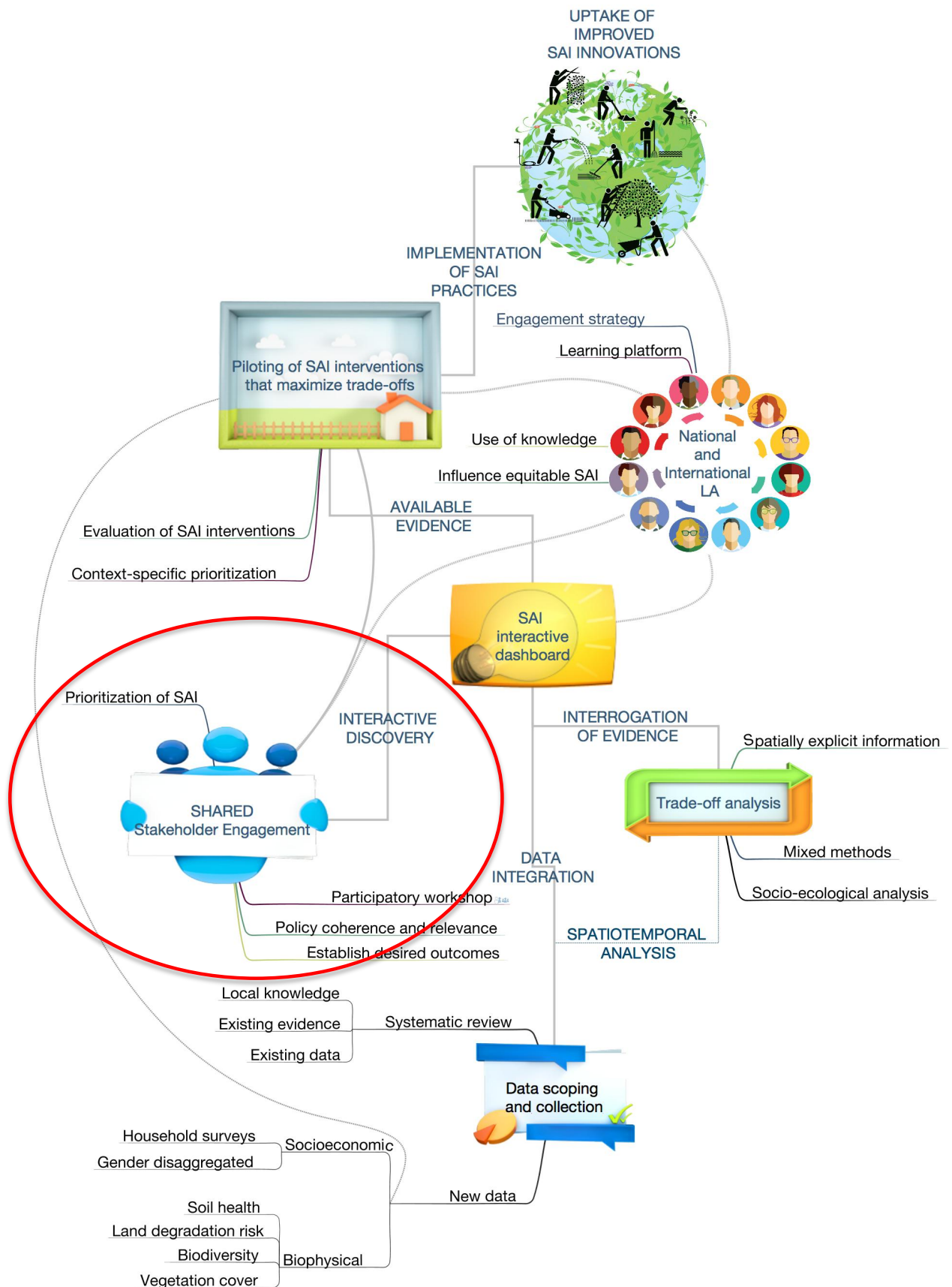
Figure 2: Conceptual Framework of the project with the Stakeholder Engagement segment highlighted.

Dr. Mamusha outlined that the project works across multiple scales:

- Incorporates spatially explicit analyses of indicators of land and soil health as well as human well-being across scales.
- Co-production of socio-ecological datasets will be used to conduct multi-scale trade-off analysis to inform and prioritize SAI interventions.

Project activities to date:
- Stakeholder workshop in Ziway, September 2016
    - Developed a Stakeholder Mapping Guide using SHARED approach
    - Gaps and opportunities for SAI at multiple scales (district, regional, national)
- Baseline survey and stakeholder mapping exercise, September-October 2016
- Participatory Farmer Identification of Prioritized SAI Practices and Indicators of Success in Ziway, February 2017
- Initial collation of appropriate data for socio-ecological trade-off analysis on SAI interventions, February 2017

2.3.   Gathering perspectives

Dr. Constance Neely asked participants to respond to a number of statements and move themselves to a place in the room, next to a card that reflects their view. This exercise aims to start the conversation on sustainable agricultural intensification among participants.
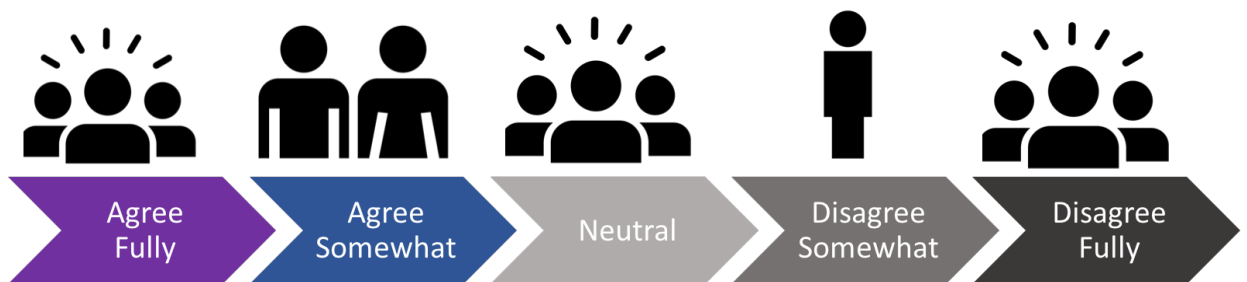
Figure 3: Illustration of the gathering perspective activity.

Statement One: Sustainable Agricultural Intensification (SAI) includes economic, social and environmental dimensions

Most participants agreed strongly with this statement. Some of the reasons were:
- As long as sustainable development is mentioned, all the elements are linked. For SAI all three elements (economic, social and environmental) are highly interrelated.
- From the perspective of the farmer, if the plot of land is not sustainably management the economic and social parts of his life will be destroyed.
- The word of SAI touches the value chain which has a lot of aspects including all the elements.

Photo: Dr. Neely asking participants their reason for strongly agreeing or agreeing with the first statement.

Some participants agreed:
- Agree with statement but need to add technology to the three elements.
- Sometimes cannot address all three elements so need to compromise between the three elements.
- Need to add the policy dimension and cultural issues to the three elements.

Statement Two: Sustainable Agricultural Intensification (SAI) is building upon what is already being practices in the country

In response to this statement, many participants moved to agree, neutral or disagree. Some of the explanations for disagreeing with the statement included:
- SAI is bringing a new approach as have been following a single type of intervention and SAI is moving to a complex approach.
- Not just building upon, need to enhance what was being practiced.

Neutral:
- Cannot bring something completely new but not necessarily building on something in the country.
- Not all SAI interventions are being practiced in the country already, there is a need to learn from others.

Agree:
- Sometimes our interventions fail as we do not build upon what people are practicing. The good entry point for our interventions is understanding what people are doing at the household level and then enhance or strengthen from there.
- Have to define 'building upon' indicates existing experience in the country. Doesn't mean we need to replicate the wrong experience but we need to look into the best experience. There are some practices but have issues with synergy and complementarity in the way we work.

Additional comment: Something in one part of the country that is working may not work in another part of the country.

Statement Three: Sustainable Agricultural Intensification (SAI) has not been adopted widely due to a lack of information and evidence

Participants had varied responses to this statement. For those that disagreed, some opinions are highlighted:

- Some information is there and the farmers know about the practices but they do not practice them due to reluctance to practice.
- There are cases in private investment, where environmental impact assessment cannot come into effect, for example flower farms.
- National level information is available but location specific information is missing. Policy information is there but implementation and enforcement issues remain as a challenge.

Neutral:
- There are other reasons for non-adoption, evidence may play a role.
- At woreda level, access to information is the issue rather than the presence of information.

Agree:
- There are various reasons including lack of access to information and evidence, this is however only one of the problems.

Agree fully:
- There is no evidence on what traditional practices (for example the use of fertilizers) are more effective under what conditions. The evidence is not available in local context and not easily accessible.

3. Stakeholder Approach to Risk Informed and Evidence Base Decision Making (SHARED)

Dr. Constance Neely introduced the SHARED methodology. The SHARED methodology is a tailored process that builds interaction between people and accessible evidence for decisions that yield sustainable impact.

Evidence is different knowledge systems including local and traditional knowledge as well as scientific data and results.

What is it?
- A demand driven engagement structure for co-learning and co-negotiation of actions to achieve mutually agreed upon development outcomes.
- The SHARED supports that decision-making must be inclusive, embrace complexity, inform risk and identify investment priorities through evidence and effectively track progress.
- The SHARED does so by convening and facilitating the integration of diverse knowledge systems, sectors and institutions.

Why do we need it?
- Complex and inter-related problems.
- Prioritizing investments will accelerate impacts.
- A structured process that focuses on co-learning and co-negotiation enhances agreement and ownership of actions to achieve long term outcomes.

PLANNING

Facilitate stakeholder discussions to understand decision-making context

Understand context, establish desired outcomes and engagement plan

Intended outputs:
• Desired development vision and outcomes
• Stakeholder engagement strategy
• Anticipated success indicators

Clarify actors and 'owners' of decisions and rationalize desired outcomes

Collectively identify context relevant indicators of development success

ORGANIZING

Gather evidence and identify applicable analysis tools

Gather, integrate and analyze evidence

Intended outputs:
• Generate evidence from data and experience
• Tailored tools for decision application
• Integration among knowledge sources

Utilize appropriate tools to generate trends, causal relationships, scenarios, risks and tradeoffs

Facilitate integration of evidence and knowledge domains

Embedded learning and capacity for the decision making cycle

Continuous evaluation and review

IMPLEMENTATION PRIORITIES

Integrate evidence and knowledge inputs

Interactive, collaborative learning and testing of decision options

Intended output:
• Interactive learning to allow for selection of decisions options towards desired outcome

Query knowledge sources and interpret evidence

Facilitate multi-way structured interaction to test options

MONITORING AND LEARNING

Create action plan and finalize implementation strategy – supporting information, resources and tools

Action plan, implementation strategy and accompanying support structure

Intended outputs:
• Implementation strategy to achieve decision outcomes
• Monitoring plan based on success indicators and strategy for rapid response

Agree on response plan for monitoring success indicators

Figure 4: Four interlinked phases of the SHARED methodology.

She also highlighted that in order to have resilient landscapes, we have to pay attention to those ecosystem functions that underlie and that and we need to pay attention to the managers of those ecosystems. The ecosystem function and the land managers underpin how we achieve our national and international targets and the SDGs.

Dr. Neely shared an example of Turkana County in Kenya and the development of the dashboard to enhance decision making. More information about SHARED can be accessed at: http://www.worldagroforestry.org/shared.

4. Process for developing policies and investment decisions related to SAI

The participants were asked to break into groups of National government, Regional (Zone, woreda) government and project based and think about the agriculture sector. Each group was asked to have a conversation based on their experience of policy development, planning or investment decisions and answer:
— How are objectives or goals decided?
— Who is involved the process?
— What evidence is used in your decision making process?
This exercise is to better understand and discuss processes of policy development.

Project based group response
Objectives and goals decided by:
— Need assessment to identify challenges and set of objectives and goals

- Conduct participatory needs assessment, based on groups to set objectives and goals
- Continuous field observations to identified challenges and set objectives and goals
- Annual/quarterly review meetings with stakeholders to identified challenges and set objectives and goals
- Desk review to set objectives

Those involved in the process:
- Project worker/staff
- Farmers/community/different groups
- Woreda, zonal government staff at different levels
- Federal ministries. Note: agreement with government, below 2 million sign with zone, above with region and then larger projects with the national level
- Researchers
- Development partner staff
- University representatives
- Donors
- Private sectors

Evidence use:
- Conducting community meeting analyse data and use the data as an evidence
- Observation from field visit
- On farm demonstration
- Secondary data (research, publications)
- Output from rapid assessment in the project areas
- Data from key informant interviews
- Government and priorities at national level – policies and strategies
- Media outputs
- Minutes from task forces
- Evidence from information sources (meteorology agencies)

Regional level (government) group response
Selected land certification issue as one policy issue

Objectives or goals are decided through:
- Participatory or consultative discussion at the different levels, problem identification of prioritization based on its severity.

Those involved in the process:
- District leaders and administrative leaders
- Technical experts
- Community leaders
- Community members
- NGOs

Evidence use:
- Presence of land resources (area etc)

– Population number
– Land tenure insecurity and other information around land including area
– Women involvement / empowerment

National level (government) group response

Photo: National level group discussing their policy formation process

Objectives or goals are decided through:
– Situation analysis and definition of problems (national priorities that are already set out)
– Suggestions of objectives, harmonizing with national strategies
– Align with the vision and mission (align policy problem with objective for the sector)

Those involved in the process:
– Sector ministries (mandated)
– Research institutes /academia entities national, regional and international
– Civil society
– Multi lateral and bilateral agencies
– Policy makers
– Public

Evidence use:
– Research outputs (international and national)
– Survey reports
– Public opinion through interviews
– Field observations
– Satellite data
Discussion point: Satellite data and population data for example can be difficult to access even if the data exists. Need for greater interaction to enhance access to evidence.

5. Sustainable Agricultural Intensification (SAI) interventions and scaling successes in Ethiopia

Participants were asked to identify successful interventions and projects in Ethiopia in order to identify key elements of success.

Case examples of SAI scaling in Ethiopia

Africa Rising example (ILRI, CYMMIT, ICRAF,)
Africa Rising is a five year program with three projects, working across five countries in Africa. In Ethiopia, most interventions are in the highlands with each region selecting two kebeles in each of four woredas for interventions. It is an action research project which included on-farm demonstrations of new technologies and best practice for crop, water, high value trees and livestock. The project is participatory and engages different government levels, farmers and researchers. The new phase of the project initiated in October 2016 and focuses on scaling out to new woreda's based on successes. Challenges were encountered around expectations and the organisation involved have different priorities so coordination can be challenging at time but the benefits are also there of working with multiple organisations and expertise.

Watershed management in Gundo Gundo
Worked in two kebeles and was successful in scaling up conservation through agroforestry and forestry plantations. Challenges were encountered with the steep topography which required more labour to complete the work. Additionally, community expectations were sometimes greater than the budget could deliver.
Comment: the project may have been successful in watershed protection but was it sustainable in the long term for livelihood benefits and the wider landscape. For example, when one watershed is protected, the community move to another watershed to access resources such as trees.

Conservation Agriculture with Trees (CAWT)
CAWT was introduced into two kebeles with 40 farmers selected. CAWT includes the integration of trees into the cropping field with the three conservation agriculture principles of minimum soil disturbance, crop rotation or intercropping and soil cover. Farmers faced many challenges in adopting the practice at first so field days and farmer-to-farmer approaches were used to enhance the practice of CAWT as farmers could see the benefits.

National program on institutional strengthening for forestry sector development led by MEF-CC
This project worked in three regions SNNP, Northern an Amhara in nine woredas. It is a results based program which also looks at job creation and livelihood diversification. Different meetings were held at multiple levels and implementation is taking place now. One challenge is that the program is something new to the community so people are suspicious.

SAI intervention options and preferences in Ziway
Hadia Seid presented the SAI intervention options that were identified in a district level workshop in Ziway and then prioritized through a participatory process by men and women from

the two different agro ecological zones in the district (Table 1) Some of the prioritized options will be supported through on-farm testing.

Photo: Hadia Seid (ICRAF) presenting the SAI intervention options that were identified and prioritized at district and local levels in Ziway.

Table 1: SAI intervention options identified and prioritized in Ziway

SAI intervention options from District level	Priority SAI practices at local level for men and women from two agro ecological zones			
	Women in moist lowland	Men in moist lowland	Women in dry lowland	Men in dry lowland
Soil and water conservation (on-farm)	√	√	√	
Area enclosure for communal lands			√	
Seed/seedling production		√ (seed multiplication)	√ (tree seedling)	√ (seedling)
Compost preparation and application		√	√	√
Crop diversification		√		√
Intercropping	√			√
Crop rotation				√
Afforestation / reforestation	√			
Inorganic fertilizer	√		√	
Home garden agroforestry	√	√	√	√
On farm agroforestry	√	√	√	

The participants then broke into three groups. One group looked at the interventions and added other that were relevant to Ethiopia as well as identifying national priorities, another group discussed scaling mechanisms and the third group looked at indicators for successful scaling.

SAI option additions and national priorities

The group added to the SAI intervention options from Ziway, grouped the interventions into crop, natural resource management (NRM) and livestock and identified the national government priorities with a P.

Crop
— integrated crop management (intercropping, rotation, diversification)
— crop residue
— bio-fertiliser (P) (used for legumes and is becoming a priority)
— mechanisation for small scale farmers (P)
— post-harvest (P)

NRM
— vermi-compost preparation (wheat, legume straw but coffee husk the best – farmers also sell worms)
— rangeland management
— water harvesting integrated with drip irrigation (P)
— ecosystem restoration (P)
— soil and water conservation on-farm (P)
— integrated soil fertility management (P)
— seed production (P)

Livestock
— bee keeping
— other livestock practice
— rangeland management
— poultry
— sheep and goat
— genetic intensification (P)
— feed and forage (P)

Discussion point: Many of these practices are implemented individually by a government sector but there is potential to bundle interventions such as forage and bee keeping.

The SAI interventions were ranked by participants with each person listing the top three they believe would be successful or more likely to be adopted, based on their personal experience and expertise. The results are outlined in Table 2 with the most popular options listed first.

SAI intervention options	Number of participants that listed it
Homegarden agroforestry	5
Soil and water conservation	5
Agroforestry (general)	3
Area enclosure	2
Water harvesting with drip irrigation	2
Intercropping	2
On-farm agroforestry	1
Tree plantation establishment	1
Sheep and goat production	1
Compost	1
Crop diversification	1
Livestock	1
Rangeland	1
HVT seedling production techniques	1
Seed production	1
Crop rotation	1
Crop diversification	1
Small-scale mechanisation	1
Post-harvest management	1
Inorganic fertilizer	1
Fattening and fodder crop production	1
Water harvesting	1
Integrated soil fertility management	1

Mechanisms for scaling SAI

National
- Policy dialogue
- Documentation and dissemination
- Media engagement
- Technology packages
- Agricultural information system
- Stakeholder engagement
- Training packages

Sub-national
- Unions / cooperatives
- The media
- Field days
- Micro-finance
- Research reviews
- Multi-stakeholder platforms

Local
- Field days
- Exchange visits
- Rural institutions
- Linkage facilitation
- Incentive mechanisms
- The media
- Farmer research extension groups
- Model farmer dissemination
- Farmer training centre
- Agri-business agents
- Community empowerment

Discussion points: the gender dimension of these scaling mechanisms should be considered. One participant added that for capacity development and awareness creation can use training of trainers and general training while for technology dissemination use: demonstrations, field days, media events, SMS, scaling up best bet technologies, manuals and materials in local language

Indicators of successful SAI scaling
Short term:
- Number of households using SAI
- Change in yield / productivity
- Reduction of water and soil loss (degradation)
- Efficient utilization (management) of natural resources (soil, water, land) – how to measure? (reduction of land degradation)
- Change in skill, attitude of user – how to measure?

Long term:
- Life style change / livelihood improvement
- Policy and strategy change / alignment
- Ecosystem resilience
- Land cover change
- Behaviour change

Comments:
- *Measure the trends as an indicator being measured at one point in time could give the wrong information*
- *Mid and short term could be quantitative and long term qualitative*
- *Need to get clear on the indicators (and specific – no generalisation) and also how do we know when things are not working*
- *Indicators must be measurable (more important in the short term?) mention how the indicators will be measured*
- *Indicators have to be measurable and SMART, if we miss something on the indicators we are messed up further down the road,*
- *Critical area for discussion and this exercise is just a starting point*

6. Root cause analysis of key barriers to scaling SAI practices

Participants worked in groups to identify barriers to scaling SAI and then the root causes of these barriers as outlined below.

Barriers
- Capacity limitation (coordination, implementation, monitoring and learning)
- Resource limitation (incapacity to raise resource) / mobilisation
- Lack of ownership and commitments by institutions
- Tendency to follow campaign based approach
- Lack of coordination among players
- Complexity
- Household economy
- Lack of awareness
- Variation in rate of adoption
- Economic push factors not to accept SAI
- Reluctance on practicing new technologies / practices
- Short term planning behaviour instead of long term (in search of immediate results)
- Affordability at the level of the farmer (economic)
- Lack of access to technologies
- Knowledge gap
- Cultural barriers
- Search for immediate results (NR technologies – farmers need immediate results)
- Poor institutions and lack of systematic capacity
- Technology complexity
- Economy of the farmer
- Lack of awareness by the farmers of the technology
- Variation in adoption rates

Root cause mapping
Each group to choose one of the barriers to unpack, considering the cause of each element.

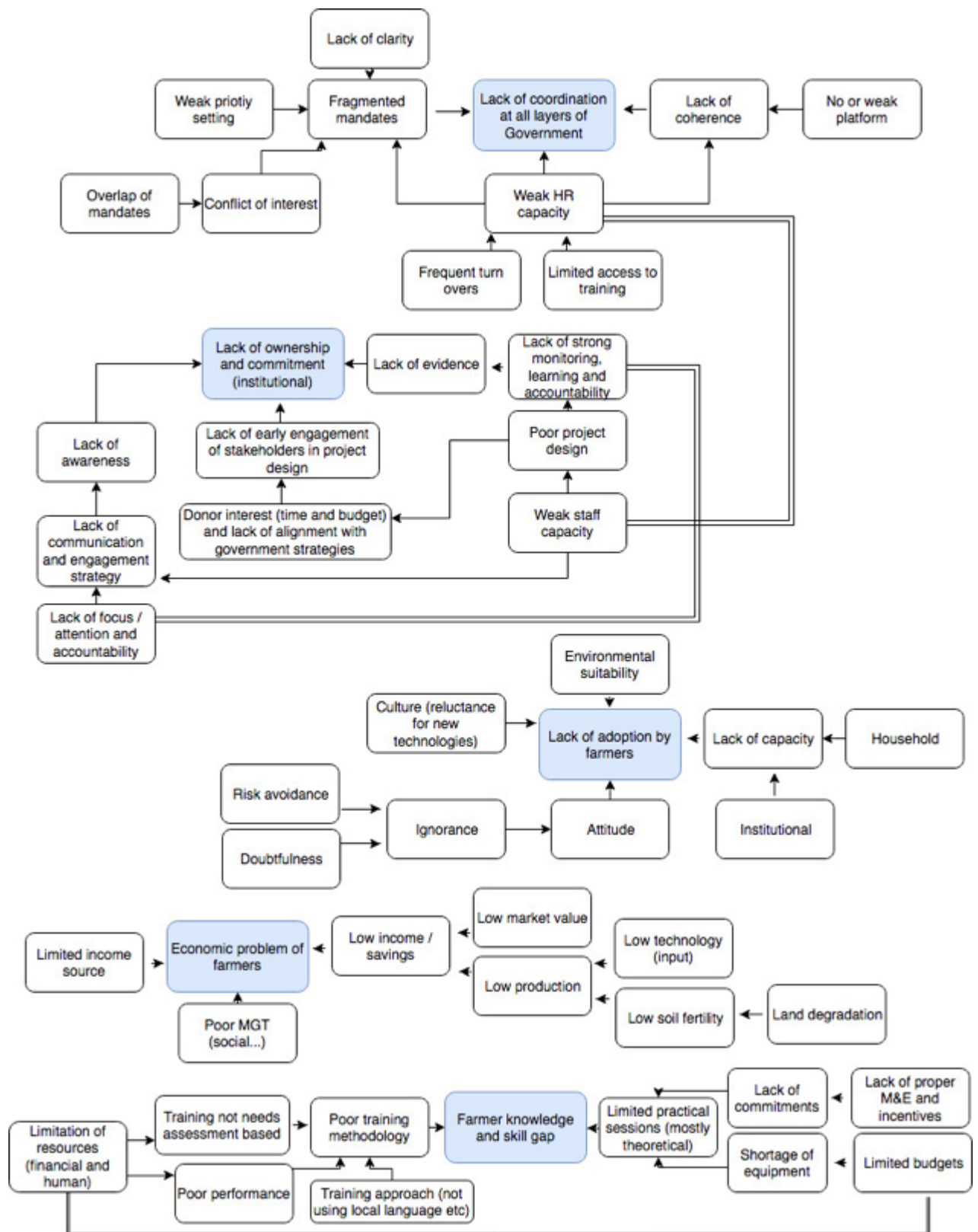**Photo: Participant describing his groups root cause map.**

Figure 5: The root cause maps developed by four groups. The barrier being considered is shaded and the root causes indicated. Similar root causes within and across groups are shown by double lines.

7. Policies in support of scaling SAI

Participants were asked if scaling SAI contribute to national or international commitments or targets and they agreed that the answer was yes. The targets that would be advanced through SAI scaling were outlined as:

– Poverty reduction target (livelihood options)
– Sustainability
– Food security
– Nutrition security
– Economic development
– AFR100, Bonn challenge, degradation neutrality
– Biodiversity (Aiche)
– Climate change – mitigation targets INDC's, adaptation

Some of the policies and strategies relevant to SAI scaling in Ethiopia were outlined by Mieke Bourne and are shown in Table 3.

Table 3: Elements of the legal and policy framework for scaling SAI in Ethiopia.

Sector	Approach/ Main provisions	Legal and Policy framework
Agricultural growth and food security	-Government driven -Agriculture is a major economic driver -Focused on smallholder farmers -Moving towards commercialization and market orientation	- The Agricultural Development Led Industrialization (ADLI) strategy -Agricultural Sector Policy and Investment Framework -Growth and Transformation Plan -National Food Security Strategy and the National Food Security Program -Regions have five year growth and transformation plans -Ethiopian Commodity Exchange proclamation
Environment	Legislation and policies mostly formulated at federal level but moves to create regional agencies and environmental conservation strategies.	-National Conservation Strategy -Environmental Policies on biodiversity, impact assessment and forest conservation -Climate Resilient Green Economy strategy
Water resource management	-Policy and legal framework support integrated water resource management. -Water is management by a number of institutions using an integrated watershed management approach -Focus on hydropower, irrigation growth and improving access to drinking water	-Water sector policy, strategy and program -Integrated River Basin Development Master Plans -Irrigation Development Policy -Small-scale irrigation capacity building strategy
Rural economy (market and finance)	Focus on cooperatives, micro and small enterprises (MSEs) and inputs -Micro and community based financial services	-Agricultural Cooperative Sector Development Strategy -Policies on MSEs and cooperatives -Agricultural input strategies -Ethiopian Commodity Exchange proclamation -Microfinance Act -Micro-Financing Business

Participants were then asked if any significant policies were missing from the table, the following were mentioned:

- Growth and Transformation Plan 2016-2020 replaces the GTP1 and considers the incorporation of different sectors, which GTP1 did not do.
- Forest Policies
- Energy Policy under development
- Biomass energy strategy (BES)
- AGP 2 Agricultural growth program
- REDD+ program
- Forest Sector Development Program (almost starting and considering tenure)
- Productive Safety Net Program 2
- Pastoral Ministry – policy under development regarding Pastoralism
- Green Growth Development Strategy
- Dryland grazing policy (zero grazing) is currently under discussion

Participants were also asked if there were any gaps in these policies to achieve sufficient scaling of SAI by addressing root causes and if there was any incoherence between policies. The following comments were made:

- We have these policies but they do need to be revised to keep them up to date Institutional gaps may exist in implementation. The policies are there, but there are institutional bottlenecks.
- People at the national level may be aware of these policies, at zonal or district level there may not be knowledge of these
- Policies are sufficient but cascading these policies has some problems of awareness and technical capacity at the lower levels. Policies may be excellent or good, coordination is not visible at the lower level.
- The feedback mechanisms may be challenging to get input from the local level.
- Some gaps exist in supporting foreign investment, a lack of incentives for private sector engagement.
- For charcoal making, it is illegal in the policy but charcoal is being produced, so a disconnect between policy and reality.
- Implementation capacity is a huge gap.
- Policies and strategies are smart but the legal enforcement to implement may be lacking.
- To implement policies, need to have enabling conditions such as finance, support capacity, information and facilitation.
- Challenge with different government levels for implementation. In some cases, the national government interferes in regional situations. In other cases, the zone can override the region.
- Greater synergy between sector policies is possible through linking to the SDGs. GTP 2 for example is more cross-sectoral than GTP1.
- For land use and forestry policies there is an incoherence, this also exists with agricultural and pastoral policies and between agriculture and forestry (such as commercial agricultural investment in forest lands). Need for more in policy change or improvement on policy trade-offs between sectors.

8. Baseline data and stakeholder maps: Feedback

Mieke Bourne presented the project baseline data on access and use of SAI evidence as well as stakeholder maps (see Appendix 3 for full results). Some comments and discussion following the presentation included:

– The private sector is present but there are not many actors and they are generally disconnected from the rest of the stakeholder network.
– At the local level CBOs and farmer groups are important actors that are not captured in the stakeholder maps.
– While stakeholders may access and use evidence on SAI the accuracy and quality of the evidence may be poor.
– A dashboard to collect and interpret information is needed.
– All people interviewed were in a position to have access to evidence and other stakeholders with evidence.

If I do not internalize the information. We need to hear things multiple times to internalize.

Some take hope messages from Day 1 were:
– Be realistic about scaling up.
– There are key players, different actors and experiences that we need to be aware of and make use of them.
– Additional practices for SAI.
– Indicators provided some new information.
– Good lesson to discuss and making a decision. It was productive to come together and broadening our way of looking at things.
– Importance of incentives.
– For any technology, understand the barriers from the adaptors point of view is important.

9. The SAI Interactive Dashboard

Constance Neely outlined that an open-source SAI interactive dashboard will be developed for Ziway to allow users to interact with data in a meaningful way:

• as a data-driven platform
• to integrate existing and new data and
• to provide robust data management and graphical tools

The dashboard will contain both social and ecological datasets and it will use a combination of both spatial (maps) and non-spatial data analytics and graphics.

She ran through some elements of a dashboard created for Turkana County in Kenya. See https://prezi.com/ke-myjnuet3a for more information or access the dashboard at: http://landscapeportal.org/sharedApp/

Data already available for Ziway includes:
• Reports on Evergreen Agriculture in Ethiopia under the Trees for Food Security project
• Spatial distribution pattern and diversity of farmland tree species in semi-arid East Shewa
• Local Knowledge of Farmers on Farm Tree Management, East Shewa Zone, Ethiopia
• Assessment of tree seedling nurseries for a climate smart agriculture in selected districts of Oromia state

- The agricultural extension system in Ethiopia: A focus on East Shewa, West Shewa and East Wollega zones
- Household survey data from the Trees for Food Security project.

It was outlined that data on gender, social inclusion and equity and trade-offs was limited for Ziway.

Participants were asked what additional data would be most valuable to have included in a dashboard specific to Ziway and a number of data sources were identified (Table 4).

Table 4: Available data for Ziway relevant to SAI.

Type of data	Scale of data	Who has it
Baseline study on livestock and irrigation	District / PA	ILRI Lives project
Zeway – Shalla subcatchment watershed project	Adame-tulu- woreda watershed	Rift Valley sub-basin project Adame tulu agricultural office
Homegarden agroforestry	District	Adame tulu research center
SWC Research and NRM and Irrigation	District	ATRC Adame tulu research center
SNV Horticulture project	District (Meki and Zewaye)	SNV and Adame tulu agricultural office
Livestock, Poultry and Trees	District	ATRC, Adame Tulu research center
Small scale irrigation and on farm SWC and mechanization	District	IDE, International DVT enterprises
Gender and social equity, small scale irrigation	District and Comm level	Rift Valley Womens Development Association
Education	District	FH, ADRA (Adventist development and relief agency) food for hunger
Emergency seed, participatory variety selection	District	CIMMYT
Intercropping	District	ICRISAT
Organizing women groups	District	IDE
Land health	Agricultural inputs/chemicals at farm level	Research institutions and University MEFCC
Human population data	Woreda	Woreda administration
Meteorology	Agroecology / woreda	MET agency
Market information	Woreda	Cooperative and marketing office in the woreda
Credit facilities	Woreda	Microfinance institutions
Fisheries	Woreda	Woreda Agricultural office

Participants were also asked if there were other dashboards in Ethiopia that they were familiar with. In general, there were few examples:
- Have an example of one that is used for project management
- There is a database in the ministries regarding education, health, nutrition etc.
- Digital green - http://www.digitalgreen.org/ works in the country.

A number of participants said they would like to be involved in the dashboard development and outlined their area of interest and preferred method of communication (Table 5).

Table 5 Names, area of interest and preferred communication method for participants interested in being engaged in the dashboard development process.

Name	Area of interest	Preferred communication method
Regassa Terefe	CA / Agroforestry	Email
Tiruneh G/giorgis	Food security, credit facilities, market infrastructure, land health, livelihoods	Email, online training, skype
Merga Diyessa	Spatial data analysis	Email
Getachew Mekuriya	Integrated watershed management	Email, online training
Hadia Seid	Soil health, agroforestry, nutrition	Email or skype
Mesfin Tsegaye	Land health, soil	Email
Sofiya Kassa	Soil health	Email
Abate Taye	Small-scale mechanisation	Email
Miheretu Fufa	Agricultural research	Email
Hussien Uregesa	Soil and water conservation	Phone
Mamusha Lemma	Gender, inclusiveness	Email, skype, online training

Walter Mupangwa from CIMMYT, Simret Yassabu from ILRI/NLA and Abedeta Debela from MEFCC were not present for the exercise but indicated an interest in being engaged.

10. Trade-off Analysis

Constance Neely outlined that:
- The concept of SAI, which aims to increase agricultural production in an environmentally sustainable way, implicitly involves trade-offs.
- Understanding the social, economic and environmental trade-offs of SAI is inherently complex, especially across diverse agro-ecological landscapes and over time
- Focus on spatially explicit interdisciplinary trade-off assessments - incorporate space and time elements as well as interdisciplinary datasets, including gender preferences and equity, to conduct socio-ecological trade-off analysis.

The tentative themes and indicators for the SAI trade-off analysis were shared with participants, Figure 4, and feedback was requested.

Tentative Themes for the Trade-off Analysis and Associated Indicators from the Datasets

Food Security
- Ability to produce food for the family
- Ability to supplement farm production with off-farm income

Agricultural Productivity
- Yield
- Inputs
- Labour

Income
- assets

Social Equality
- Stakeholder connectedness
- inclusion of gender - disaggregation (men, women and youth)
- Labour requirements from men, women youth
- Farming system preferences
- Access to information
- Capacity development

Land Health
- Soil organic carbon (SOC)
- Soil erosion prevalence
- Soil fertility (Nitrogen, Base Cations, etc)

Figure 6: Tentative themes and indicators for SAI trade-off analysis.

Comments on these themes and criteria:
- Under land health add vegetative cover and data on chemicals (agricultural inputs)
- Market aspect should be included under productivity or income
- Income should include cash as well as assets
- Add a theme on water resources with indicator such as groundwater table, water contamination, risk of flood or drought, landslides (extreme erosion events)
- Access to credit could come under social equity
- Under food security should add nutrition

11. Options framework for scaling SAI

Participants were asked to identify intervention options to address the barriers to scaling SAI and associated root causes.

Photo: One group discussing intervention option.

The intervention options were then presented by each group as outlined in Table 6.

Table 6: Intervention options to address barriers and root causes.

Barrier or root cause being addressed	Intervention option	Who has to work together to carry this out?	What would be the indicator that this option was successful?	What information would be needed to monitor for success?
Land degradation	Soil and water conservation Crop diversification Conservation Ag	Farmers Development agents and agricultural officers (government) Researchers NGOs Private sector	Number of farmers using the technology Production increase Areas coverage increase	Trend analysis Yield data Number of technology users
Lack of access to improved technologies	Availing improved technologies Credit facility Awareness creation and training	Farmer Agricultural offices Researchers Micro-finance NGOs Private sector	Number of technologies developed / demonstrated Number of farmers (adopters)	Trend analysis Type/number of techniques practiced
Knowledge and skill gap of the farmers	Training Experience sharing	Farmers Researchers NGOs DAs Agricultural officers	Number of trainings Type of training Number of users of the technique/skill	Assessment through interview and questionnaires Change in skill (difficult to measure)
Knowledge gap/skills for smallholder farmers (group 2)	Training Workshop Visit Provision of guidelines	Experts in mandated offices Model farmers DAs NGOs Research and academic	Increase in practice of SAI	Number HH practicing Type of SAI practiced Increase in productivity and yield Change in restored area
Economic problem of smallholder farmers	Provision of credit service Payment for ecosystem services and payments to farmers (PSNP – people paid for amount working)	Financial enterprises Local government Local NGOs Informal institutions	Increase in practice of SAI Increase in income	Same as above as well as: Livelihood diversification Children going to school

Lack of coordination	Institutionalising the scaling up system Follow up on how scaling up is going on	Mandated offices Higher officials NGOs Research / academia Public Platforms such as the SAIRLA NLA	Provision of the technology will be timely Information flow	Practice of SAI Satisfaction of the group for how successfully it was coordinated Realising the work done
Lack of coordination among sectors (many sectors working on same issue but don't know each other)	Platform and networking needed (could be established by government or NGOS – NLA could play a role) Degradation of duties (dashboard could assist)	Government sectors NGOs Private and public sectors Target beneficiaries	Number of participating sectors Number of issues raised and decision making Satisfaction of beneficiaries	Minutes from the meeting Reports or outputs (research etc.) Field visit observation Feedback from beneficiaries
Quality and quantity of farm inputs	Value chain Private service Credit facility Incentives Infrastructure	Farmers and farmer cooperative units MFI Private service providers Government NGOs	Margin increase by farmers Increase in productivity (from inputs) Access to inputs, credit, infrastructure	Reports and beneficiary feedback Field visit observation (reports)

12. Next Steps, Evaluation and Close

Dr. Mamusha presented the next steps for the project:
- Trade-off analysis into the dashboard
- By end of year, first form of the dashboard
- Demonstrations and interventions of community prioritized practices in Ziway
- Communications among those involved in the dashboard development

He outlined that following the workshop the organizers will share the report to all who have provided an email address within 2 weeks.

Dr. Mamusha then asked each participant to express what their next step will be, following the workshop:
- Brief my institution about SAI and dig more about other experiences in SAI as well as link more with the organizers
- Provide a quick brief for the staff to work on SAI
- Sharing knowledge obtained with colleagues
- I learnt the need for depth planning before implementation of SAI scaling up
- Sharing the knowledge on SAI with researchers and starting SAI at our center
- Sharing the knowledge that I have gained through this workshop

- Use the information I obtained from this workshop as an input to our projects
- Share will colleagues the idea of assessing barriers and options for solving barriers
- Adopt the SHARED methodology, especially the dashboards to my organisation and support SAI in producing additional spatial data
- I will share this initiate with my organisation and incorporate in my program on payments for ecosystem services. Create awareness on SAI and share ideas with other colleagues / researchers
- Share all information to the AgNRM program in my organisation and use all the information for the new project related to SAI
- I will identify the success we made on SAI and share the objectives of IC RAF project on SAI and take it as one of the main agendas by our organisation

Workshop evaluation

Each participant was asked to share, on a card, their rating score from 1 (lowest) to 5 (highest) for each of these categories:
- Content
- Objectives
- Facilitation
- Time Management
- Representatives and participation
- Logistics

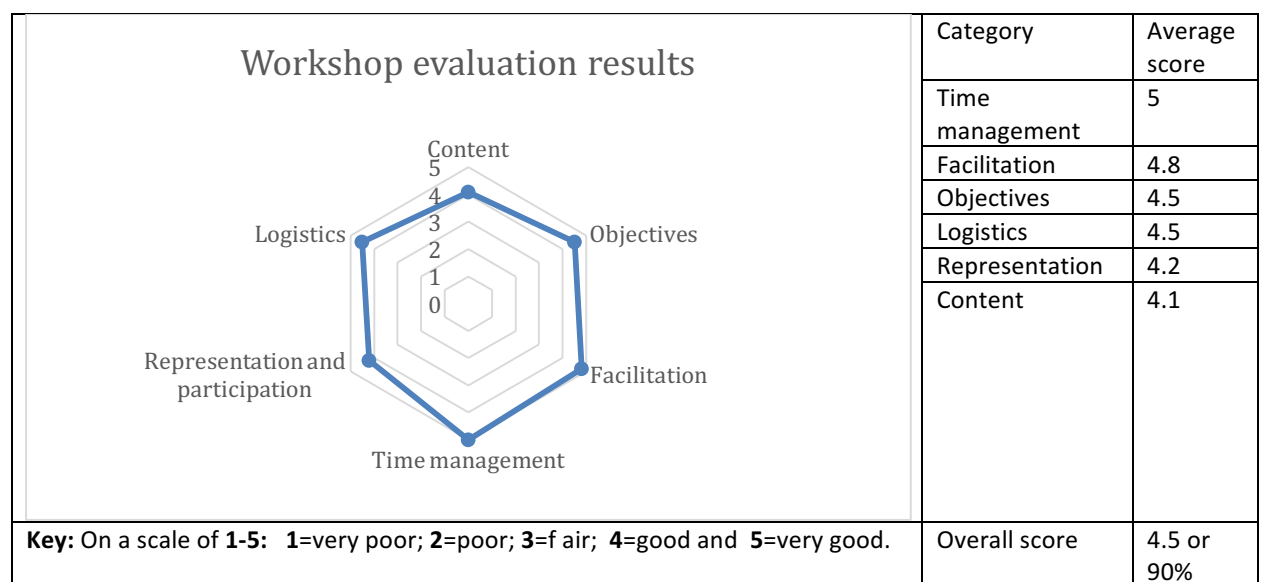The outcome of this evaluation are shown in Figure 5.

Category	Average score
Time management	5
Facilitation	4.8
Objectives	4.5
Logistics	4.5
Representation	4.2
Content	4.1
Key: On a scale of **1-5:** **1**=very poor; **2**=poor; **3**=f air; **4**=good and **5**=very good.	Overall score: 4.5 or 90%

Figure 7: Workshop evaluation results.

Closing remarks

Finally, closing remarks made by Dr Sofia Kassa (EIAR) were that the ICRAF led SAIRLA project will contribute a lot in terms of sustainable agriculture intensification for the country and smallholder farmers. In this national workshop we learnt a lot of information and knowledge on SAI. She appreciated active participation of stakeholders and encouraged they keep working together.

Appendices

Appendix 1 Participant list

No	Name	Gender	Organization	E mail	Mobile No.
1	Regassa Terefe	M	Oromiya Agriculture Research Institute	regassaterefe@gmail.com	0913258163
2	Hussien Uregesa	M	Adamitulu (Ziway) woreda Agriculture office	-	0910382783
3	Walter Mupangwa	M	CIMMYT	w.mupangwa@cgiar.org	0929283971
4	Miheretu Fufa	M	Adamitulu Agriculture research center (OARI)	miheretufufa@gmail.com	0911530715
5	Merga Diyessa	M	Farm Africa	merga2840@yahoo.com	0911716519
6	Abate Taye	M	International Development Enterprise / IDE	ataye@ideglobal.org	0911053431
7	Getachew Mekuriya	M	Agriculture Transformation Agency /ATA	getme.miltoni@gmail.com	0912048741
8	Tiruneh G/giorgis	M	CRS	tiruneh.gebregiorgis@crs.org	0911938922
9	Wubalem Tadesse	M	Ethiopia Environment and forest research Institute (EEFRI)	wubalem16@gmail.com	0912132303
10	Mamusha Lemma	M	ILRI	mamusha.lemma@gmail.com	0913060302
11	Simret Yassabu	F	ILRI - NLA facilitator	s.yassabu@cgiar.com	0911662511
12	Abedeta Debela	M	Ministry of Environment, Forest and climate change / MEFCC	obsand@gmail.com	0915700200
13	Wondossen G/Tsadik	M	CEE FRC	wondi27@gmail.com	0912845073
14	Yishak soboka	M	Ministry of water irrigation and electricity	yesboka@yahoo.com	0911955889
15	Abeje Eshete	M	CEE FRC center manger	abejaye@gmail.com	0911762494
16	Sofiya Kassa	F	Ethiopian institute of Agriculture Research /EIAR	Sofkassa28@gmail.com	0911987173
17	Diriba Nigusse	M	CEE FRC	d.debele@gmail.com	0911162899
18	Rabe Yahaya	M	CIMMYT	r.yahaya@cgiar.org	0966701601
19	Mesfin Tsegaye	M	MEFCC	mesfintsegaye@yahoo.com	0911956431
20	Hadia Seid	F	ICRAF	Hadi03seid@yahoo.com	0913293250

Appendix 2 Agenda

Time	Day 1	Responsible persons
08.30-09.00	Registration	Mekdes Sime
09.00-10.30	o Opening o Introductions & objectives, Introduction to the project and SAIRLA o Gathering perspectives on Sustainable Agricultural Intensification o Introduction to the SHARED methodology	Dr. Wubalem Tadesse Dr. Mamusha Lemma Dr. Constance Neely
	Tea/coffee Break	Organizers
11.00-12.00	o Current policy development and investment decision making approach for SAI in Ethiopia	Dr. Constance Neely Dr. Mamusha Lemma Hadia Seid Mieke Bourne
12.00-13.00	o SAI scaling successes in Ethiopia o National priorities for SAI interventions, scaling mechanisms and indicators (reflecting on inputs from Ziway)	Facilitators and participants
	Lunch	Organizers
14.00-15.15	o Key barriers to SAI scaling and the root causes of these barriers	Facilitators and participants
	Tea/coffee Break	Organizers
15.30-16.15	o Policies in support of scaling SAI and national and international targets	Facilitators and participants
16.15-16.45	o Presentation on the baseline results for evidence access, use and stakeholder networks	Mieke Bourne
16.45-17.30	o Opportunities to enhance access to and ownership of evidence for decision makers, a SAI dashboard for Ziway o Close of day 1	Facilitators and participants
Day 2		
09.00-09.15	o Recap day 1	Facilitators and participants
09.15-10.00	o Trade-off analysis themes and indicators	
	Tea/coffee Break	Organizers
10.30-12.00	o Intervention options to promote scaling of SAI	Facilitators and participants
12.00-12.30	o Next steps and close	TBD
	Lunch	

Appendix 3 Baseline results

Stakeholder Characteristics

Figure 1 presents basic characteristics of the 124 SAI stakeholders that were identified and interviewed in each of the three participating countries. Unfortunately, only 19% are women. In addition, nearly 60% of those interviewed are considered to hold significant decision-making power, i.e. they (a) work for government institutions and organizations that set SAI relevant policy and/or design and/or manage SAI-relevant programmes/projects/ interventions; and (b) occupy senior decision-making and management positions in these organizations. Finally, about one-third of the SAI stakeholders hail from each of the three participating countries.

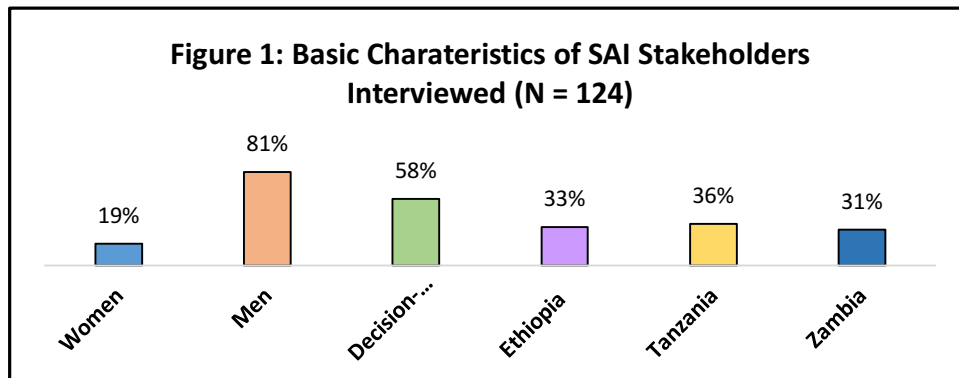**Figure 1: Basic Charateristics of SAI Stakeholders Interviewed (N = 124)**

Figure 2 presents the types of organizations the interviewed SAI stakeholders work for. As would be expected, nearly half are from government institutions, while 18% are from NGOs. Of particular concern is that there is less representation from the private sector and farmers organizations, something that the country project teams will work to rectify in the coming months.
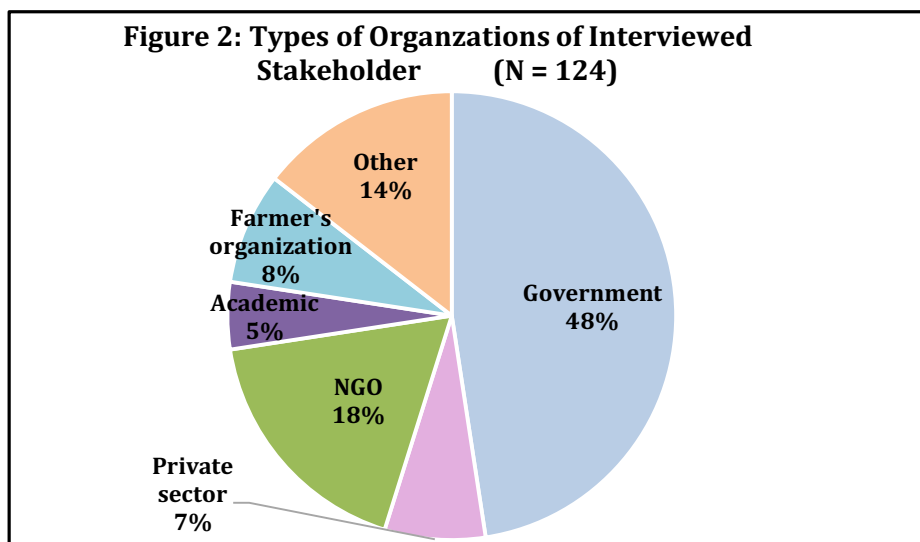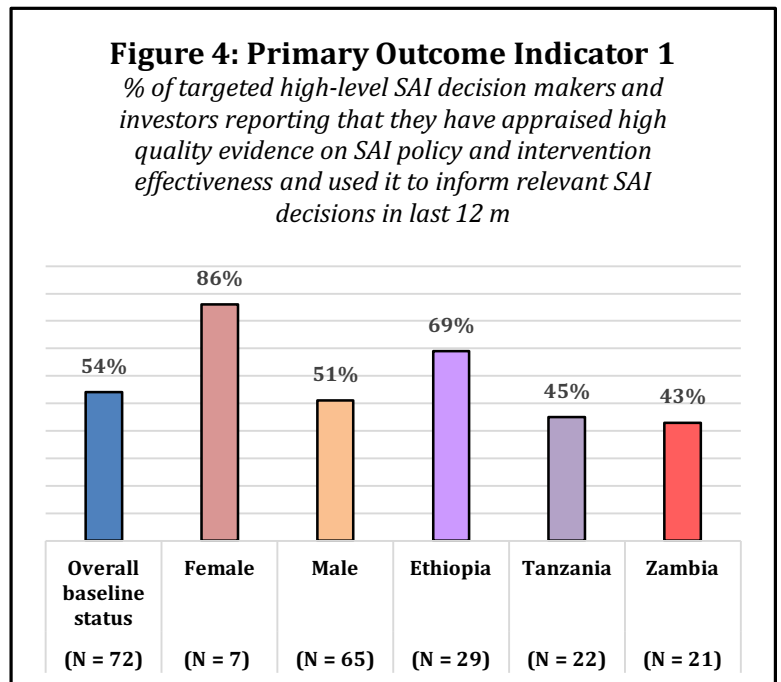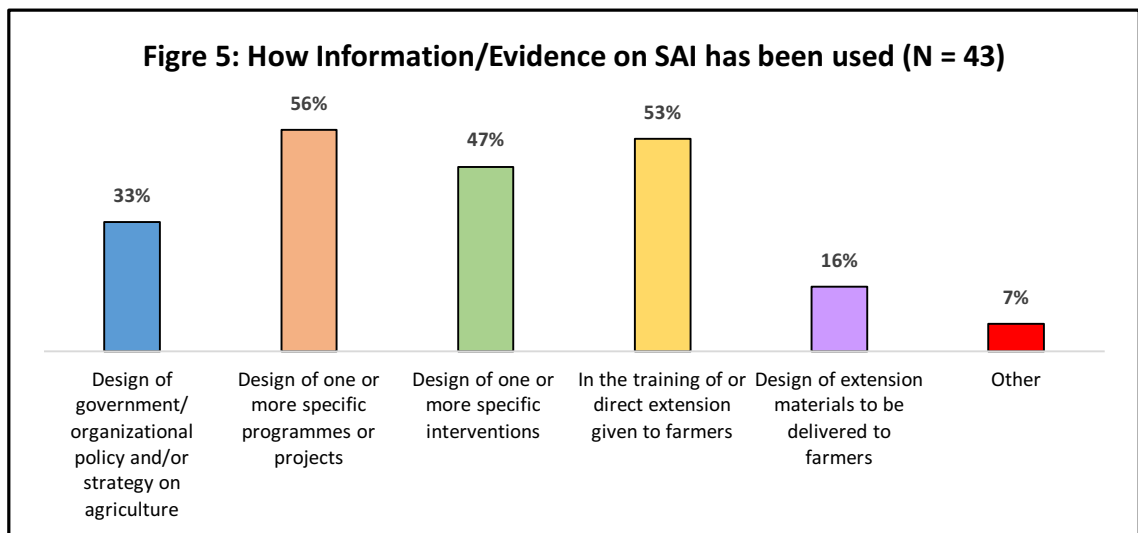

Figure 2: Types of Organzations of Interviewed Stakeholder   (N = 124)

Figure 4 presents further detail on the project's first primary outcome, which pertains to a subset of the interviewed stakeholders that hold decision-making positions in organizations that design and manage SAI relevant policies, programmes, and interventions. Unfortunately, only seven of these stakeholders are women, revealing significant gender inequality in the three participating countries, specifically in relation to leadership positions in the agricultural sector. Nevertheless, six out of the seven women scored positively on this indicator, as compared to approximately half of their male counterparts. It is also noteworthy that about two-thirds of the interviewed Ethiopian decision-makers reported both having had accessed SAI evidence and incorporated this into policy and/or programme decision-making over the last 12 months, as compared with less than half among their counterparts in Tanzania and Zambia.

Figure 4: Primary Outcome Indicator 1

% of targeted high-level SAI decision makers and investors reporting that they have appraised high quality evidence on SAI policy and intervention effectiveness and used it to inform relevant SAI decisions in last 12 m

Overall baseline status	Female	Male	Ethiopia	Tanzania	Zambia
54%	86%	51%	69%	45%	43%
(N = 72)	(N = 7)	(N = 65)	(N = 29)	(N = 22)	(N = 21)

The decision-makers were also asked how specifically their organizations had made use of SAI related information and/or evidence. Figure 5 summarizes their responses. Approximately one-third reported that their organizations had used such information/evidence to design specific agricultural policies and/or strategies and specific programmes and interventions, respectively. About half also reported that their organizations incorporated such information/evidence into the training or direct provision of extension services to farmers. Far fewer, however, reported its integration into the design of new extension materials.

Figre 5: How Information/Evidence on SAI has been used (N = 43)

Design of government/ organizational policy and/or strategy on agriculture	Design of one or more specific programmes or projects	Design of one or more specific interventions	In the training of or direct extension given to farmers	Design of extension materials to be delivered to farmers	Other
33%	56%	47%	53%	16%	7%

While a significant number of the SAI decision-makers reported that their organizations incorporate SAI related information into their decision-making, far fewer do so with respect to more nuanced evidence pertaining to women and men and specific social groups and contexts. Consequently, the baseline status for this indicator is particularly low, thereby calling on the project team to focus significant effort on ameliorating this situation. However, Figure 6 does show that about one-quarter of the stakeholders reported that their respective organizations incorporate evidence on the differential effects of SAI

interventions on *either* women and men one the one hand or differing contexts and social groups on the other. However, when both are considered, the statistic drops to 11%.

As is presented in Figure 7, the overall status of targeted stakeholders accessing existing quality evidence on enabling policies and effective interventions for SAI that benefit women, poorer smallholders, and other socially differentiated groups is particularly low. This is because most of the interviewees reported that they did not have access to nuanced evidence on the differential effectiveness of SAI interventions on both women and men and differing contexts and social groups. Over two-thirds, however, reported having had access to general SAI evidence, with about one-third accessing differentiated evidence particular to women and men on the one hand and specific social groups in the other, but not both.

Figure 7: Intermediary Outcome 1, Indicator 1
% of targeted stakeholders accessing existing quality evidence on enabling policies and effective interventions for SAI that benefit women, poorer smallholders, and other socially differentiated groups
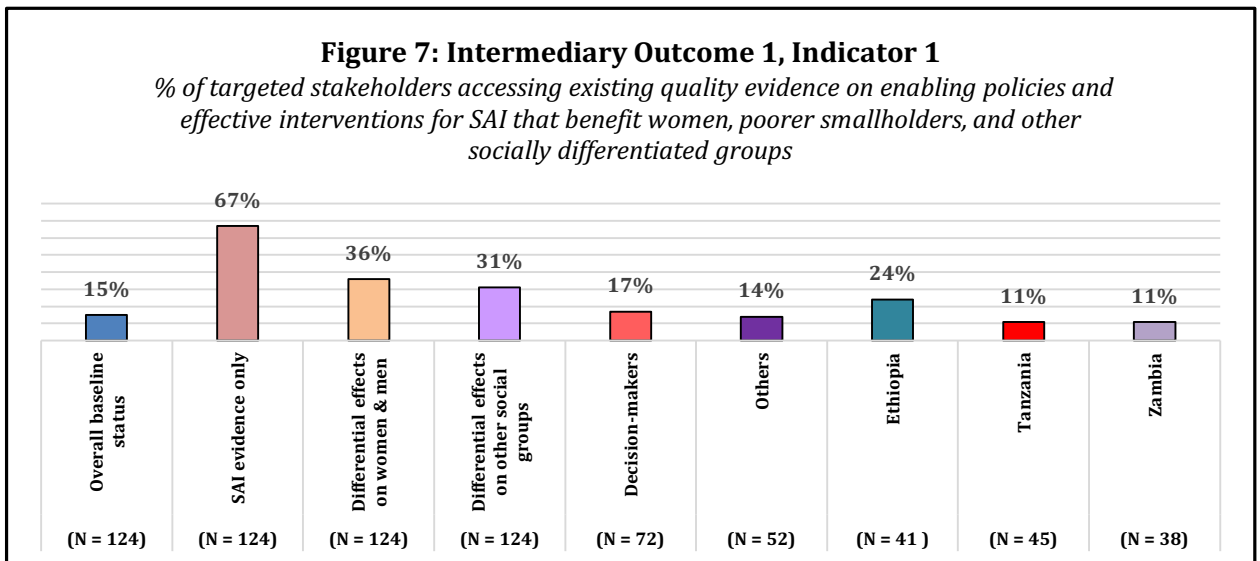
Figure 8 presents details on the specific types of SAI related information and evidence among those stakeholders who reported having had been able to access it in the last 12 months. Just over half reported having had obtained basic background information on SAI in general and that pertinent for particular areas of their respective countries in particular. About one-third reported having had accessed specific evidence on the effectiveness of one or more SAI interventions.

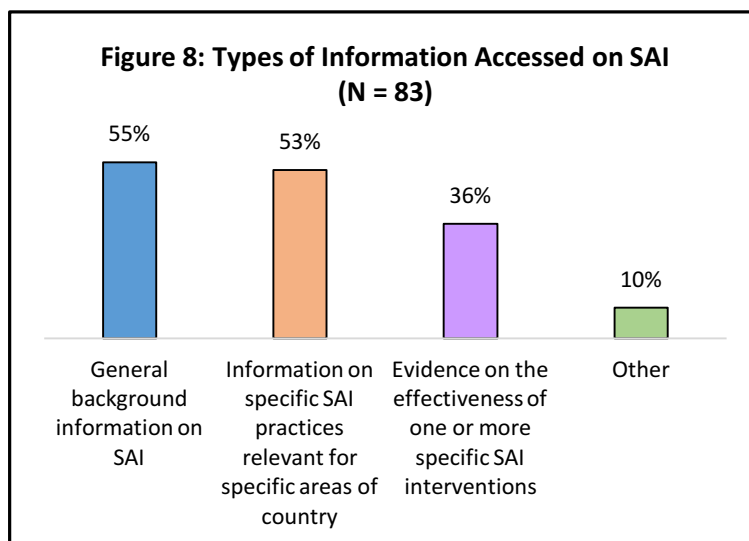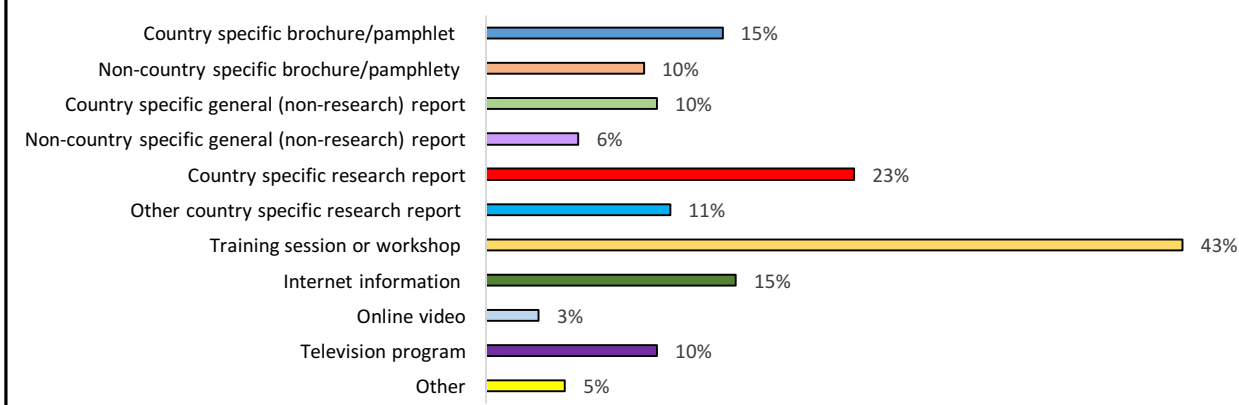**Figure 8: Types of Information Accessed on SAI (N = 83)**

Figure 9 presents the specific sources of SAI related information and evidence accessed by these stakeholders. Participation in training sessions or workshops are clearly the most popular, followed by the review of country specific research reports.
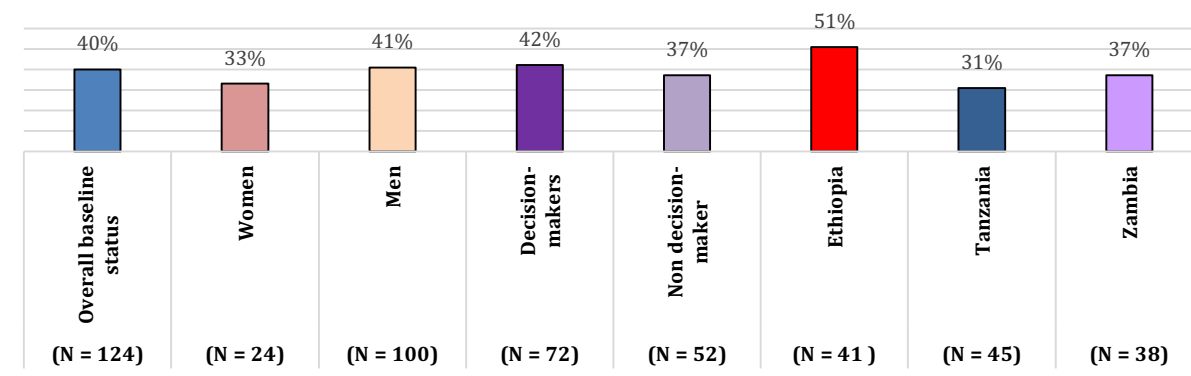
Figure 9: SAI Information/Evidence Sources (N = 83)

Source	Percentage
Country specific brochure/pamphlet	15%
Non-country specific brochure/pamphlety	10%
Country specific general (non-research) report	10%
Non-country specific general (non-research) report	6%
Country specific research report	23%
Other country specific research report	11%
Training session or workshop	43%
Internet information	15%
Online video	3%
Television program	10%
Other	5%

The ability of the targeted SAI stakeholders to not only access relevant SAI evidence but also appropriately appraise it validity and utility and make use of it is shown in Figure 10. Participation in a SAI workshop or training sessions and having had access to SAI information believed to be both credible and relevant is being used as a proxy measure for this indicator. As indicated in Figure 10, overall 40% of the stakeholders surpassed the indicator's threshold, with there being significant variation among women and men and the three participating countries. The difference between decision-makers and non-decision-makers is modest at 5%.

Figure 10: Intermediary Outcome 1, Indicator 2
Intermediary Outcome 1, Indicator 2: % of targeted stakeholders with demonstrable ability to access, appraise, and use available evidence on SAI relevant policies, mechanisms and interventions

Category	Value	N
Overall baseline status	40%	(N = 124)
Women	33%	(N = 24)
Men	41%	(N = 100)
Decision-makers	42%	(N = 72)
Non decision-maker	37%	(N = 52)
Ethiopia	51%	(N = 41)
Tanzania	31%	(N = 45)
Zambia	37%	(N = 38)

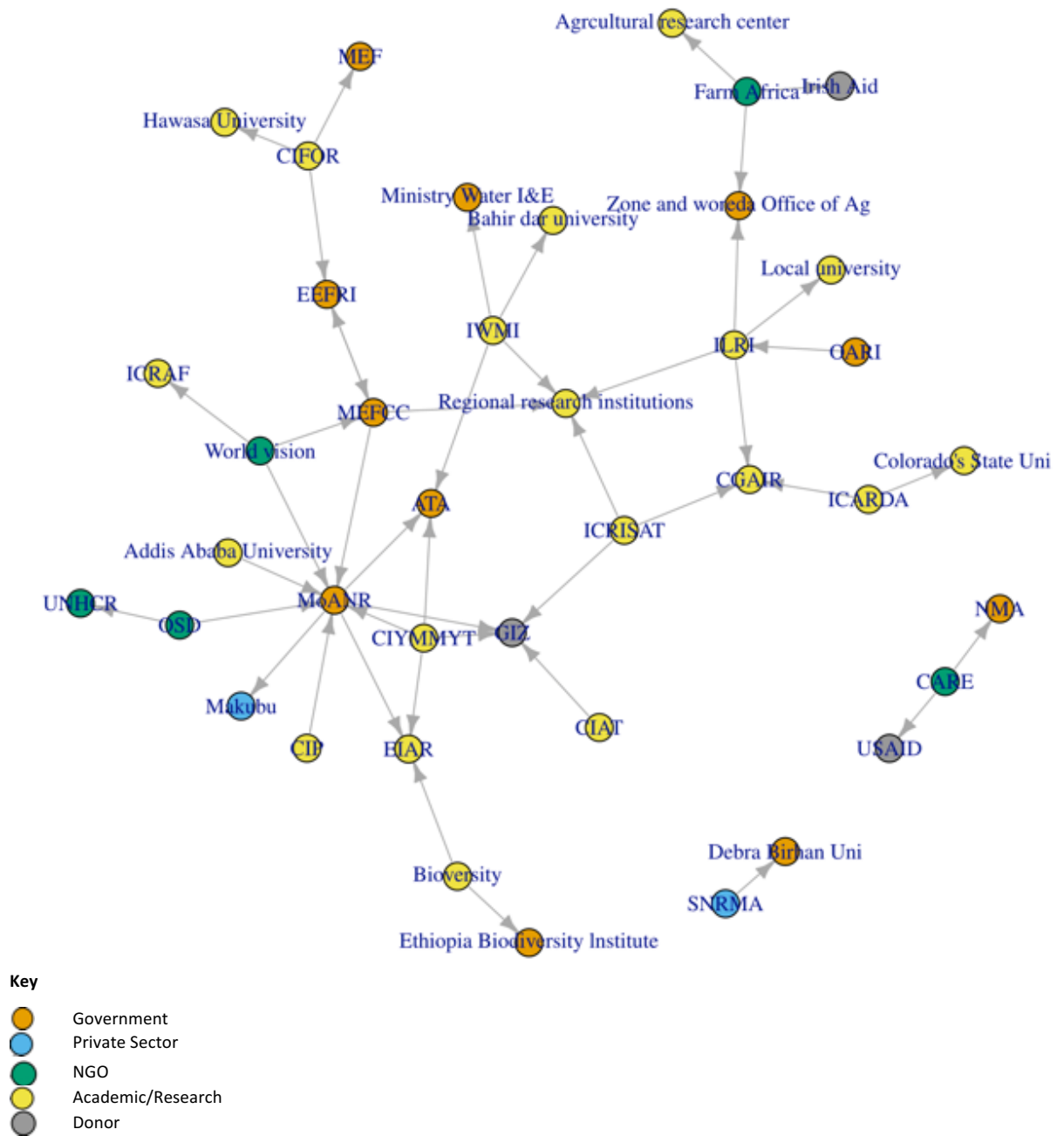**Ethiopia SAI Stakeholder maps**

Figure 1. Ethiopian National SAI Stakeholder Network baseline, colours represent organisation type
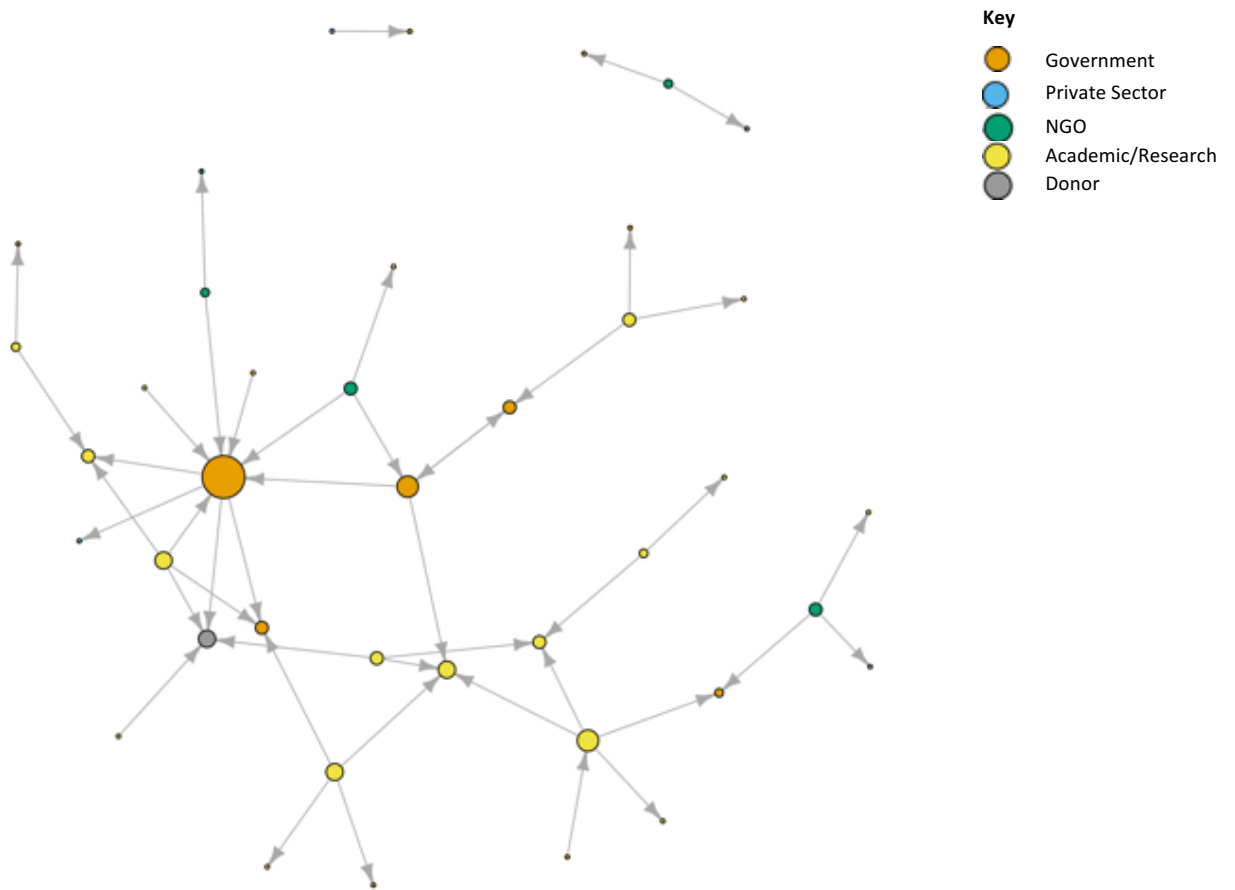
Figure 2. Ethiopia National SAI Stakeholder Network, showing actors with most connections as larger circles

The National Stakeholder network captured as a baseline included a large number of research institutes, donors, NGOs and some government departments. For evidence informed decision making, the connection between researchers and implementers/donors is encouraging and can be strengthened through this project. The Ministry of Agriculture, Natural Resources department was the most important stakeholder linking the network and in terms of the number of connections.
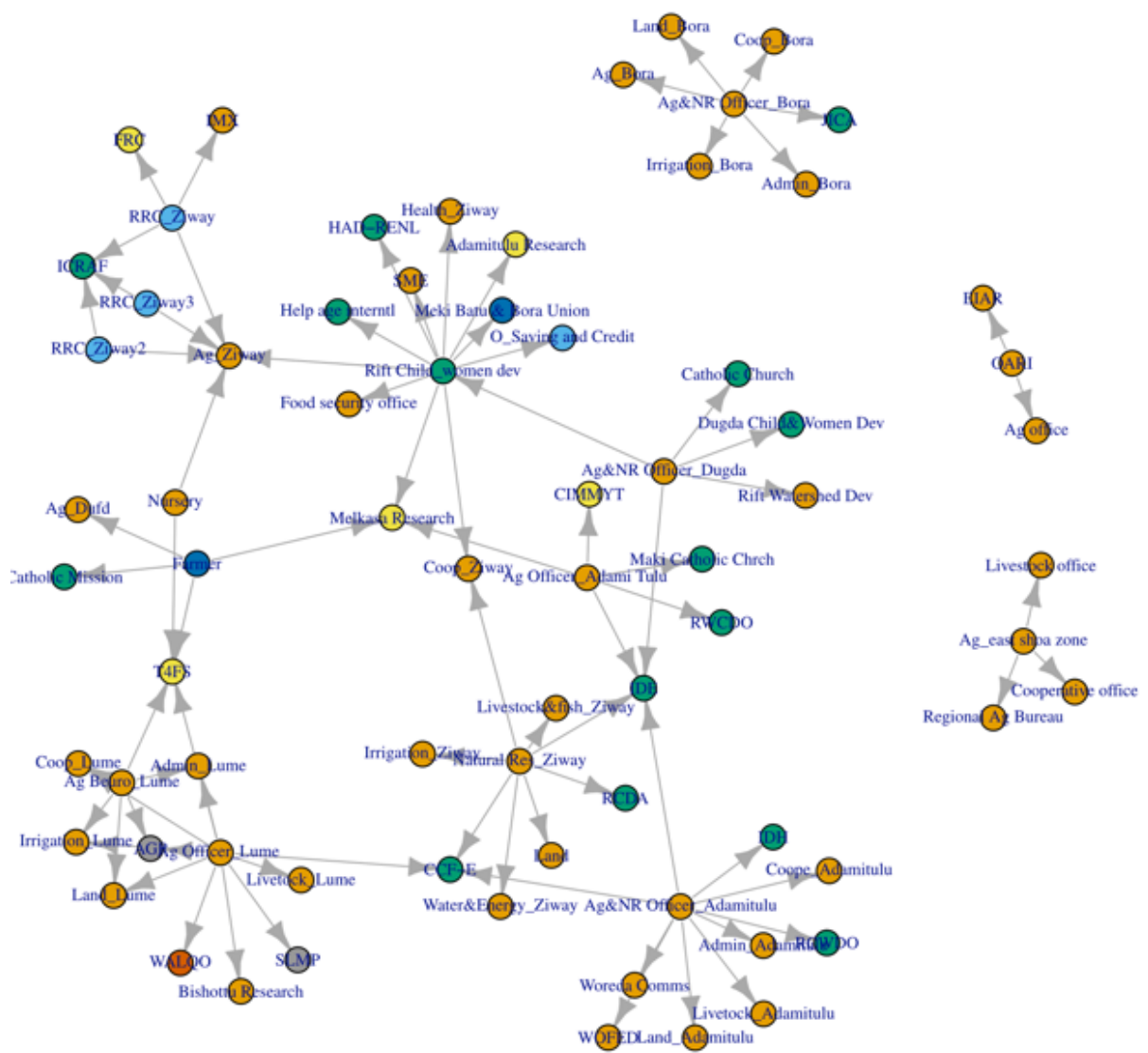
Figure 3. Ziway District (Woreda) SAI Stakeholder Network baseline, colours represent organisation type
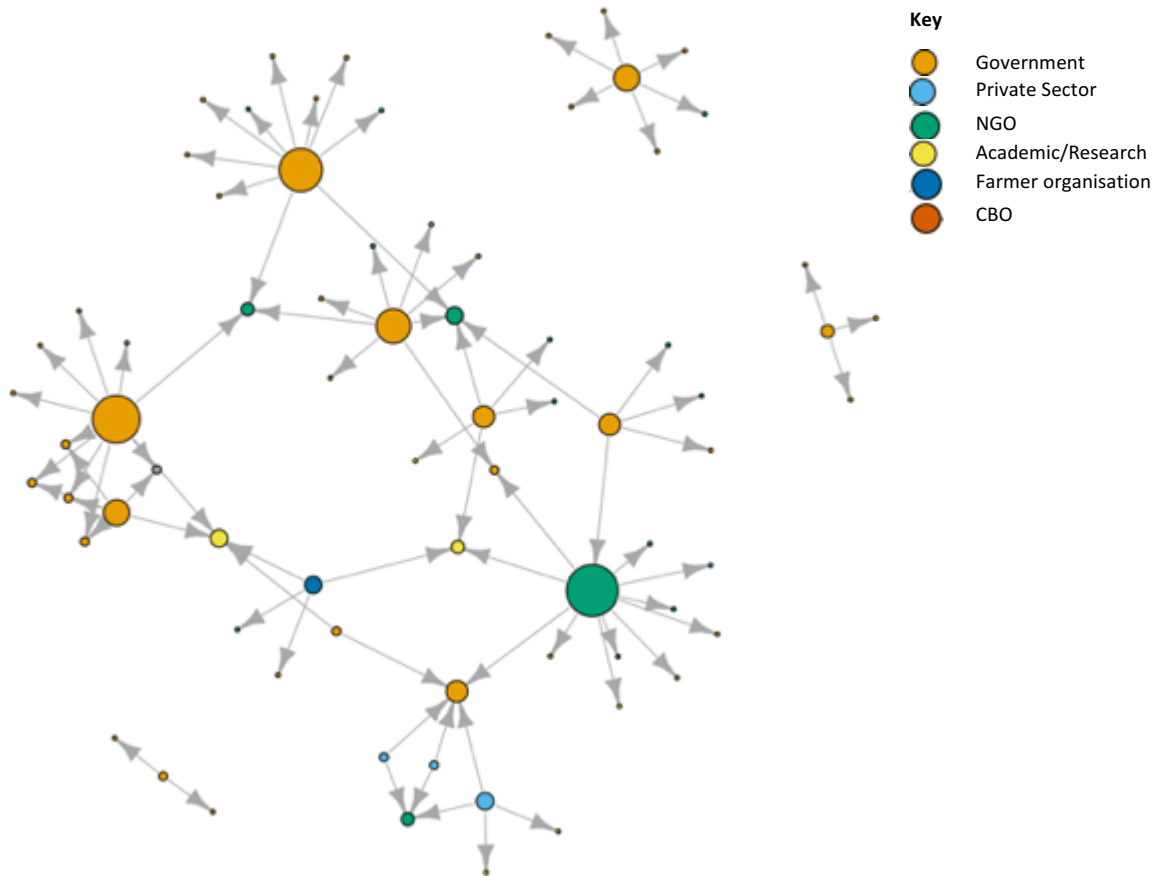
Figure 4. Ziway District SAI Stakeholder Network Baseline, showing actors with most connections as larger circles

In Ziway District, most of the captured stakeholder network is loosely connected, there are parts of the network which are disconnected however and many opportunities to enhance connectivity. The most connected stakeholders were the government agriculture and natural resource offices as well as an NGO called Rift Valley Children and Women Development Organization. These stakeholders will be important to enhance information sharing in the network.