

Report on Malawi Inception and Planning Meeting for the Sustainable Intensification of Mixed Farming Systems Initiative 27 – 29 September 2022, Mangochi, Malawi

Emmanuel Mwale¹, Gloriana Ndibalema¹, Wezi Mhango², Powell Mponela³, and Jonathan Odhong¹



Author affiliation ¹International Institute of Tropical Agriculture,
 ²Lilongwe University of Agriculture and Natural Resources,
 ³Alliance of Bioversity International and CIAT

Published by International Institute of Tropical Agriculture

October 2022

The [Sustainable Intensification of Mixed Farming Systems Initiative](#) aims to provide equitable, transformative pathways for improved livelihoods of actors in mixed farming systems through sustainable intensification within target agro-ecologies and socio-economic settings.

Through action research and development partnerships, the Initiative will improve smallholder farmers' resilience to weather-induced shocks, provide a more stable income and significant benefits in welfare, and enhance social justice and inclusion for 13 million people by 2030.

Activities will be implemented in six focus countries globally representing diverse mixed farming systems as follows: Ghana (cereal-root crop mixed), Ethiopia (highland mixed), Malawi: (maize mixed), Bangladesh (rice mixed), Nepal (highland mixed), and Lao People's Democratic Republic (upland intensive mixed/ highland extensive mixed).

© 2022



This publication is licensed for use under the Creative Commons Attribution 4.0 International Licence - <https://creativecommons.org/licenses/by/4.0>.

Unless otherwise noted, you are free to share (copy and redistribute the material in any medium or format), adapt (remix, transform, and build upon the material) for any purpose, even commercially, under the following conditions:

 **ATTRIBUTION.** The work must be attributed but not in any way that suggests endorsement by the publisher or the author(s).

Contents

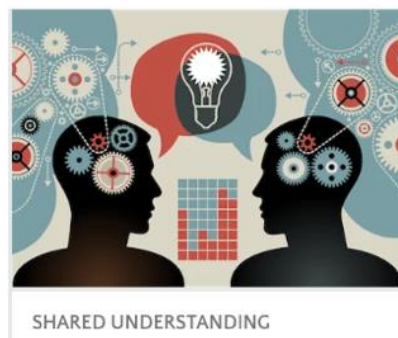
Abbreviations and acronyms	iii
Objectives of the Planning and Inception Meeting	iv
Background.....	1
Day ONE [27 September]: Introducing the Sustainable Intensification of Mixed Farming Systems Initiative	2
Welcome and opening remarks.....	2
Dr. Gbenga Akinwale, CGIAR Malawi Country Convenor	2
Mr. David Kamangira, DARS Senior Deputy Director	4
Sustainable Intensification of Mixed Farming Systems: An overview presentation ..	5
Unpacking the work packages.....	7
Work Package 1: Status, trends, and future dynamics of mixed farming systems.	7
Work Package 2: Building methods and tools (M&T) for SI of MFS	8
WP 3: Participatory co-design of MFS with evidence-based, validated SI innovation packages.....	8
WP 4: Advancing and supporting scaling of innovations.....	9
WP 5: Capacity building for MFS design and analyses.....	10
Unpacking the cross-cutting work streams.....	11
Scaling readiness.....	11
Monitoring, Evaluation, Learning and Impact Assessment (MELIA)	12
Gender integration in the Sustainable Intensification of Mixed Farming Systems Initiative.....	13
Communications and Knowledge Management in the Sustainable Intensification of Mixed Farming Systems Initiative	14
Systems Integration	15
Day TWO [28 September]: Planning for implementation	16
Recap/synthesis of Day one	16
Partnership building and planning progress	17
Plenary reporting back from work package operational discussions.....	18
Summary of discussions from WPs.....	19
Selection of target sites/districts	19
Potential integration combinations.....	19
Scaling up of existing technologies/interventions	19

Capacity building and strengthening of expertise of local participating partners	19
Our way of working and next steps	20
Day THREE [29 September]: Visits to proposed Initiative implementation sites in Malawi.....	21
The first stop at Balaka	21
Second stop at Ntcheu.....	23
Third stop at Dedza.....	24
Appendices.....	26
Appendix 1: Select photos from the event	26
Appendix 2: Participants' list.....	28
Appendix 3: Work Package Discussions.....	30
WORKPACKAGE1: Status, trends, and future dynamics of MFS	30
WORK PACKAGE 2: Methods and Tools.....	31
WORK PACKAGE 3: Socio-technical innovations.....	32
WORK PACKAGE 4: Scaling.....	34
WORK PACKAGE 5: Capacity development	35

Abbreviations and acronyms

ABC	Alliance of Bioversity International and CIAT
ADD	Agriculture Development Divisions
ARDEP	Agricultural Research and Development Programme
ATCC	Agricultural Technology Clearing Committee
CIMMYT	International Maize and Wheat Improvement Center
DAES	Department of Agriculture Extension Services
DARS	Department of Agricultural Research Services
DEEP CYCLE	Describe, Explain, Explore, and Design Cycle
DLRC	Department of Land Resources Conservation
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IRRI	International Rice Research Institute
IWMI	International Water Management Institute
LUANAR	Lilongwe University of Agriculture and Natural Resource
MELIA	Monitoring, Evaluation, Learning, and Impact Assessment
MFS	Mixed Farming Systems
MoU	Memorandum of Understanding
MoA	Ministry of Agriculture
MwaPATA	Malawi Agricultural Policy Advancement and Transformative Agenda
NARS	National Agricultural Research Systems
NGOs	Non-governmental organizations
RCT	Random Controlled Trials
SAPP	Sustainable Agriculture Production Program
SDG	Sustainable Development Goals
SI	Sustainable Intensification
SI-MFS	Sustainable Intensification of Mixed Farming Systems Initiative
SIAF	Sustainable Intensification Assessment Framework
UN	United Nations
WP	Work Package

Objectives of the Planning and Inception Meeting



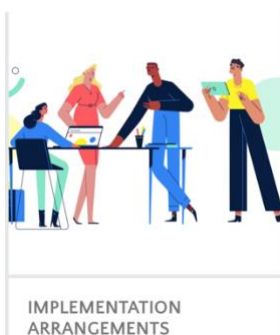
Create a shared understanding of the Initiative amongst implementing institutions.



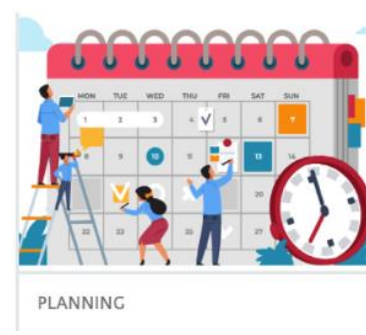
Lay the groundwork for implementing the One CGIAR SI-MFS Initiative activities in Malawi.



Clarify partner/team member roles and responsibilities.



Discuss and agree on important Initiative-wide implementation arrangements necessary to achieve set goals at work package and in-country levels across collaborating entities.



Discuss, agree and confirm activities concerning the Initiative Gantt chart, and plan out roles and responsibilities concerning contributing members for each work package among the different entities.

Background

The launch and planning meeting for the Sustainable Intensification-Mixed Farming systems (SI-MFS) Initiative in Malawi was convened in Mangochi, Nkopola lodge from 27 – 29 September to lay the groundwork for implementation of activities by various in-country partners.

The three-year Initiative is one of the 32 new research and development initiatives by CGIAR that aims to provide equitable and gender transformative pathways to improved livelihoods of actors in mixed farming systems through sustainable intensification.

The meeting was attended by various partners in the Malawi agriculture sector, including National Agricultural Research Systems (NARS), Malawi Agricultural Policy Advancement and Transformative Agenda (MwaPATA), Lilongwe University of Agriculture and Natural Resource (LUANAR), District Agriculture Officers, and many others.

The event agenda and copies of presentations given during the meeting are accessible online at: <https://live.eventtia.com/en/si-mfsmalawi>

Day ONE [27 September]: Introducing the Sustainable Intensification of Mixed Farming Systems Initiative

The meeting was called to order at 9.00 AM by the Facilitator, Ms. Gloriana Ndibalema. She then invited participants to participate in a self-introduction exercise and share their expectations.



Self-introduction by participants. Photo credit: Gloriana Ndibalema/IITA.



Gloriana Ndibalema welcomes participants to the meeting. Photo credit: Emmanuel Mwale/IITA.

Dr. Christian Thierfelder, the co-country coordinator for the Sustainable Intensification of Mixed Farming Systems (Abbreviated as SI-MFS) in Malawi, introduced the goals and objectives of the meeting to participants. He highlighted the need to develop and propose several key activities for implementation in the short and longer-term deliverables. To agree on locations and the need for better communication between centers and initiatives.

Dr. Thierfelder also stressed the need for collective efforts to be vigorous in managing resources, linking, and building on existing programs and link to other initiatives like Excellence in Agronomy and several others.

Welcome and opening remarks

The opening remarks were given by CGIAR Malawi Country Convener Dr. Gbenga Akinwale; and DARS Senior Deputy Director Mr. David Kamangira. See below summary of their remarks.

Dr. Gbenga Akinwale, CGIAR Malawi Country Convenor

**Full speech attached in the appendix.*

- On behalf of CGIAR Centers in Malawi, I welcome you all to this inception and planning meeting.
- CGIAR research programs over the years have delivered ground-breaking science and innovations that have improved food and nutrition security for the world's most vulnerable people and lifting millions out of poverty.

- In Malawi, the CG centers have been working with partners for over 42 years to conduct research and implement agricultural programs that aimed to improve farmers livelihood.
- Global challenges facing agri-food systems are rapidly evolving and research in agriculture, particularly on food, land, and water systems is increasingly becoming more complex and interconnected, thus requiring integrated and unified structure and research strategy
- There is a growing awareness/recognition that a more unified and integrated CGIAR has more potential to address the complex and rapidly evolving global challenges facing agri-food systems. This awareness led to the conceptualization of One CGIAR and formulation of new research strategy 'a new structure, a new research strategy for a new era'
- One CGIAR is an integration of capabilities, knowledge, assets, people and global presences-leveraging our capabilities, assets, knowledge to address global challenges that are multi-disciplinary and interconnected
- In pursuit of the new research agenda, a portfolio of 33 new game change initiatives were developed around five impact areas: nutrition, health and food security, poverty reduction, livelihoods and jobs, gender equality, youth and inclusion, climate adaptation and mitigation, and environmental health and biodiversity. Seven (7) of these initiatives will be implemented in Malawi and SI-MFS is one of the seven initiatives designed to deliver evidence-based solution to drive sustainable productivity growth under the climate change scenario in Malawi.
- The One CGIAR presents a huge scope and opportunities to contribute to Malawi's Agenda 2063 on agricultural growth and development strategy through quality research and innovative partnership that recognize Malawi's research and innovation priorities, needs and demand. The transformation will make CGIAR research more accessible and responsive to local needs, opportunities and demands.
- The new structure will strengthen synergies and open opportunities, for a more inclusive research agenda and developmental programs that reflect and integrate country's perspective and priority needs.
- As CGIAR centers we are proud of your partnership, and we are confident that this initiative will provide a framework for collective actions
- Thank you for your excellent cooperation and teamwork over the years and I wish you a fruitful and productive meeting.

Mr. David Kamangira, DARS Senior Deputy Director



Dr. Kamangira speaking during the event. Photo credit: Gloriana Ndibalema/IITA.

- Smallholder farmers dominate the agricultural sector in Malawi on 0.5 to 5 ha land holdings. These farmers manage complex crop and livestock farming systems, needing to overcome many risks and challenges. To elaborate on the nature of these systems, which characterize many smallholder farms in Malawi, for example, you will find that in a typical smallholder farm, livestock provides draft power for crop cultivation and manure to fertilize the soil, while crop residues provide livestock feed. At the same time, livestock is also sold to compensate for low crop yields. So, everything is interconnected and related. Therefore, a problem in one aspect of the system invariably affects another.
- These highly interlinked mixed farming systems face highly interconnected and complex challenges which can be mitigated through Sustainable Intensification to respond to the need for increased productivity without having a negative impact on other essential aspects like the environment, socio-economic factors such as gender, equity, and livelihoods, as well as human elements like nutrition.
- I am delighted that the meeting kick-starts implementing the Sustainable Intensification of Mixed Farming Systems Initiative in Malawi. A CGIAR research initiative will contribute to Pillar 1 of Malawi's agricultural development priority agenda designed to increase agricultural productivity and commercialization as set out in the Malawi vision 2063. As Government, we look forward to seeing collaboration among the CGIAR and the national

partners across these Initiatives to address the challenges related to hunger, poverty, and malnutrition.

- I acknowledge the donors' support in developing the agricultural sector in Malawi.
- Hereby, I declare the launching of the Initiative and officially mark the opening of the three-day deliberation.

Sustainable Intensification of Mixed Farming Systems: An overview presentation

Presenter: Fred Kizito, ABC/IITA

- Before proceeding with the presentation on the overview of the Initiative, I would like to take this time to thank the organizing team for the great work and commitment they have put into making this meeting a success. I thank the country convenor for CGIAR in Malawi and you all for finding time to attend this meeting despite your busy schedules.
- 2022 is a critical year for reforms and African transformation systems, as we now have only eight harvests before reaching the 2030 SDG targets. We have experienced the COVID-19 pandemic, conflict, commercial pressure, and climate change. These will continue impacting the food system globally.
- In reference to Thornton et al., 2.5 billion Ha of land in mixed crop-livestock globally and the Tropics are considered to supply around 75% of milk, 60% of the meat, and between 40 and 86 % of the maize, rice, sorghum, and millet consumed.
- With SI-MFS, we must deliver critical outcomes resulting in multiple scale impacts, minimize sectoral trade-offs, and leverage/maximize synergies.
- Highlights of the prioritized geographical selection of MFS covering Malawi, Ghana, Ethiopia, Nepal, Bangladesh, and Laos.
- An overview of how the ongoing efforts within SI in branding and reaching out to various partners with activities will be reinforced and strengthened.
- Africa needs to change and set a clear trajectory to meet the SDGs and increase the intensity of operations to meet food systems and safe, sufficient, nutritious food. Otherwise, we may likely not reach the SDGs. SDG1, SG 2, SDG5, and SDG13 by the said target.
- Africa is expanding in terms of agriculture and health care needs, taking place at the expense of a fragile ecosystem, climate change, and environmental changes.
- We need to intensify farming on the same land without increasing the space and harvest more yield, looking at mixed farming systems as the best approach.
- The five Work Packages of the Initiative include:
 - i. [Status, trends, and future dynamics of MFS](#)
 - ii. [Building methods and tools \(M&T\) for SI of MFS](#)
 - iii. [Participatory co-design of MFS with evidence-based validated SI innovation packages](#)
 - iv. [Advancing and supporting the scaling of innovations](#)
 - v. [Capacity building for MFS design and analyses](#)

Key issues raised:

- Balancing resources to make a difference: Thinking about maize is not bad; however, think about how you can use maize or cowpea by providing feed, fuel, fibre, food, and farm income. Even pigeon peas can do the same. Along lines that can help improve yield under the pressure of land availability, Producing more on the same piece of land.
- The cropping season starts in Mid-November, and others are now planning surveys within that period; from the outcomes of this meeting, we should have an action plan that starts Friday (immediately after the conference) so we do not miss any season. Together, as a team, we collate and move fast and think of interconnectivity with various departments in harnessing knowledge in doing what is needed for Malawi.
- We need to engage policy institutions and governance to map actions that can unlock our farmer's capabilities to upgrade commercial farmers within the MFS framework.
 - Response: 98% of the land is smallholder farmers, and 70% of the food comes from it. By 2050, more than 7 billion people will depend on smallholder farmers. We can visualize our marketing approach. Intensification will be the way forward.
 - Response (additional): We may not have diversification in all farms. Some could have diversification, and others can use a different approach. 98% of the land is smallholder farmers, and 70% of the food comes from there. By 2050, more than 7 billion people will be dependent on smallholder farmers. We can therefore imagine; commercialization might not even happen. Intensification will be the way to go.
 - Response (additional): Commercialize even when people have a smaller land. Smallholder farms are also able to commercialize through intervention. Mechanisms like promoting farmer organizations in promoting corporations and groups. In the age of digitization. There is potential to commercialize even for smallholder farmers. I am looking at farming as a business.
- Not all farming interventions may need intensification. What is the definition of MFS?

Unpacking the work packages

Participants were introduced to the five work packages of the Sustainable Intensification of mixed farming Systems Initiative.

Work Package 1: Status, trends, and future dynamics of mixed farming systems

Presenter: Francis Muthoni, IITA

- Took the participants through the definition of MFS to involve growing crops and rearing livestock and classified based on groups, based on ecology and production orientation.
- Showed evidence of environmental changes. Like in Malawi, the land is becoming drier, while in Zambia is getting wetter; our duty is to put up the proper recommendation of what variety can work.
- Highlighted the strategies to cope with changing situations and identified drivers of change constraints and opportunities on MFS. e.g., significant changes in rainfall extremes in Malawi from 1981-2018.
- Shared some of the entry points for social and technical innovations to mitigate the impact of change.
- Highlighted the planned activities for Work Package 1 and the anticipated linkages between WP1 and other WPs.
- Noted that implementation plans with discussions at country inception meeting will focus on Identifying key partners at the site or operations with the participants.

Key issues raised:

- Participants are encouraged to visit the initiative website to understand and think of the WPs. There are also detailed maps for Malawi of where maize is grown and where intercropping is practiced that we can draw lessons from.
- There is a need to develop other maps. This is to get some tangible potential evidence that could be used for targeting SI innovations.
- Other districts of Ntcheu and Dedza are just mentioned as examples, but the final sites will be decided during the planning session on Day 2 of the meeting.
- The need to use more modern technologies, e.g., drones, to map up the sites instead of satellite data, like what the Africa RISING project did in some districts like Machinga.
- Start with what is available: Build on the available data and complement it. Some drones could fly 2KM away, like Ethiopia and Malawi, under the Africa RISING project.

Work Package 2: Building methods and tools (M&T) for SI of MFS

Presenter: Santiago Lopez, CIMMYT

- This is a methodological work package. We're developing the basic concept for improving the sustainability of farming systems.
- The systems approach is critical for the SI-MFS Initiative. It ensures that various goals for sustainability are achieved at multiple levels, like farm, field, and landscape levels.
- Therefore, SI-MFS will try to steer systems to maximize beneficial interactions among elements to get the most efficient and sustainable use of resources (e.g., crop-livestock integration, multi-purpose crops, etc.)
- The work package will also focus on systems analysis for the assessment design of more sustainable mixed farming systems and will apply the DEED cycle approach.
- We use the DEED cycle approach to develop methods and tools adapted to different conditions where mixed farming systems prevail.

Key issues raised:

- Building capacity in WP2: One thing is identifying student knowledge enhancement.
- Even in WP5, there is Capacity building to emphasize master students. Because of the period of the project, we won't work on PhD Students. Institutional and technical knowledge and capacity building will be a priority.
- A series of the workshop is being run in Malawi to build capacity both in SI-MFS and Excellence in Agronomy
- We need to explore stakeholders' different tools for a participatory approach.

WP 3: Participatory co-design of MFS with evidence-based, validated SI innovation packages

Presenter: Santiago Lopez,

Download the recorded video presentation here:

- WP3 will answer questions of opportunities, constraints, and preferred entry points for improving equity, resilience, and efficiency along SI pathways; and which features of social and technical innovation packages for SI of MFS to enhance uptake and improve sustainability, resilience, and equity of MFS. WP3 will also check the most scalable SI innovation packages that improve sustainability, resilience, and equity in the selected FS.

Key issues raised:

- Think about co-locations not only between WP because that's where we build synergies.
- Will all the goals be achieved in two years?
 - Response: In the period of change that runs up to 2030, as we walk together with partners to 2025, some of these outputs could potentially

strike through to other years depending on whether we design short or long deliverables building on the ten years of Africa RISING.

- Who are we co-designing with?
 - Response: Let us first see what the farmers need and consider what others are doing. It will be much easier to build something based on what exists.
- Are there some farmers' insights we are missing that we can co-create with partners and then bring on board in this Initiative? From the sites already selected, then we can see which activities could be brought to which site. e.g., Mangochi, and Zomba, as they are not so recognizable with maize farming systems. Mangochi is about fishing.
 - Response: No site has been selected for the activity yet. The aim of the meeting is also to identify and know where we can work correctly.

WP 4: Advancing and supporting scaling of innovations

Presenter: Haroon Sseguya, IITA

- This will focus on scaling and will highlight four objectives during the meeting.
- The WP will enhance enabling environment by making strategic partnerships in generating and identifying context-specific socio-technical SI innovations with an emphasis on gender transformative approaches.
- The WP has four primary focus areas: (i) Enhances enabling environment, (ii) Makes strategic partnerships, (iii) Generates and identifies context-specific socio-technical SI innovations, (iv) Emphasizes gender transformative approaches

Key issues raised:

- Where are we scaling?
 - Response: We need to consult with the country operating partners; with the country convenor/focal point. This will be unshelled during the meeting and agreed upon after this meeting. But partners and NARS will normally tell where to scale.
- Regional initiatives are tasked to reach a large-scale technology release, and they must be geared toward scaling readiness.
- What to scale, constraints, and opportunity?
 - Response: Many have been submitted, but we can't do all. We need to prioritize country-level readiness and strategies. Then we will look at policies, markets, and organization. Once scaling is done, it will address other challenges that may exist.
- Country-focal people know what is happening on the ground. Digitized platforms that link directly with regional scaling hubs.
 - Response: Country focal people know what is happening on the ground. Digitized platforms that link directly with regional scaling hubs. How do we operationalize the digital platforms? They must link into the Initiative so we can reach a much wider audience.

- How will partners know?
 - Response: partners are vehicles for scaling. Once innovations are provided, characterization provides a special map of potential areas that are good for scaling. We will use modelling as one of the tools.
- Would scaling up start sooner, or we start with WP1, WP2, and WP3 first?
 - Response: We need to prioritize the constraints and scaling innovation at the country level; then plan when to start scaling up in an organized way. WP4 will be implemented along with the other WPs
- Are we scaling up to diverse contexts?
 - Response: Partners are free to scale up SI innovations they are interested in.
- Scaling readiness? After discussing with all partners, we need to develop a plan for scaling up the approach and package. This can be done on Day 2
- Scaling up innovations with the SI MFS initiative or regional initiatives
 - Response: In terms of implementation or scaling up, the partners need to coordinate with the country Focal person and country convenor.
- Once characterization has been done, we will need to prioritize SI innovations.
- What criteria will we use for site selection to scale the SI innovations?
- At the CGIAR level, do you have any interaction or support from the CGIAR team working on scaling up readiness?
 - Response: We have support from the CGIAR scaling team.
- We do things from our convenience but not from the people's needs.

WP 5: Capacity building for MFS design and analyses

Presenter: Fred Kizito, ABC/IITA

- This WP is one of the two SUPPORTING work packages for the SI-MFS Initiative. The other one is WP 2.
- As indicated by the WP title, we will focus on building the capacity of CGIAR and other researchers from Governments (local and national), donors, Farmers, and local partners (NGOs, private sector) to apply mainstream systems approaches.
- Several activities are lined up for implementation at both global and local levels. Some of these activities include:
 - Develop a capacity needs assessment tool and related capacity plans for SI of MFS challenges.
 - Develop training modules developed and implemented for SI of MFS for different actors, needs, and systems/countries
 - Provide recommendations for sustainable capacity development for SI of MFS.
 - Develop a manual for building critical reflection sessions into SI innovation processes (focused on gender and social inclusion in processes and outcomes).
 - Virtual capacity development institute established for all MFS actors.

Key issues raised:

- Do we have platforms available in Malawi to access information about farmers and farmer profiles? Some info on farmer profiles could be available for soybean farmers
- How are you going to design activities to address the research questions?
Response: plan to send a capacity-building questionnaire to Malawi partners to capture the specific needs.
- Interaction of crops and livestock data is available for Malawi (contact J. Chikoti).
- Proposal to conduct a needs assessment for Malawi, to do it on day 2 of the meeting.
- Who determines the need for capacity building?
- What indicators will be used to evaluate the capacity building WP?

Unpacking the cross-cutting work streams

Participants were introduced to the cross-cutting work streams of the Sustainable Intensification of mixed farming Systems Initiative, including – scaling readiness, MELIA, Communications and knowledge management, and Gender integration.

Scaling readiness

Presenter: Haroon Sseguya, IITA

Key points from the presentation.

- The scaling readiness team will be focused on determining which socio-technological innovations proposed by partners for the Initiative are ready for scaling or otherwise.
- The scaling readiness team has got three objectives:
 - To carry out a detailed characterization of the core mixed farming systems innovations.
 - Diagnose their current readiness and use (WP2, WP3); and
 - Lay the foundation for strategies to overcome bottlenecks for scaling. WP3, WP5
- Reminder on the scaling readiness stepwise approach where implementers critically reflect on how ready the innovations are for scaling. And reveal key bottlenecks while strategizing that need to pursue accurate further scaling.
- A CGIAR scaling readiness book is now developed with guidelines. Other initiatives are using the same.
- Listed the number of innovations for SI of FMS: these are available on the website. Seed systems are one of the innovations being talked about. Credit may be available, but how many farmers are accessing it?
- Lay the foundation for strategies to overcome bottlenecks for scaling WP3 and WP5.
- Potential linkages with other initiatives. Scaling readiness assessment.
- The key actions that were presented. Team formation, brief guidelines, and tools refinement liaison with other initiatives and interventions—planning and implementation and feedback and adaptation.

Key issues raised:

- The M & E team in the Ministry of Agriculture in Malawi will be crucial to handle the Baseline survey, and there will be training on survey solutions in Malawi.
- Strengthening collaboration with NARS for M&E. there will be M & E staff in all countries to support.
- Participatory aspect in the Initiative. There will be focus groups to engage with farmers, discuss issues to do with MFS, and get their insight on the impact on their lives. How to improve research for NARS. The Initiative will include the NARS at all levels. Think of a quick way of forming an MOU in putting resources in their bucket in terms of resources. Will schedule a meeting with DARS and map a way forward.

Monitoring, Evaluation, Learning and Impact Assessment (MELIA)

Presenter: Hope Webber, IITA

- MELIA's goals in SI-MFS are to contribute to measuring the impact of the Initiative and increase the Initiative's impact to track the progress of its outputs and outcomes, among many other goals listed.
- There are set of impact areas indicators calculating the number of people benefitting from CGIAR innovations.
 - Nutrition, health and food security
 - Gender equality, youth, and social inclusion
 - Climate adaptation and mitigation
 - Environment, health, and biodiversity
- Highlighted five ends of Initiative (global) outcomes measurable within three years in different quarters starting in 2022.
- RTC approach will include
 - Baseline surveys
 - Stakeholder consultations and documentation
- MELIA will monitor the SI-MFS indicators to track progress semi-annually and use WPs outputs and outcomes indicators to design a questionnaire with the development of the MELIA database.

Key issues raised:

- In preparation for the planting season in Malawi, as this is the first year and we are late in terms of baseline for MELIA, can scientists working on other packages go-ahead to identify farmers and the MELIA team come later?
- Request to include the M&E personnel from DARS in Malawi and the Department of Planning in Malawi not included in the MELIA team.
 - Response: the MELIA team will collaborate with the relevant local institutions; they are also planning to recruit an M&E officer in Malawi.
- Suggest an MOU with the local partners and the ministry (DARS) that can support the Initiative M&E activities together with MELIA.
- Different initiatives are coming up with various baseline surveys, are there meta-level coordination on MELIA baselines?
- Do you have indicator definitions for CGIAR?

- USAID has developed several indicators; have you checked on this? The resources available for use for free]
- For livestock production, do you still use "area" as an indicator?
- How will you address the impact of the high cost of farm inputs such as fertilizers in the MELIA process?
- How will the beneficiaries be involved in the monitoring of indicators?
- How are you planning to involve NARS or DARS in monitoring indicators?

Gender integration in the Sustainable Intensification of Mixed Farming Systems Initiative

Presenter: Million Gebreyes, ILRI

Key points from the presentation.

- Global challenges like population growth, land pressure, soil degradation, and climate change have deepened social inequalities in the mixed farming systems due to inequitable norms like resource access, labour burdens, etc.
- The Sustainable Intensification of Mixed Farming Systems Initiative aims to reverse the above inequalities.
- There is still a gap in SI research, primarily work and studies examining how introducing new technologies could reproduce inequalities. We are therefore interested in establishing what is the social impact of sustainable intensification innovations while at the same time ensuring that SI innovations introduced by the Initiative don't promote/enhance inequalities.
- Our work within the Initiative will focus on the two concepts of gender and social inclusion. We shall approach this by combining gender and other socio-economic criteria to ensure an accurate depiction/characterization of farmers' needs.
- A gender transformative approach will be applied, which addresses the underlying causes of inequality and (in the uptake of innovations) including norms and power relations.
- In 2022, the gender team will be focused on the following activities:
 - Establishing a criterion for the selection of suitable innovations
 - Focus on co-designing/bundling 1-2 innovations per country with gender-transformative approaches.
 - Meet with each country's team and partners to discuss the selection results and how to coordinate the efforts.
 - Co-design socio-technical innovation bundles in interdisciplinary teams.

Key issues raised:

- There is a vacant position for WP4; what are the requirements for this position?
- What is gender transformation?
- On gender equity and distribution, are we also considering other societal norms, e.g., division of labour in the household?
- It appears that on gender, you lean on women only and not men. In Malawi, for example, in some areas, we have a matrilineal system where a woman

controls land; how do we research gender to address the issues affecting both men and women? [feedback: in this study, we will also look at social inequalities if they exist.]

- When we arrest gender equity/equality, are you considering the division of labour?
- Society is structured along sex, age group, ethnicity, and religion. It needs to be addressed when it affects a particular group based on societal constraints.

Communications and Knowledge Management in the Sustainable Intensification of Mixed Farming Systems Initiative

Presenter: Jonathan Odhong, IITA

Download the recorded [presentation here](#):

- The Communications and Knowledge Management (CKM) team for the Initiative will be focused on the following:
 - Enhancing the Initiative's external communication (informing and engaging with its stakeholders).
 - Contributing to translating initiative outputs into outcomes and getting knowledge into use.
 - Enriching intra-initiative learning, interaction, and exchange.
 - Facilitating capturing, organizing, and disseminating research products and outputs; and,
 - Ensuring that the Initiative stays in lockstep with the broader One CGIAR goals.
- As a team, the CKM group is also:
 - Embedded into the One CGIAR Communication and Outreach task forces contributing to the broader strategy.
 - Providing support for other One CGIAR Initiatives.
 - The current team comprises ten members drawn from five CGIAR Centres: IITA, ILRI, IRRI, CIMMYT, and ABC.

Key issues raised:

- Do we have the Initiative communication guide? Please share with us the link where we can access the communication templates
- Does the communication team have a budget for communication activities:
 - Response: Yes, there is a budget for communication to provide that tailored support to respective country groups but, more importantly, around operation support.
- Let's think of communication at the onset and not as an add-on when things are already running. Issues of scaling, media, communication, and gender must come instantly at the onset. If you think there is a way that we can build a local communication team.
- Scientists must be trained to communicate their findings in simple and understandable ways to other agricultural stakeholders, including farmers and policymakers.

Systems Integration

Presenter: Fred Kizito, IITA

- As hinted at in the presentation for Work Package 2, we will need to design interlinked activities with a systems approach to guide us.
- I will present an example that can be adapted for crop-livestock integration in Malawi.
- Our systems integration will aim to answer vital fundamental questions:
 - How to increase crop-livestock productivity in an agroecological gradient?
 - What are the interactions that happen during crop production, livestock production, vegetable production and how do they link with each other across Malawi in the context of land and water management issues?
 - How can we improve forage water uptake for increased biomass?
 - The key is to quantify the magnitude of the variables associated with the inter-linking arrows (Green: Positive interaction; Red: Negative interaction).



Fred Kizito presented a slide on activity interlinkages. Photo credit: Emmanuel Mwale/IITA.

Day TWO [28 September]: Planning for implementation

Recap/synthesis of Day one

Presenter: Vernon Kabambe, LUANAR

Key points highlighted in the recap:

- Participants were concerned about the feasibility of the Initiative's objectives to be achieved in two years.
- Importance to co-create our activities with the farmers, the issues are mostly missed out, and farmers revert to traditional practices after phasing out of the programs.
- Much review and synthesis are needed for Malawi to identify and package targets for a specific domain.
- WPs are supporting each other. Work packages already recognize strategic partners and are still open to more collaboration with new partners, including during this workshop. This will avoid duplication and harness synergy.
- Essential to be inclusive with people in the system. On the downside, DLRC and DAES not represented, although they were invited.
- The final activities sites are yet to be selected. Some of the proposed sites were already implemented under the Africa RISING program. The selection process is to happen on Day 2.
- Context assessment activities: analyzing the contexts will require the contributions of all stakeholders
- The request for the team to access farmer profiles in Malawi. It was noted that for the Malawi contact person, the matter would be J. Chikoti.
- Some information on farmer profiles could be available for soybean farmers
- A concern was raised that presentations represented the typologies of other initiative countries, not Malawi. (Why don't we have presentations for Malawi?)
- Who determines the demand for capacity building?
- What indicators will be used to evaluate the capacity building WP?
- We are late in terms of baseline for MELIA.
- Request to include the M&E personnel from DARS in Malawi.
- Different initiatives are coming up with various baseline surveys, are there meta-level coordination on MELIA baselines?
- How will the Initiative address the impact of the high cost of farm inputs such as fertilizers in the MELIA process?
- Does the Initiative have indicator definitions for CGIAR? On gender equity and distribution, are we also considering other societal norms? e.g., division of labor in the household?

Partnership building and planning progress

The SI-MFS Initiative Lead, Fred Kizito, introduced the planning session. His presentation highlighted the following key points, which served as an introduction for partners to the planning process for activities in the country.

- Participants shared a template for the planning meeting with participants, and they were asked to nominate candidate technologies that build on previous investments for the SI-MFS Initiative.
- The national partners and stakeholders requested to review the proposed list of activities for them to provide their insights.
- Partners, particularly NARS, were urged to contribute to the formulation of activities and innovations and to come up with a list of potential partners and sites where the Initiative will work, who to work with, and what activities will be worked on.

Through the World Cafe process, the WPs leads explained to participants how they envision implementing the activities, then both the leads and participants went ahead to brainstorm and proposed several one-liner topics on innovations for each WP. These one-liner topics provided the basis for discussion where partners expanded on them and added more details for coherent activities during the reporting back session. See annexes on the WP activities workplans.

The Work Package leads moderated the discussions within the world cafés. At each World Café table, there was also a designated rapporteur nominated from the NARS representatives who helped take note of the talks. A template for capturing the conversations was provided to all world café groups.

Key issues raised:

- We, as DARS, would like to visit the WPs as a team instead of being divided into numbers.
 - Response (Fred Kizito): Thank you for your comments and concerns. I completely understand your concern about wanting to visit the tables as a group so that all your ideas can be well represented since you all have different specialties. So here is my proposal. It will be a give-and-take. We shall first concentrate on two WPs (WP 2 and WP 3), which are DARS main interests; after we finish giving all our ideas to these WPs, we will divide into three groups to complete the other WPs.
 - Response: We are all ok with that; let's start with the two WPs and then continue with the rest as planned.



Participants discuss plans for implementing Initiative activities in Malawi. Photo credit: Gloriana Ndibalema/ IITA.

Plenary reporting back from work package operational discussions

After the World Café process, each Work Package group provided feedback on the discussions. Below is a summary.

*** See appendix 3 for detailed discussion by groups on WP1, WP2, WP3, wp4, and WP5.**

Summary of discussions from WPs

Selection of target sites/districts

The following districts were suggested: Mzimba, Kasungu, Lilongwe, Mchinji, Dedza, Balaka, Chikwawa, Mulanje, and Zomba. The final list of sites is not yet known at this point. CGIAR Coordinating Team was advised that Government has established systems through which entry of new projects is regulated, i.e., they have to go through the District Agricultural Extension Coordination Committee (DAECC) for approval.

Potential integration combinations

The following combinations have been suggested on which work package three would hinge:

- i. Cereal-crop legume-livestock MFS,
- ii. Cereal-Forage legume-livestock MFS,
- iii. Cereal- agroforestry-livestock MFS,
- iv. Cereal-cereal MFS in rotation,
- v. Maize Cassava livestock system,
- vi. Cereal-forage system..., and
- vii. Cereal-cassava-legume system.

No specific strategies or research studies/trials were proposed at this stage.

Scaling up of existing technologies/interventions

Existing technologies that have already undergone approval of ATCC and have the potential for scaling up are targets for fast-tracking. There will be a need for refining and modification to those that have faced challenges at the farmer level and for which we have feedback. Those technologies developed, tested, and proven practices outside Malawi but from southern Africa will require one-year testing and seeking ATCC approval before considering scaling up.

Capacity building and strengthening of expertise of local participating partners

Strongly advocated for consideration of existing serving public scientists and officers in agriculture for the sustainability of the initiatives and avoiding what happened in previous programs where external trainees cannot be tracked.

Our way of working and next steps

Moderated by: Fred Kizito

To wrap up the meeting, Fred Kizito presented an outlook of how the SI-MFS Initiative implementation will continue into 2023.

- Initiative focal people will liaise with the country convener of any initiative coming to Malawi.
- A comprehensive report will be shared with every one of where we are going to work, who we will work with, and what we will work on.
- We should be on the lookout for anything we need to know and let the focal persons and country support team know so we collectively progress in what we are doing.

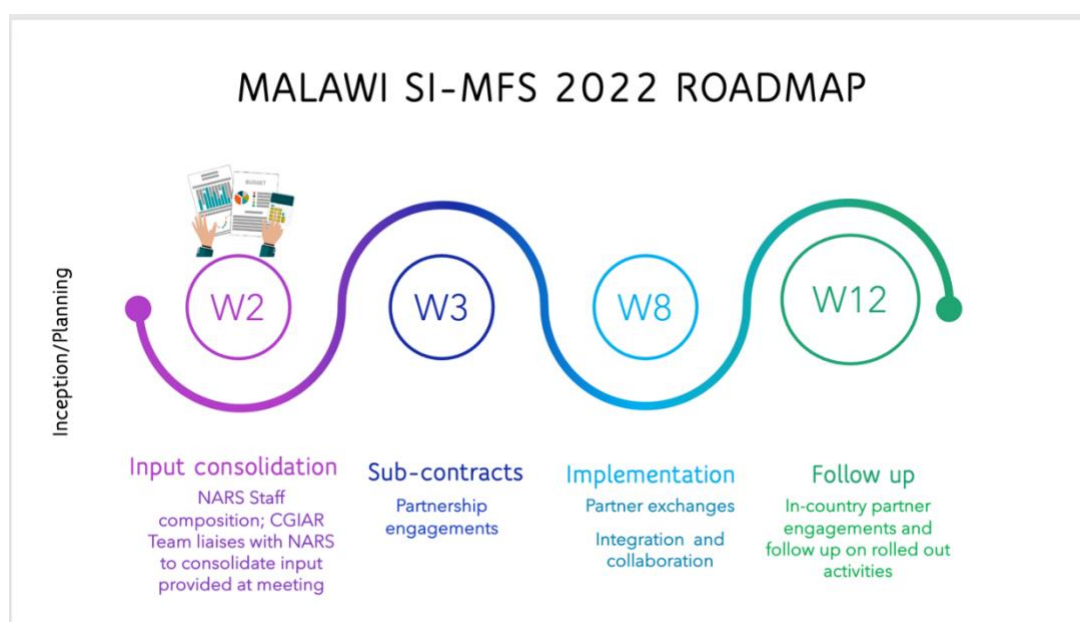


Illustration of the roadmap of the SI-MFS Initiative in Malawi.

Key elements of the SI-MFS roadmap in Malawi:

- Week 2: (which ends October 15) is for input and consolidation
- Week 3 (ending 22 October) is for sub-contracts, partnership engagement
- Week 8. (ending 26 November) is for implementation, partner engagement, and exchange regarding what is involved, integration, and collaboration
- Week 12 (ending 24 December) is for follow-ups.

Day THREE [29 September]: Visits to proposed Initiative implementation sites in Malawi

After the two-day inception and planning meeting, partners visited some of the proposed locations where the Initiative's activities will take place in Malawi. The following locations were visited: Balaka, Ntcheu, and Dedza. Apart from Balaka, which is classified as part of the Middle Shire Valley, both Ntcheu and Dedza have locations that could be classified agroecological as part of the Upland, Rift Valley escarpments, Midland Kandeu valley, and Middle Shire Valley.

The first stop at Balaka

Overview presented by Samson Chinkhadze (Crops officer) and Ekron Kamanga (Livestock officer)



Participants follow the discussions during a stop at the Balaka Agriculture Development Division. Photo credit: Emmanuel Mwale/IITA.

A warm welcome was accorded to the participants on arrival at Balaka Agriculture Development Division with a briefing on agricultural activities happening in the district. In looking at issues of livestock integration in SI-MFS, Balaka looks to be a befitting district with the government introduction of SAPP (Sustainable Agriculture Production Program), where farmers are given five chickens and nine goats per household in a pass-on program. DARS, DAES, and Extensions are involved through monitoring and assessment.

- Crop Livestock Integration and legume intercropping are some farming systems used in Balaka.
- Mixed farming systems: farmers keep goats, Chickens, and ducks, with some keeping cattle.
- They don't have feed problems during the rainy season, but during the dry season, pasture is rare.
- The SI is going to assist because of the drought. In some cases, there are floods reported in certain areas
- The maize-seed system here is more popular than the legume-seed system. Maize hybrids are on high demand in the area but access to these hybrids and affordability of the seeds is an issue.
- Farmers grow maize and pigeon peas, land holding size is very small, and it is not feasible to plant maize and pigeon peas on a larger scale because of the limited availability of land.
- Drought is the major constraint in Balaka, happens almost every year.
- Availability of livestock markets was cited as second major constraint.
- Livestock in the area is in the form of goats, pigs and chicken as well as rabbits, guinea fowl and aquaculture. There could be opportunities for using concentrates and cassava silage as feed.
- Interventions coming with other stakeholders are helping farmers to cope with challenges.
- SAPP has built an abattoir at Phalula EPA, especially for goats. They would have loved to replicate this within other EPAs in the district.
- Development partners like CIMMYT have been working in Balaka since 2004 and have trials, especially in agriculture, and they work with other partners well.
- Balaka is one of the best districts following decentralization. It is like a model in Malawi because they work well with other partners and create competition among stakeholders, which helps to build a strong agriculture base.
- CIMMYT, World Vision, SAPP, find your Feet, CGIAR, and CONCERN WORLDWIDE are some organizations working in Balaka.
- During drought, farmers experimenting Hydroponic fodder from sorghum and *pigeon peas*, and farmers here farm lots of this.
- They grow legume trees like *Gliricidia* and *Leucaena*.

Second stop at Ntcheu

Overview presented by Benson Potani (Crops officer), Gertrude Kanjere (Livestock officer) and Hesten Jamali (Planning officer).



Participants debriefing in Ntcheu. Photo credit: Emmanuel Mwale/IITA.

- Two farming systems are used in Ntcheu: extensive and intensive.
- On livestock, they are focusing on pigs and dairy, layers, and broilers.
- Farmers during rainy seasoning practice tethering.
- It is encouraging homestead farming: Enterprises relying on each other. This is mainly practiced at home, with a garden and livestock as a cycle of reliance.
- Farmers are conducting cereal-legume intercropping. The potatoes are grown upland, soyabean is mid-altitude and pigeon pea is used as an all-year round cover crop, groundnuts, banana, cotton and vegetables are in the valley bottoms.
- Conservation agriculture is also suitable here due to the moisture limited environments. Croplands are terraced with grasses such as vetiver to avoid/reduce erosion. Would be good to replace vetiver grasses with forage grasses for livestock feed.
- Intensive is mostly practiced by commercial farmers.
- More youth are now interested in agriculture as they have realized there is money with the scarcity of jobs, and they find agriculture profitable.
- With the introduction and advances in digital technology, youth can access agricultural information.
- Mechanization in Ntcheu needs improvement, as the whole district has one tractor but has over 7000 youths. Mechanization will make more people interested in farming.

- Deforestation is a big issue and most of the landscapes are bare. The charcoal value chain has been the biggest driver for deforestation.
- Climate change issues affect yield.
- The need to preserve land by avoiding bushfires and conserving the environment.

Third stop at Dedza

Presentation given by Michael Chimatiro, District Director of Agriculture, Environment and Natural Resources



Initiative Lead, Fred Kizito in a discussion with other participants. Photo credit: Emmanuel Mwale/ IITA.

- A lot of farmers are into maize and potato production.
- There are around 161 sections that make up EPAs.
- 229462 cultivatable land, and 2000 ha is under estate.
- The Government has introduced mega-farms, and we might use idle land to produce more.
- Potato is done under irrigation supported by CIP. Cassava, soybean and cowpea are mostly grown in the lake shore valley region.
- Under livestock, farmers are rearing goats, cattle, sheep and poultry.
- District Agriculture is now called the Directorate of agriculture, Environment and Natural Resources.
- There is a need to protect the environment.

- Activities of crops and livestock systems are well managed.
- There is a need for proper coordination between CGIAR and extensions; innovations being promoted must undergo necessary processes.
- Agriculture commercialisation and corporative.
- Public works, climate-smart agriculture looking at issues of land degradation.
- Sites were selected based on population as we use intensive labour.
- Double row planting.
- The Initiative would like to work and complement government initiatives like affordable input programs.
- The major constraint of livestock is marketing.

Appendices

Appendix 1: Select photos from the event



Participants get to know each other before the start of the meeting. Photo credit: Gloriana Ndibalema/IITA.



Ongoing discussions. Photo credit: Emmanuel Mwale/IITA.



One of the participants, Regis Chikowo, contributes to the meeting. Photo credit: Gloriana Ndibalema/IITA.



Haroon Sseguya leading the WP 4 world café session. Photo credit: Gloriana Ndibalema/IITA.



Pacsu Simwaka and Ruth Magreta reporting back partner-led WP discussions. Photo credit: Gloriana Ndibalema/IITA.

Appendix 2: Participants' list

	Name	Institution
1	Lulseged Desta	ABC
2	Christian Thierfelder	CIMMYT
3	Regis Chikowo	MSU/IITA
4	Fred Kizito	ABC/IITA
5	Job Kihara	ABC
6	Powell Mponela	ABC/IITA
7	Julius Manda	IITA
8	Isaiah Nyagumbo	CIMMYT
9	Gloriana Ndibalema	IITA
10	Tsehay Gashaw	ILRI
11	Steve Boahen	IITA
12	Manoj Kaushal	IITA
13	Vimbai Chimonyo	CIMMYT
14	Dr. Grace Lameck Kaudzu	DARS
15	David Kamangila	DARS
16	Daniel Mgalla	IITA
17	Haroon Sseguya	IITA
18	Pacsu Simwaka	DARS
19	Ivy Ligowe	DARS
20	Betty Chinyamumamu	NASFAM
21	Omondi John Okoth	IITA
22	Peter Lungu	CIMMYT-
23	Mathinda Sopo Banda	CIMMYT-
24	Amos Ngwira	ICRISAT -
25	Kenneth Chaula	DAES
26	Victoria Ndolo	CHANCO
27	Patson Nalivata	LUANAR
28	Wezi Mhango	LUANAR
29	Zwide Jere	Total Land Care
30	Gift Ndengu	Private
31	Rowland Chirwa	Private/Ex-CIAT
32	Donwell Kamalongo	DARS
33	Joseph Chimungu	LUANAR
34	Annie Matumba	DARS
35	Wilson Nkhata	ABC
36	David Slane	ABC
37	Eric Kayima	ABC
38	Justice Munthali	ABC
39	Dellings Phiri	ABC
40	Laurent Pungulani	DARS
41	Mphatso Gama	Machinga ADD
42	Richard Museka	Total Landcare

43	Blessing Mhlanga	CIMMYT
44	Dejene Mengistu	ABC
45	Yosef Gebrehawaryat Kidane	ABC
46	Wuletawu Abera	ABC
47	Francis Muthoni	IITA
48	Mateete Bekunda	IITA
49	Joseph Chakana Hamie	DARS
50	Judith Chikoti	DARS
51	Andrew Mtonga	DARS
52	Sarah Chilungo	DARS
53	Sam Mwafulirwa	DARS
54	Justus Chintu	DARS
55	Pilirani Pankomera	DARS
56	Moses Munthali	DARS
57	Mazvita Chiduwa	CIMMYT
58	Hope Webber	IITA
59	Vernon Kabambe	LUANAR
60	Chief Agriculture officer - Dedza - (Chimatiro)	Dedza District
61	Chief Agriculture officer - Ntcheu - (Edward Katunga)	Ntcheu, District
62	Doreen Munthali	IITA
63	Tapiwa Kasaila	IITA
64	Emmanuel Mwale	IITA
65	Thokozire Phiri	ABC
66	Pemphero Chapotera	IITA
67	Gbebga Akinwale	CIP
68	Hanna Livuza	MSU/IITA
69	Million Getnet Gebreyes	ILRI
70	Admire Katunga	DARS
71	Joyce Minofu	MwAPATA
	Not at meeting but presence & involvement is vital	
72	Director of Agricultural Extension Services (DAES)	
73	Director of Agricultural Planning Services (DAPS)	
74	Director of Animal Health and Livestock Development	

Appendix 3: Work Package Discussions

WORKPACKAGE1: Status, trends, and future dynamics of MFS

Issue	Drivers	Description, discussion points	sites	Potential partner(s)
Low livestock and crop productivity	High input cost		Work at different scales (whole mixed farming system area - national and regional). Some activities are site specific e.g., capturing aerial view and maps of where WP 3 and 4 activities are being implemented	Department of Land Resources, Africa Fertilizer and Agribusiness Partnership (AFAP), DARS, IWMI, MSU, ISRIC, DEA, TAHMO
	Limited availability and access to services, inputs, credit facility, extension etc)			
	Pest, parasite and diseases			
	Poor availability and quality of seeds			
	Land degradation	Soil erosion, deforestation, nutrient depletion, overgrazing, veld fires		
	Low and slow adoption of improved technologies			
	Low enforcement of community by-laws			
	Lack of profitable markets			
	Climate variability	drought, floods, unpredictable rainfall pattern and amounts, emerging pest and diseases such as downy mildew and mphalabungu		
	Loss of agro biodiversity	monocropping, low intra-varietal diversity		
	Post-harvest losses	access to the technology and food waste (spoiling)		
	Lack of post-harvest technologies and value addition			
	Reduced land area for livestock due to increase in population (land pressure)			
	Lack of information to make informed decision			
	Global challenges (Covid, conflicts)			

--	--	--	--	--

WORK PACKAGE 2: Methods and Tools

Activity list	Description, discussion points	Potential partner(s)
GROUP 2		
Contingent evaluation tools	Assess farmers knowledge of the tools and select user friendly ones	MWAPATA
Characterise the existing tools and potential ones	List the existing and also develop new tools if not available	
Training	Train local partners in use of various tools.	
Choose the crop simulation models	APSIM, DSSAT	
Digital tools	To help make decisions	
Partial budget analysis tools	to help in Cost-benefit analysis	MWAPATA
Participatory evaluation tools	e.g., PVS	
M & E tools	The one developed by LUANAR under ARDEP project	
CLIMO	Climate decision maker tool	
Planning Unit tools		Ministry of Agriculture
Group 1		
Model villages and farmer field schools	For outscaling	Ministry of Agriculture-DAES
Statistical tools	Assessment of packages and training where necessary	
SIAF	Assesses various aspects ranging from biophysical to social aspects	IITA, CIMMYT, Michigan State University, LUANAR
Mother baby approach	For outscaling	
Pass-on program	For outscaling	
Gender action learning system	for gender mainstreaming	
Digital tools		
Disease surveillance tools	For livestock and crop diseases profiling	
Scaling readiness assessment tools		
Farm design tools	Trade-off synergy	
E-extension tools	for sending information to farmers	
Farm services tools	mechanization	

Market insurance tools		
TAPE	For agroecology characterization	
Near Real Time tools	for agronomy and NRM monitoring	
DAECC	District agriculture extension coordination committee	
GROUP 3		
Farm design tools	gives information that is important in the value chain for the MFS	
FFS Model		
Mother baby approach		
Model villages		
Tricot method	farmers evaluate Technologies on their own	
Pass-on program		
PVS		
LUDAS	For land use optimization	
SIAF		
Eco-service provision approaches		
Step wise approach	To enhance adoption	
Sustainable recommendations domains		
Evolutionary populations	For extreme conditions	
Crop simulation models	APSIM, DSSAT, CROP-In	
Idriss terra set	land use change, biodiversity loss	
Bioeconomic models		
Climate models		

WORK PACKAGE 3: Socio-technical innovations

District	Cropping systems (types, intercropping, rotations, irrigation, input intensity)	Livestock systems (types, density, forages, FYM use)
Mzimba, Kasungu, Lilongwe, Mchinji, Chikwawa, Balaka	Cereal/legume rotation/rotation	Cereal/forage- cattle, goat, pigs, chicken
Mzimba, Kasungu, Lilongwe, Mchinji, Chikwawa, Balaka	Maize/agroforestry system	Cereal/cassava intercrop/silage for dairy cattle improve milk production
Mbawa research station	cereal/cereal/legumes	Forage grass/legume-grilicidia
	Improved water-land management	cereal/cereal/legumes/livestock feed
		Proper utilization of animal residues

WP3-3B		
Mzimba-medium, Mulanje-Medium, Balaka-low, Dedza-high	Maize-cassava -legume intercrop	cassava silage improves milk yield
Mzimba-medium, Mulanje-Medium, Balaka-low, Dedza-high	Maize/sorghum-pigeon pea intercrop	Cows' drought power
Mzimba-medium, Mulanje-Medium, Balaka-low, Dedza-high	Double up legume system	Integrated livestock conservation
Mzimba-medium, Mulanje-Medium, Balaka-low, Dedza-high	Maize legume rotation	Improved goat marketing
Mzimba-medium, Mulanje-Medium, Balaka-low, Dedza-high	Integrated nutrient management	
Mzimba-medium, Mulanje-Medium, Balaka-low, Dedza-high	Agrobiofortication	Forage promotion
Mzimba-medium, Mulanje-Medium, Balaka-low, Dedza-high	maize-Agroforestry	
Mzimba-medium, Mulanje-Medium, Balaka-low, Dedza-high	CA, gender, nutrition	
Mzimba-medium, Mulanje-Medium, Balaka-low, Dedza-high	Aflatoxin, FAW	

Criteria for site selection: Accessibility, relevance, diversification intensity, livestock availability. Scalability, farmer need

Criteria for ranking innovations: Scalability, diversification, relevance, current yield gap, gender transformation, importance of crop/livestock, potential for private sector engagement

Average Expert Rankings for the socio-technical innovations

Technology	Criteria							
	Scalability	Diversity	Relevance	Yield gap	Gender	Importance	PP	Average
cassava silage improves milk yield	2.9	3.0	3.0	3.7	3.0	3.1	2.7	3.0
Maize-cassava-legume intercrop	3.7	3.3	3.4	3.9	3.4	3.7	3.1	3.5
Maize/sorghum-pigeonpea intercrop	3.9	3.7	3.9	4.0	3.0	3.4	2.8	3.5
Double up legume system	3.8	4.2	4.1	3.9	3.7	3.8	2.9	3.8
Maize legume rotation	4.3	3.8	4.3	4.1	3.8	4.2	3.6	4.0
Integrated nutrient management	4.0	3.8	4.2	3.9	3.1	4.0	3.2	3.7
Agrobiofortication	2.7	2.7	2.8	2.8	3.1	2.8	2.3	2.7
maize-Agroforestry	2.9	3.2	3.1	3.6	2.8	3.2	2.4	3.0
CA, gender, nutrition	3.6	3.4	3.8	3.4	4.0	3.4	2.8	3.5
Aflatoxin, FAW	3.9	3.3	3.7	3.8	3.3	3.4	3.1	3.5

WORK PACKAGE 4: Scaling

District	Agroecological zone	Cropping systems (types, intercropping, rotations, irrigation, input intensity)	Livestock systems (types, density, forages, FYM use)	Past/ongoing research
Group 1				
Mzimba	Mid-altitude	mixed cropping systems	high density of livestock (esp. cattle)	ASWAP, DESIRA, Conservation of Malawi Zebu, Feed the Children, Total LandCare
Dedza	High, Mid, Low	mixed cropping systems	cattle, goats	MSIDP, Africa Rising, United Purpose, Total LandCare
Balaka	Low altitude	mixed cropping systems	cattle, goats	CIMMYT, SAPP, Save the Children, WorldVision, PRIDE
Group 2				
Mzimba				World Bank, KULIMA, IITA, DARS (Mbawa, Lunyangwa), Mpoto daily farmers association, Find your feet, DESIRA,
Kasungu				DESIRA
Mchinji				
Chikwawa				MISST
Lilongwe				MISST, SAPP, Farmer-Field Schools
Balaka				MISST, SAPP
Zomba				

Institution	Contact person(s)	Description, discussion points	sites	Potential partner(s)
Group 1				
CIP	Gbenga Akiniwale	DESIRA	Mzimba	DAES Model, mHub, All CG centers, NGOs
Harvest Plus	Derrings Phiri	Biofortified crops promotion	All districts	MOA, MOH, MOE, Seed Companies
Total LandCare/ Conservation Agriculture	Christian (CIMMYT)			

ASWAP	Judith Chikoti			
Conservation of Malawi Zebu	Judith Chikoti			
Root and Tuber crops (RTC)	P. Pankomela			IITA,
APPSA*	Judith Chikoti			SIMLESA, Africa Rising, KULIMA, MSIDP, MISST, McKnight Foundation, AGRA
HarvestPlus + AGRA Initiative	Derrings Phiri	Feed the Children Programme	Mzimba	
Group 2				
DAES	Pearson Soko (Director for DAES), Ken Chaula			
CIMMYT-Mw	Peter Lungu	KULIMA		
CIMMYT-Zim	Isaiah			

* Integrate ICTs, Focus on SMEs for youth and women, Business models for selected innovations, feedback loops on the innovations

WORK PACKAGE 5: Capacity development

CAPACITY DEVELOPMENT WORK PACKAGE	
ACTIVITY LIST	DESCRIPTION, DISCUSSION POINTS
Training on concepts of systems analysis	National Partners to define
Design capacity development	Knowledge Hub and virtual set up
Identification of training needs	R, ODK data collection, gender transformative tools, SAS, GIS, STATA, D-SSAT, APSIM, SWAT, crop modelling, getting information on indigenous Knowledge, crop/Livestock Management and tools developed from group 2, crowd sourcing, evolutionary breeding approaches, Climmob
Identification of people to be trained	how many for MSc, short courses for National partners
consider mentoring delivery pathways.	partners, farmers and whole value chain and NGOs
Capacity building on Scaling	Consult WUR website on upscaling
Modality of capacity building	Combine in-person as well as virtual trainings, together with mentoring approaches in a way that avoid repeating on trainings and incentives for participants
How to link National partners to globe virtual institute	For national partners to contribute towards the virtual institute as well as benefit from it

Training on farm data management	Farmers and extension workers
Training on context specific decision-making support tools	Soil and Manure test



<https://www.cgiar.org/initiative/19-sustainable-intensification-of-mixed-farming-systems/>

