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10. Mr Mkuwanda Mtimuni - International Potato Centre (IPC)
### Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACE</td>
<td>Agriculture Commodity Exchange</td>
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<td>AEAS</td>
<td>Agricultural Extension and Advisory Services</td>
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<td>AIS</td>
<td>Agriculture Innovation Systems</td>
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<tr>
<td>ASP</td>
<td>Area Stakeholder Panel</td>
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<td>CAADP</td>
<td>Comprehensive African Agriculture Development Programme</td>
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<tr>
<td>CAENR</td>
<td>Chief Agriculture, Environment and Natural Resources Officer</td>
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<td>CGA</td>
<td>Capacity Gap Assessment</td>
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<tr>
<td>CGIAR</td>
<td>Consultative Group on International Agricultural Research</td>
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<td>CPT</td>
<td>Country Project Team</td>
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<tr>
<td>DA</td>
<td>District Assembly</td>
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<td>DAECC</td>
<td>District Agriculture Extension Coordinating Committee</td>
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<td>DAES</td>
<td>Department of Agricultural Extension Services</td>
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<td>DAESS</td>
<td>District Agricultural Extension Services System</td>
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<tr>
<td>DAHL</td>
<td>Department of Animal Health and Livestock Development</td>
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<tr>
<td>DAHLD</td>
<td>District Animal Health and Livestock Development Officer</td>
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<td>DANRC</td>
<td>District Agriculture Natural Resources Committee</td>
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<td>DAO</td>
<td>District Agricultural Office</td>
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<td>DAPS</td>
<td>Department of Agriculture Planning Services</td>
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<tr>
<td>DARS</td>
<td>Department of Agricultural Research Services</td>
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<tr>
<td>DeSIRA</td>
<td>Development of Smart Innovation through Research in Agriculture</td>
</tr>
<tr>
<td>DSP</td>
<td>District Stakeholder Panel</td>
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<tr>
<td>EPA</td>
<td>Extension Planning Area</td>
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<td>EU</td>
<td>European Union</td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<tr>
<td>FAW</td>
<td>Fall Army Worm</td>
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<tr>
<td>FFS</td>
<td>Farmer Field School</td>
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<td>FGD</td>
<td>Focus Group Discussion</td>
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<td>GoM</td>
<td>Government of Malawi</td>
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<tr>
<td>IEC</td>
<td>Information, Education and Communication materials</td>
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<td>KII</td>
<td>Key Informant Interview</td>
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<tr>
<td>LUANAR</td>
<td>Lilongwe University of Agriculture and Natural Resources</td>
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<tr>
<td>MGDS</td>
<td>Malawi Growth and Development Strategy</td>
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<td>MoA</td>
<td>Ministry of Agriculture</td>
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<td>MT</td>
<td>Master Trainer</td>
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<td>NAP</td>
<td>National Agriculture Policy</td>
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<td>NASFAM</td>
<td>National Smallholder Farmers Association of Malawi</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NPC</td>
<td>National Planning Commission</td>
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<tr>
<td>SANE</td>
<td>Strengthening Agriculture and Nutrition Extension Project</td>
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<td>TAP</td>
<td>Tropical Agriculture Platform</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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VAC  Village Agriculture Committee
VDC  Village Development Committee
Key definitions

**Agriculture innovation (AI):** The process whereby individuals or organizations bring existing or new products, processes and forms of organization into social and economic use to increase effectiveness, competitiveness, resilience to shocks or environmental sustainability, thereby contributing to food and nutritional security, economic development and sustainable natural resource management (TAP, 2016).

**Agriculture innovation system (AIS):** A network of actors or organizations, and individuals, together with supporting institutions and policies in the agricultural and related sectors, that brings existing or new products, processes and forms of organization into social and economic use. Policies and institutions (formal and informal) shape the way that these actors interact, generate, share and use knowledge, as well as jointly learn (TAP, 2016).

**Agricultural value chain (AVC):** Defined as the people and full range of activities that bring a basic agricultural product from obtaining inputs and production in the field to the consumer, through stages such as production, processing, packaging, distribution, transportation and marketing (TAP, 2016).

**Capacity:** The ability of people, organizations and society as a whole to manage their affairs successfully. (Agrinatura and FAO, 2019).

**Capacity development (CD):** The process whereby people, organizations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time (TAP, 2016).

**Capacity to innovate:** The ability of the different groups of stakeholders to continuously identify, prioritize problems and opportunities in the dynamic environment that they are in, and take risks and experiment with new combinations of technical and institutional configurations and assess the trade-offs from these options (TAP, 2016).

**Enabling environment (EE):** The context in which individuals and organizations put their competencies and capabilities into actions (TAP, 2016).

**Functional capacity (FC):** Functional capacity is largely defined in the context of a sector or in a thematic context. Functional capacities include capacities relevant to individual and organizational effectiveness, such as management, leadership, budgeting, marketing, information and communication technology and strategic planning, in addition to soft skills such as communication and advocacy (FAO, 2012).

**Innovation support service (ISS):** Include functional, managerial, technical and/or financial support to innovators, innovation promoters or innovation communities, to help them to make progresses in their innovation process (TAP, 2016).

**Innovation support service provider (ISSP):** Providers of ISS are professionals who offer one or several such services (TAP, 2016).

**Organizational capacity (OC):** The organization's potential to perform – its ability to successfully apply its skills and resources toward the accomplishments of its goals and the satisfaction of its stakeholders' expectations (ECDPM, 2003).
Executive summary

Malawi as a country whose economy largely depends on agriculture is facing a number of challenges including: climate change, limited natural resources, dwindling productivity, poor marketing, inadequate diversification and having more focus on crop production than other sub-sectors like livestock and fisheries. The challenges are exacerbated by the problem of land pressure resulting from high population growth. With these challenges, most of the smallholder farmers are not able to produce enough food to feed themselves and their families. Addressing diverse challenges like these, requires a systems approach. The challenge, however, is that the systems approach is not functioning effectively in Malawi because of several factors such as: weak coordination and collaboration among key actors, limited stakeholder engagement and networking hindering them from accessing innovation, inadequate support to farmer innovation, weak implementation and enforcement mechanisms for policy and regulatory frameworks, as well as inadequate resource mobilization.

Malawi government and FAO are jointly implementing a project called “Developing capacities in Agricultural Innovation Systems (AIS): scaling up the Tropical Agriculture Platform framework” (TAP-AIS) in order to strengthen capacity to innovate in the country’s Agricultural Innovation Systems (AIS).

The assessment was conducted using a framework of four types of analyses including: functional analysis, structural analysis, capacity analysis and enabling environment analysis. The approach used five case studies revolving around three methods that included usage of indigenous methods in the management of Fall Army Worm (FAW) pest in Farmer Field Schools (FFS), livestock pass-on programmes and horticulture marketing innovation platform in Mzimba, Ntchisi, Balaka and Thyolo Districts. A mixed methods data and information collection approach was adopted and involved document review, Focus Group Discussions (FGDs), Key Informant Interviews (KII), networking analysis and mapping, and Capacity Gap Assessment (CGA).

The results of the assessment revealed that there were key functions that are contributing to the success of innovation and that some functions were weak or missing. The study found that capacity building was a key function that contributed to the success of the innovations. The main success factors under capacity building were training, leadership, facilitation and farmer organization. Resource mobilization that mainly
involved provision of financial and material resources required for the innovations, was another function that was key to the success of the innovations. Coordination and collaboration using District Agricultural Extension Services System (DAESS) structures, along with provision of Extension and Advisory Services (EAS), were crucial functions for the success of the innovations. Other functions that contributed to the success of the innovations were: community mobilization, provision of technical services, provision of policy support and regulation as well as governance.

Research support to innovations and marketing had some missing aspects that negatively affected the success of the innovations while advocacy was completely missing as a function. Other challenges included: shortage of extension staff, narrow focus of the agricultural sector where the focus is on crop production to a disproportionate disadvantage of other agricultural innovation sub-sectors like livestock, as well as inadequate resource mobilization skills like proposal writing.

The assessment has also revealed that there were many actors involved in the innovation processes but they concentrated their activities on certain functions, leaving other equally important functions, with no actors. Most of the actors were involved with functions like capacity building, advisory services, resource mobilization and technical support services. Functions such as advocacy, marketing and business support either had completely no actors or had very few actors. The results also showed that some actors who are supposed to provide crucial roles such as research and education like Department of Agricultural Research Services (DARS) and higher education institutions like Lilongwe University of Agriculture and Natural Resources (LUANAR) were not networking with other actors involved in the activities of AIS in Malawi.

In terms of capacity assessment, the study has revealed major knowledge and skills gaps in marketing and advocacy. These gaps had a significant negative impact on the innovations. Knowledge and skills gaps in marketing is one of the important factors that may have contributed to farmers getting low prices for their produce which had a major impact on the profitability of their farming activities. The assessment also revealed that despite the fact that policies in Malawi over time have evolved towards enabling AIS, there is a need for more efforts to align the policies to the complex and dynamic context in the country. There is, for example, a need to develop policy or strategic guidelines for research to be implementing research activities that respond to the real needs of smallholder farmers. Another challenge is the weak implementation and enforcement mechanisms.

Based on the findings of the assessment, the report has recommended that there is a need to re-orient research to embrace a systems thinking and to begin to move away from supply-driven, towards demand-driven research. The Department of Agricultural Extension Services (DAES) needs to be capacitated to champion DAESS as the mechanism for promoting AIS in Malawi. The system also needs to be embraced as a rural
development tool by demonstrating its alignment, relevance and application in promoting agriculture and rural development in Malawi. The study has suggested capacitating AIS actors with knowledge and skills in marketing and advocacy. Higher education institutions like LUANAR as well as research institutions like DARS need to be proactive and engage in networking activities with other AIS actors in Malawi.
1. Introduction

Malawi, a country which is located in Southern Africa, has a population of over 17.5 million people (2018) and is projected to double by 2042 [Government of Malawi (GoM): National Statistical Office (NSO), 2018]. According to the country’s flagship vision, The Malawi 2063 [National Planning Commission (NPC), 2020], agriculture remains the country’s dominant sector as it contributes about 30 percent to the national Gross Domestic Product (GDP) and it supports the livelihood of about 80 percent of the population. Agriculture is Malawi’s main source of foreign exchange earnings with tobacco, sugar, tea, coffee and cotton as the major export products (GoM, 2017). More than 64 percent of the labour force is engaged in agriculture (GoM, 2017) either in primary production, or in the value chain of the various agricultural products and in service provision.

The country is however facing a number of challenges including:

- climate change
- limited natural resources
- dwindling productivity
- marketing problems
- inadequate diversification with more focus on crops and not on other sub-sectors like livestock, fisheries and forestry.

Malawi has been experiencing frequent droughts and floods due to the impact of climate changes and these have affected its ability to produce food for its population. The Department of Disaster Management Affairs (DODMA) reported in 2018 that it had been supporting an average of 1.8 million people with emergency food assistance for nearly ten years due to consecutive climate shocks (GoM, 2018). For example during 2015-2016 growing season, Malawi experienced serious drought due to El Niño phenomena that affected food production of more than 1.8 million households resulting in the need to provide emergency food assistance for about 6.5 million people (GoM, 2016). Similarly, about 3.3 million people were in need of emergency food assistance due to drought in the 2017-2018 growing season. Furthermore, many farmers lost their crop due to floods in 2019-2020 growing season, which were caused by cyclone Idai. Climate change related problems are therefore having serious impact on the country’s ability to feed itself.

The challenges are worsened by the problem of land pressure resulting from high population growth rate estimated at 2.9 per annum (GoM, 2018). According to the NAP, the average landholding size for smallholder farmers is 0.61 hectare with women-headed
households cultivating much smaller land pieces averaging 0.53 hectare (GoM, 2016). Most of the smallholders are unable to produce enough to feed themselves and their families with these smallholding sizes. The problem of high population growth is putting a lot of pressure on natural resources. Forests are dwindling very fast due to deforestation; whilst cultivation of unsuitable farmland is causing serious problems of soil erosion, soil infertility and land degradation. These problems are further worsened by weak agricultural extension services due to poor coordination, inadequate staff and training, resulting in poor dissemination and low adoption of technologies.

These challenges require a systems approach to innovation. However, the systems approach is not functioning effectively in Malawi because of several factors, including:

- weak coordination and collaboration among key actors;
- limited stakeholder engagement and networking hindering them from accessing innovation;
- inadequate support to farmer innovation;
- weak implementation and enforcement mechanisms of policy and regulatory frameworks; and
- inadequate resource mobilization and advocacy mechanism.

2. Background

The Tropical Agriculture Platform (TAP) was launched in 2012 by the G20 to tackle the constraints of weak capacity for agricultural innovation in low and middle-income countries in the tropics. As a way of addressing the constraints, TAP developed a common framework on capacity development for Agricultural Innovation Systems (AIS) and implemented it in eight countries to support capacity development for innovation and generate evidence for better decision-making. Lessons drawn from this led to a second TAP Action Plan emphasizing on strengthening agricultural innovation capacities at country level, and engaging countries and TAP partners more actively in the agricultural innovation agenda.

Implementation of the second TAP Action Plan is through the project titled “Developing capacities in agricultural innovation systems: scaling up the Tropical Agriculture Platform Framework” (TAP-FAO AIS). The project is part of a larger European Union (EU) Initiative called Development of Smart Innovation through Research in Agriculture (DeSIRA): Towards climate-relevant Agricultural and Knowledge Innovation Systems. The project is funded by the EU and is implemented in nine countries: five in Africa (Burkina Faso, Eritrea, Malawi, Rwanda and Senegal); three in Asia (Cambodia, the Lao People's Democratic Republic and Pakistan) and one in Latin America (Colombia) from August 2019 to July 2024. The expected outcome of the project is “Strengthened capacity to
innovate in national Agricultural Innovation Systems”. To achieve this, the project will deliver four outputs at the global level and they are:

1. TAP governance strengthened and TAP Secretariat operational.
2. The AIS of the countries are assessed, capacity development needs are identified and AIS strengthened.
3. TAP tools and approaches are integrated into African Comprehensive African Agriculture Development Programme (CAADP) ex-Pillar IV organizations, and in regional networks in Asia-Pacific and Latin America and the Caribbean.
4. Increased awareness and knowledge on using the TAP Common Framework on capacity development for AIS through information and communication platforms.

In Malawi, the project is focusing on output number two “the AIS of the countries are assessed, capacity development needs are identified and AIS strengthened”. The project is implemented in three phases namely:

1. Inception
2. Capacity Development
3. Final (learning review for the evaluation of progresses made).

The lead implementing institutions of the project in Malawi are FAO Malawi Office and the Ministry of Agriculture (MoA) through the Department of Agricultural Extension Services (DAES). The inception phase started with a scoping study followed by an inception workshop. The AIS assessment is building on the scoping study and aims to provide detailed insights on the state of AIS in Malawi, using the recently developed “Guidelines for action-oriented assessment of agricultural innovation systems” developed by the TAP-AIS project team at FAO’s Research and Extension Unit, Office of Innovation (OINR).

3. Objectives and priorities

The Malawi National AIS assessment sought to:

1. Assess factors (structural, functional, capacity and policy) that affect the capacity of AIS to develop, foster and scale-up climate-smart innovations.
2. Assess the capacity of the DAESS to champion agricultural innovations in Malawi.
3. Assess the mechanisms for coordination and collaboration within the system, highlighting strengths, weaknesses, opportunities and threats.
4. Provide recommendations on how to restructure the current AIS to effectively support the transformation of food and agriculture systems.
4. Agricultural innovation in the national context

4.1. National development context

Malawi is one of the poorest countries in the world ranking 174 out of 189 countries according to the latest human development index ranking of 2020 [United Nations Development Programme (UNDP), 2020]. Poverty is wide and rampant with 50.7 percent of the population living below the poverty line of less than USD 1 per day and the incidence of the ultra-poor increasing from 22.4 percent to 25 percent between 2005 and 2015 (GoM, 2017). Unemployment rate is very high at 20.4 percent with more women being unemployed than men (GoM, 2014). The country's population, estimated at over 17.5 million and expected to double in 2042, is very youthful (GoM: NSO, 2018). Youth under the age of 30 years constitute 70 percent of the population. The population growth rate is estimated at 2.9 percent per annum (GoM, 2019). The high population growth rate is posing some major challenges to Malawi's development efforts. The country is experiencing serious land pressure as well as degradation of natural resources. These coupled with climate change and weather related shocks, are having serious negative impacts on the agriculture and food production systems.

In spite of the prevailing setbacks, Malawi has made some considerable progress towards promoting AIS and climate relevant innovations. Long-term and medium-term national development goals have prioritised agriculture as the lead sector in its development agenda. Malawi Vision 2063 has identified “agriculture production and commercialization” as a priority pillar number one (NPC, 2020). Malawi Growth and Development Strategy III has also identified “agriculture, water development and climate change management” as key priority area number one among the five key priority areas to spur growth in its economy (GoM, 2017).

In addition, Malawi continues to have and move towards having policies that are relevant for promoting AIS and climate relevant innovations. Examples of such policies include:

- National Agriculture Policy (NAP)
- National Agriculture Investment Plan (NAIP)
- National Agriculture Extension and Advisory Services Strategy (NAEASS)
- Agricultural Extension Policy which is advocating for pluralistic and demand-driven
services.
The DAESS, a mechanism for implementing the extension policy has also embraced the AIS approach, with its platforms, creating space for stakeholder engagement, organizing farmer demands, participatory resource mobilization promoting networking, coordination and collaboration among actors.

4.2. Agriculture sector context

To feed the growing world population, FAO (2009) estimates that agricultural production must increase by 70 percent globally and by almost 100 percent in developing countries. To raise yields and save the environment, while also tackling a host of other challenges to agriculture in the twenty-first century, climate change being chief among them, we need to produce more with less. A major shift towards sustainable intensification of agriculture is needed.

Innovation is key to make that happen, helping agriculture save and grow, and meet its major challenges. Evidence points at weak capacity to innovate in many in low-income countries including Malawi. This is perceived as an obstacle to sustainable and equitable transformation of livelihoods especially in the rural areas.

There is a paradigm shift worldwide from linear and top-down models of technology transfer towards a systems approach to agricultural innovation. Figure 1 provides, on the left hand side, a pictorial presentation of the linear model, where technologies generated from research are disseminated down through extension to farmers, whilst on the right hand side shows the systems approach. According to Aerni et al. (2015), AIS provides a framework for analysing complex relationships, innovative processes including multiple agents, as well as social and economic institutions.
The linear top-down models are criticized for not connecting adequately to the local agricultural sector and economy. Aerni et al. (2015) argued that research priorities, education and training, as well as competencies of extension workers are not sufficiently aligned to the priorities of farmers, farm cooperatives and agribusiness. The linear approach to agricultural innovation is more concerned with transfer, adoption and diffusion of technologies, where the major assumption is that formal research systems are the only suppliers of knowledge for agricultural innovation. The emphasis being on science-based technologies with little regard to soft innovations and indigenous knowledge systems that are all important components of the innovation system.

However, agricultural innovation support services aim at supporting innovation following a bottom-up approach that draws on collaboration sharing of knowledge and intermediary action, which can comprise a range of methods from standard advisory services to tailor-made mentoring, coaching, peer learning, etc. These services help accelerate ideas and invention, manage viable innovation projects, make emerging innovation communities more efficient, facilitate strategic partnerships between stakeholders for technical or funding purposes, or enhance the scaling-up and scaling-out of innovations.
The agricultural research system in Malawi mostly uses this top-down and supply-driven transfer of technology approach. The research agenda and designs are managed by research scientists who mainly respond to project funders' interests rather than needs and contexts of stakeholders in the AIS, including farmers. The Department of Agricultural Research Services (DARS) is the lead institution in technology generation and it conducts most of the research on field, as well as horticultural crops and livestock. Other crops that DARS works on include coffee, bananas and spices including bird's eye chili.

Research on high value crops such as tobacco, tea and sugar as well as research targeting estate farmers is conducted by other bodies such as the Agricultural Research and Extension Trust (ARET), the Tea Research Foundation (TRF) and the Sugar Corporation of Malawi (SUCOMA). Higher education institutions including the Lilongwe University of Agriculture and Natural Resources (LUANAR) and the University of Malawi (UNIMA), also conduct research in crops, aquaculture, fisheries and livestock, in collaboration with DARS. The Department of Animal Health and Livestock Development (DAHLD) conducts research focussing on livestock diseases, while the Department of Fisheries and the WorldFish Center conduct research on fisheries. Other key players in research and technology development include Consultative Group on International Agricultural Research (CGIARs), seed companies and other private sector organizations. DARS conducts its research using a network of main research stations, experimental stations and several sub-stations. Technologies generated from various research activities are supposed to be approved by the Agricultural Technology Clearing Committee (ATCC) of the MoA.

Agricultural extension which was introduced in 1903 in Malawi, (then called Nyasaland under British colonial rulers), overtime has undergone many transformations. The systems which have been well documented include the coercive agricultural extension system and the master farmer system which were implemented by the colonial government (Masangano and Mthinda, 2012; Mkandawire, 1987). The progressive farmer system and the Block Extension System (BES) which was a modified Training and Visit (T&V) system were implemented by the Government of Malawi through the MoA in the first three decades after independence in 1964 (Masangano and Mthinda, 2012). All these extension systems and approaches were predominantly top-down and supply-driven in nature in tandem with the research system.

The situation began to change in Malawi when, from the 1990s, the number of extension service providers increased. These were mostly Non-Governmental Organizations (NGOs) which started operating in the country earlier in the 1980s as relief organizations,
supporting Mozambican refugees and transformed themselves into development organizations when the refugees were repatriated back to their country at the end of the Mozambican civil war. One development activity the organizations transformed themselves into, was provision of Agricultural Extension and Advisory Services (AEAS). Malawi also went through another major change during the same decade when it changed its political system from one party system of governance to a multiparty democratic governance system. The extension system that was predominantly top-down, was found to be inappropriate in an era where emphasis was being placed on moving power to the people and more freedom was being promoted. Bottom-up, demand-driven and more participatory services were preferred over and above the top-down approaches. These developments forced Malawi to change its AEAS system by introducing pluralistic, demand-driven and decentralized extension systems.

At the peak of this process a new Agricultural Extension Policy was introduced in 2000 titled “Agricultural extension in the new millennium: towards pluralistic and demand-driven services in Malawi” (GoM, 2000). As the title shows, the policy created an environment that allowed the participation of many extension service providers in the provision of AEAS in the country in addition to an emphasis on provision of extension services demanded by users such as farmers and other value chain actors. To facilitate these reforms, the country introduced the District Agricultural Extension Services System\(^1\) (DAESS) in 2006 (GoM, 2006). DAESS is a decentralized extension framework designed to enable farmers and stakeholders to engage in participatory process of identifying and organizing agricultural issues for collective action to be undertaken by farmers and stakeholders. The objectives of DAESS are to:

1. provide a platform for farmers to discuss agricultural needs to be addressed by themselves and/or refer them to other stakeholders;
2. mobilize service providers to collectively or individually respond to farmers prioritized agricultural needs;
3. instil a sense of ownership and self-reliance among farmers when undertaking agricultural programmes; and
4. enhance coordination, collaboration and co-location amongst stakeholders in provision of agricultural extension and advisory services.

The system is composed of structures/platforms at various district levels and these include:

- District Agriculture and Natural Resources Committee (DANRC)
- District Agriculture Extension Coordinating Committee (DAECC)
- District Stakeholder Panel (DSP)

\(^1\) According to the national agricultural extension and advisory services strategy, the name has now been changed to the Decentralised Agriculture Extension Services System (DAESS).
• Area Stakeholder Panel (ASP)
• Village Agriculture Committee (VAC)

It is an integrated system with local government structures. Figure 2 shows the organizational structure of DAESS, whilst functions and roles of each structure are briefly described.

**District Agriculture and Natural Resources Committee (DANRC):** a sub-committee of the District Council or District Assembly, the highest political structure in the district composed of elected ward councillors, members of parliament in the district and chiefs as well as other local leaders in the district. The main role of the DANRC is to assist the district councils/district assemblies in the proper governance in the agricultural sector by promoting agricultural development in their respective districts.

**District Agricultural Extension Coordinating Committee (DAECC):** a sub-committee of the District Executive Committee (DEC) and its main function is to coordinate the activities of service providers in order to respond to farmers demands appropriately (GoM, 2006).

**District Stakeholder Panel (DSP):** a platform at the district level where representatives present farmers needs from ASP and stakeholder discussions resulting in identification of areas of support to be referred to appropriate service providers for action.

**Area Stakeholder Panels (ASP):** a sub-committee of the Area Development Committee (ADC) and its main role is to aggregate farmers prioritized needs from VACs and engage appropriate service providers for response. ASP refers demands to ADC and DSP for assistance where appropriate service providers are not available.
Village Agricultural Committee (VAC): a platform at the group village level and a sub-committee of the Village Development Committee (VDC). The main role of VACs is to organize farmers’ demands. VACs are platforms that provide opportunities for farmers to organize and prioritize their agricultural needs to be addressed on their own or engage service providers to assist them.
The description of both the national agricultural research system as well as the current agricultural extension system shows that there is a clear disconnection between research and extension in Malawi. The agricultural research system is operating in a top-down and supply-driven mode, while the NAP is clearly promoting establishment of effective, demand-driven AIS for research, technology development and dissemination. Agricultural extension, with DAESS as a system, has the right policy environment, however research and extension are moving in different directions and there is no link between them.

If properly implemented, DAESS structures have several advantages, including:

- increased coordination and collaboration among stakeholders
- joint planning and implementation of activities;
- co-financing and resource sharing;
- peer learning through experience sharing;
- knowledge and information sharing;
- harmonisation and standardisation of approaches and methods; and
- creation of platforms for articulation of farmers needs and demands.

However, most stakeholders have not yet embraced DAESS as a system for implementation of well-coordinated extension and rural development activities in the districts. Most of the departments in the MoA, Ministry of Local Government and Rural Development (MoLGRD), district councils/assemblies, other service providers from the private sector and NGOs including farmers and all other members of the rural communities, think that DAESS is mostly for the DAES. This opinion is leading to the slow implementation of DAESS and most districts have not yet established functional DAESS structures. Where they are well-established, DAESS structures serve as innovation platforms.

4.3. Vision for development

According to the Malawi Vision 2063, Malawi is to be, an inclusive wealth-creating and self-reliant nation, with an industrialized upper-middle income country which will primarily be financing its own development needs, by 2063. The vision is anchored on three pillars (NPC, 2020):

(a) agriculture productivity and commercialization

(b) industrialization
Agriculture productivity, is placed very high in Malawi’s development agenda and in response to the challenge of low agricultural productivity, the national goal for Malawi’s agricultural sector, as specified in the National Agriculture Policy (NAP), is “To achieve sustainable agricultural transformation that will result in significant growth of the agricultural sector, expanding incomes for farm households, improved food and nutrition security for all Malawians, and increased agricultural exports” (GoM, 2016). This policy creates a good enabling environment for AIS in that, most of the priorities and strategies specified, are promoting innovation and require involvement of networks of various stakeholders to work together in bringing the innovations. All the eight priority areas specified in the policy are designed in such a way to promote involvement of networks of stakeholders, working together to bring innovations to assist farmers and other value chain actors to improve their performance in their production, processing and value addition of their agricultural products.

**Priority area number one** is “sustainable agriculture production and productivity”, three of the seven strategies for achieving this are:

- Promote innovative and high quality agricultural extension and advisory services involving both public and non-state extension service providers.

- Establish effective, demand-driven AIS for research and technology generation and dissemination.

- Promote investments in climate-smart agriculture, sustainable land and water management.

These strategies reveal the importance that Malawi is placing in:

- ensuring high quality research and extension systems;
- strengthening its AIS; and
- dealing with climate related challenges.

**Priority area number seven** in the NAP is another example where it is emphasizing on empowerment of youth, women and vulnerable groups in the agricultural sector. According to the policy document, this will be achieved using strategies that include:
− Promote agricultural education and technical training for women, youth and vulnerable groups particularly those living with disabilities.

− Support agribusiness entrepreneurship among women, youth and vulnerable groups particularly those living with disabilities.

− Facilitate access to finance for women, youth and vulnerable groups in agriculture.

− Promote participation of women, youth and vulnerable groups in agro-processing, value addition and agricultural exports.

**Priority area number eight** is on institutional development, coordination and capacity strengthening. This priority area is emphasizing on having institutions that have professionals that are well-trained in the core functions of the agriculture sector for designing and programming effective service delivery to farmers and agribusinesses. This is in recognition that farmers need regular training and access to knowledge of agricultural practices and technologies. Some of the strategies specified under this priority are to:

− Promote stakeholder coordination in formulation, implementation, and review of agriculture and related policies and programmes.

− Promote the development of professionally-operated and efficient farmer organizations, particularly cooperatives.

− Improve coordination and capacity for agricultural services delivery.

− Facilitate and support infrastructural development for improved agricultural public service delivery.

**4.4. Challenges and constraints to innovation**

As observed in earlier sections, Malawi’s agricultural sector has a number of challenges and constraints to innovation. The main one is the dominance of linear, top-down and supply-driven approaches both in its research as well as extension systems. Other challengers include:
• the narrow focus of the agricultural sector on crops with less attention to other sub-sectors like livestock, fisheries, etc.;
• weak coordination and collaboration;
• limited stakeholder engagement;
• inadequate support to farmer innovation;
• weak implementation of policies, rules and regulations; and
• inadequate resource mobilization and advocacy.

The approach used by research scientists from DARS to identify problems is mainly through their general observation of farm and field conditions or by identifying current issues in the literature. Other research topics are based on objectives of funded research projects and or demanded by private sector such as seed companies looking for new seed varieties. Research proposals developed from problems identified through these methods are presented in annual research planning meetings for approval. The system is therefore top-down and supply-driven. Currently, there is no structure that enables smallholder farmers expressed research needs and demands to be channelled into the research system. Farmers are simply provided with the available technologies from research, leaving them to choose and decide which one to adopt. The challenge with this approach is that there is usually a disconnection between farmers’ needs and concerns and the research products available.

The research focuses on crops with very little work on other areas such as livestock, fisheries, forestry and natural resources as illustrated in Table 1 and Figure 2. Table 1 shows a list of all the technologies for crops released in the period between 2012 and 2016, with no technology for livestock, fisheries, forestry and natural resources.

**Table 1.** Technologies developed and released between 2012 and 2016

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Type of Technology</th>
<th>Number of Technologies Released</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals</td>
<td>New varieties</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Other Agronomic Technologies</td>
<td>13</td>
</tr>
<tr>
<td>Legumes</td>
<td>New Varieties</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Other Agronomic Technologies</td>
<td>7</td>
</tr>
<tr>
<td>Horticulture</td>
<td>New Varieties</td>
<td>9</td>
</tr>
<tr>
<td>Tobacco and Tea</td>
<td>New Varieties</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Other Agronomic Technologies</td>
<td>8</td>
</tr>
</tbody>
</table>

*Source:* Modified from Agricultural Sector Performance Report 2016
Figure 3 shows that 57 percent of all the research in Malawi, done in 2011, was on crops, while livestock, fisheries and natural resources each accounted for six percent of the research. This is a reflection of the low diversification and narrow focus on crops.

**Figure 3.** National agricultural research focus in Malawi, 2011  
*Source: Agricultural Science and Technology Indicators (ASTI), 2014.*

Notes: Major crops include crops that form the focus of more than 5 percent of the total crop researchers, 35 percent of total crop researchers focused on a wide variety of other crops.

Agricultural Extension and Advisory Services (AEAS) have been highlighted as a major challenge in most of the policy documents. The services are weak and inefficient due to several problems such as:

- inadequate and poorly motivated extension staff;
- poor funding and inadequate resources; and
- poorly coordinated services.

Malawi has however introduced major extension reforms. The introduction of DAESS is a step in the right direction, however most districts have not adopted it, leading to further challenges, such as:

- poor coordination and collaboration;
- inadequate stakeholder engagement; and
- inadequate support to farmer innovation.
5. Overview of the AIS assessment process

The AIS assessment team comprised agricultural innovation experts selected from key AIS organizations and departments that form part of the Country Project Team (CPT). These included Department of Agricultural Extension Services (DAES), Land Resources Conservation Department (LRCD), Department of Agricultural Research Services (DARS), FAO Malawi Country Office, International Potato Centre (CIP), Lilongwe University of Agriculture and Natural Resources (LUANAR) and National Smallholder Farmers Association of Malawi (NASFAM). Prior to field data collection, the team was trained on the AIS assessment methodology, which was developed and facilitated by the TAP-AIS project team at FAO's Research and Extension Unit, Office of Innovation (OINR) from 25-29 January 2021. The training was conducted using the Zoom Cloud meetings virtual platform. The morning sessions were dedicated to lectures and presentations by the facilitators whilst afternoon sessions were used for practical sessions using hypothetical innovation cases.

The assessment team used the training sessions to choose innovation case studies to use as a proxy of the functioning of the national AIS for studying agricultural innovation processes in Malawi. The main question investigated in the assessment was “how effective is DAESS and other farmer groups as platforms for championing agricultural innovation in Malawi?” Based on evidence of success, the team chose five case studies revolving around three methods, which were vetted by the facilitators of the training sessions. They included usage of indigenous methods in the management of Fall Army Worm (FAW) case implemented under the Farmer Field School (FFS) concept in Mzimba and Balaka Districts, livestock pass-on programmes in Ntchisi and Thyolo Districts and horticulture marketing Innovation Platform (IP) in Thyolo District (Table 2). Selection of these cases was based on the criteria from the AIS assessment framework that included success of the case study, whether the innovation case was commonly known by stakeholders and whether it involved many actors. All the case studies were analysed with a special focus on the role of agricultural extension platforms such as the DAESS in championing agricultural innovation processes in Malawi.

A minimum of one district was selected from each of the three regions of the country. Mzimba District from the northern region, Ntchisi District from the central region while Balaka and Thyolo Districts from the southern region.

Table 2 presents a summary of the local innovation case studies.
### Table 2. Local innovation case studies used as proxy of the functioning of the national AIS

<table>
<thead>
<tr>
<th>ID</th>
<th>Case</th>
<th>The Problem being Addressed</th>
<th>The Innovation</th>
<th>Location (District)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Local methods in FAW management using indigenous knowledge</td>
<td>FAW infestation in cereals</td>
<td>Use of FFS in managing FAW</td>
<td>Balaka and Mzimba</td>
</tr>
<tr>
<td>2</td>
<td>Goat and dairy cattle pass-on programmes</td>
<td>Shortage of livestock, malnutrition, low income from farming</td>
<td>Use of DAESS and farmer groups as platforms to implement the pass-on programmes</td>
<td>Ntchisi and Thyolo</td>
</tr>
<tr>
<td>3</td>
<td>Marketing Innovations Platform</td>
<td>Horticultural marketing challenges</td>
<td>Use of a marketing platform to address marketing challenges</td>
<td>Thyolo</td>
</tr>
</tbody>
</table>

*Source: Data collected and re-elaborated by the AIS assessment team*

The assessment used a mix of tools for quantitative and qualitative analyses that formed part of the methodology developed by the TAP-AIS project team at FAO’s Research and Extension Unit, Office of Innovation (OINR).

A process-based approach that favoured inclusive participation of stakeholders (involving policy makers and decision makers from different sectors, farms, firms, bridging institutions, research, education, civil society, etc.) was emphasized with the aim of building ownership while keeping power relationships in mind.

Capacity-development activities were embedded in the methodology, as stakeholders learned about AIS concepts and methods during their participation in the assessment activities. The AIS assessment objectives and processes were adapted to the context, political priorities and current state of AIS in Malawi. In the TAP-AIS project, the assessment balances internal (country-led and country-owned) and external expertise (technical support by partners). Figure 3 illustrates a summary of the assessment framework and methodology used.
5.1. Entry points and focus for the AIS assessment

In accordance with the TAP-AIS assessment framework developed by the TAP-AIS project team at FAO’s Research and Extension Unit, Office of Innovation (OINR), the assessment was conducted in four analytical categories:

1. Functional analysis
2. Structural analysis
3. Capacity analysis
4. Analysis of the enabling environment.

**Functional analysis** - The purpose of the functional analysis was to identify the functions, processes and services that lead to the success of the innovation, as well as weak and missing functions. The key question in the functional analysis was “How did the innovation actually happen?”
**Structural analysis** - The structural analysis was used for identifying the stakeholders in the innovation, their interests, opportunities and relationships that can promote more success in the innovation and solve potential conflicts between stakeholders.

**Capacity analysis** – The capacity analysis was used to identify the required capacities for the success of the innovation at the individual, organizational and enabling environment levels. The analysis helped to identify existing /missing or weak capacities and therefore helping in the identification of areas needed for capacity development initiatives.

**Analysis of the enabling environment** – The enabling environment analysis was aimed at assessing aspects in the enabling environment that helped the innovation to be successful, whilst identifying gaps, obstacles and constraints that slowed down the innovation. The specific areas of the enabling environment assessed included policies, regal and regulatory environment, governance, infrastructure, investments and institutional environment.

The key questions in the structural, capacity and enabling environment analyses were:

- Why are the AIS functions performing well or not?
- Who are involved?
- What are the major problems to address in the system?

### 5.2. Case studies

The innovation case studies revolve around three methods, namely:

1. usage of indigenous methods in the management of FAW (FAW) under FFS platform in Mzimba and in Balaka Districts;
2. livestock pass-on programmes in Ntchisi and in Thyolo Districts; and
3. horticulture marketing IP in Thyolo District.

The descriptions of the innovation case studies have been presented according to the sites in the districts where they were being implemented. Figure 5 illustrates a summary map of the innovation cases, study areas and districts.
Figure 5. Network map showing assessment innovation case studies and study areas

Indigenous methods in the management of FAW

1- Chankhomi FFS/FAW in Eswazini Extension Planning Area (EPA) in Mzimba District

Figure 5 shows the first innovation case study applying indigenous knowledge in FAW management by using FFS platform in Mzimba District. FAW is a leaf-eating pest that has been devastating most crops especially maize which is Malawi’s staple food crop. The team studied Chankhomi FFS in Eswazini Extension Planning Area (EPA). Chankhomi is one of the FFSs in Mathandani section of Eswazini EPA in Mzimba South. The FFS was formed in 2018 under KULIMA Programme\(^2\) and currently can count on the membership of 29 farmers, nine men and 20 women. Since 2018, Chankhomi FFS has conducted a number of winter and rain-fed studies in the categories of Integrated Pests and Diseases Management (IPDM), variety adaptability, optimal plant population and Integrated Soil Fertility Management (ISFM). The current season’s study focuses on assessing the effectiveness of local botanicals to control FAW in maize crops. Specifically, the FFS aims at comparing the efficacy of ‘\textit{Muwawani}’, Aloe vera and ‘\textit{Nkhwazi}’ in FAW control on a plot of 0.4 hectare. Besides conducting various studies on crop enterprises, members of Chankhomi FFS also undertake different livelihoods supporting interventions. Examples

\(^2\) https://kulimamalawi.org/
of the interventions are Village Savings and Loans (VSL), nutrition, and diversified crop farming such as bananas, common beans, ground beans and finger millet.

2- Kachere FFS/FAW in Bazale EPA in Balaka District
The FAW management using indigenous knowledge in FFS platform innovation case study was also studied in Balaka District. The specific case studied was Kachere Community Based Facilitator (CBF) in Pyoli Village under Group Village Head (GVH) Chipole (Chipole VAC) under Sub-Traditional Authority Mbera (Mbera ASP). The group has 30 members (12 men, 18 women of which 14 are youths). In the 2019-2020 rainy season, the group designed and conducted a study on FAW control using Integrated Pest Management (IPM) concept under FFS approach. Their study mainly aimed at comparing different methods of FAW control and management. There were four treatments as follows:

- Maize plot sprayed with Neem
- Maize plot treated with small fish (Bonya) soup
- Maize plot treated with sand
- Maize plot treated with Surf (powdered soap solution)

Results of the study showed that Neem was the most effective treatment for FAW control with the fewest cobs attacked by FAW and the highest yield out of the four treatments. The findings of the study have been shared with the farming community in the area using various platforms including field days and coordinating platforms like VACs and ASP.

Livestock pass-on programmes

1- Tsokonombwe goat pass-on programme in Chikwatula EPA in Ntchisi District
Another innovation case studied was the goat pass-on programme, which focused on Tsokonombwe Model Village in Chikwatula EPA in Ntchisi District. The model village is operating under Mpanang’ombe VAC and under Nthondo ASP.

Implementation of the programme in Tsokonombwe Model Village started in 2017-2018 with a group of 15 members (six men, nine women) who received 75 goats (five each) and they passed on 75 offspring of their goats to the Chapulapula group in the year 2019-2020.

The innovation case was addressing the consequences of the 2016-2017 drought which affected all the Traditional Authorities (TAs) in the District. The drought led to low crop yield, low income hence food insecurity. The goat pass-on programme was therefore presented as a mitigation measure for the food and nutrition insecurity. The programme was introduced to food insecure households in all the TAs as a way of helping them to
own livestock to be used as an income, generating activity in order to minimize the impacts of drought and malnutrition. Five goats (four female and one male) were supplied as a package to each of the few households selected, on a loan, to be repaid by passing on five offspring (four female and one male goat) to another households. Similarly, the second generation of households were also expected to pass-on the offspring in a similar package to a third generation of households and the programme would continue in the same manner until all the households in the district would be covered. The goat pass-on programme was financed by a World Bank funded project implemented by the Malawi Government titled “Malawi Drought Recovery and Resilience Project (MDRRP).”

As a strategy, the district used the DAESS structures such as ASPs, VACs and local government structures such as ADCs and VDCs to the roll out of the goat pass-on programme in the communities. These committees were empowered to ensure that once the goats are supplied, farmers are passing-on the offspring to other farmers. Front line staff were required to provide support to the innovation such as club formation, farmer trainings and monitoring the programme. The successes resulted were:

- beneficiaries raised the goats and passed them on to their fellow farmers;
- the innovation is still on-going in the district and it has led to improved crop yield due to:
  - increased usage of the manure from the goats;
  - improved household income;
  - improved protein consumption; and
  - improved household food security.

2- **Tafika dairy animal pass-on programme in Khonjeni EPA in Thyolo District**

The fourth innovation case studied was on dairy animal pass-on programme in Thyolo District. The study was conducted from 4–6 May 2021 and the case studied was Tafika Milk Bulking Group in Khonjeni EPA. Milk production is the flagship programme in livestock production in Malawi. The national aim is to increase milk production to meet national demand for milk and milk products. A strategy to achieve this is to expand dairy schemes in suitable areas. The milk-shed areas are concentrated in the districts surrounding the main urban centres of Blantyre in the southern region, Lilongwe in the central region and Mzuzu in the northern region. Due to its proximity to Blantyre City, Thyolo District is one of the major milk production areas in Malawi. One of the main constraints for milk production is, however, the availability of appropriate dairy breeds for smallholder farmers. Farmers are encouraged to use Friesian X Malawi Zebu crossbreeds because Friesians are high milk producers while Malawi Zebu adapt to local conditions in the country. The pass-on programme, which has successfully been introduced in Thyolo District by various organizations funded from several donors, is one way of helping smallholder farmers access dairy animals.
Marketing Platform

1- Tayamba Horticulture Marketing Platform in Matapwata EPA in Thyolo District

Tayamba Challenge Project started as part of an indigenous vegetable research project. The research project was a Sub-Saharan Project which aimed at promoting the consumption of indigenous vegetables and uplifting livelihoods of farmers by implementing high-value horticultural crops growing. The project also diversified from tomato dominated horticultural farming, to a wide variety of high-value crops. Marketing of their horticultural produce was a major challenge. They decided to establish themselves as a marketing platform as sourcing markets and negotiating for better prices as a group. Farmers have been exposed to various capacity building initiatives/empowerment and have gained some confidence even in bargaining for better prices for their produce. At the time of the assessment, (May, 2021), six years after the project came to an end, almost all households in the area have home gardens, growing various horticultural crops. By growing horticultural crops farmers are able to sell surplus vegetables and they are able to raise money for other needs.

5.3. AIS assessment approach and methodology

The study was conducted using four methodological approaches including:

- a review of various policy and regulatory documents related to AIS;
- Focus Group Discussions (FGDs);
- Key Informant Interviews (KIIIs) with stakeholders from the innovation case study sites; and
- digital Capacity Gap Assessment (CGA) tool administered at national level using Kobo toolbox.

A total of 18 policy and regulatory framework documents were reviewed using guiding questions to assess the gaps in the enabling environment that hindered the innovation process, and how such gaps can be addressed.
Table 3 presents a summary of the data collection approaches and methodology.

Table 3. Summary of the data collection approaches and methodology

<table>
<thead>
<tr>
<th>ID.</th>
<th>Name of Innovation case study</th>
<th>DAEC</th>
<th>Local Innovators</th>
<th>KII</th>
<th>CGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chankhomi FFS FAW</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Tsokonombwe Goat Pass-on</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Kachere FFS FAW</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Tafika Dairy Pass-on</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Tayamba Horticulture IP</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Totals</td>
<td>5</td>
<td>5</td>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: Data collected and re-elaborated by the AIS assessment team

The choice of key informants was based on their involvement in the innovation case studies. Both the FGDs and KIIs were conducted using checklists that had four sections each (Please refer to appendices). The first section was functional analysis followed by a structural analysis section, then a capacity assessment section followed by an enabling environment section.

A CGA tool was used for assessing capacity gaps among actors in the innovation system. The digital CGA tool was mailed out electronically to a total of 78 respondents from 56 institutions and organizations which included national and CGIAR research organizations, Ministry of Agriculture Departments, DAESS networking organizations, donors and development partners, inter-governmental organizations, NGOs, farmer organizations, academia, marketing and business support institutions, private sector organizations and projects. The selection of these institutions and organizations, as well as the actual respondents, was based on their involvement and knowledge in AIS in Malawi with a total of twenty respondents.

6. Main findings of the assessment

The results of the assessment of the AIS in Malawi are presented in accordance with the main building blocks of the assessment framework which included:

- functional analysis
- structural analysis
- capacity assessment
- analysis of the enabling environment.
6.1. Functional analysis

The key functions that contributed to the success of the innovations included:

- capacity building
- community mobilization
- resource mobilization
- coordination and collaboration
- provision of technical support services
- provision of policy support and regulation
- provision of advisory services and governance.

Table 4. Key functions, actors and weaknesses in the innovation case studies

<table>
<thead>
<tr>
<th>Key functions, services and process that made the innovations successful</th>
<th>Who performed those functions?</th>
<th>Observed weakness in innovation system functions (missing functions)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Capacity Building</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmer and staff trainings</td>
<td>Government, NGOs, CGIARS, Inter-Governmental Organizations, Farmers</td>
<td>Weak capacities in demand-driven research and knowledge generation</td>
</tr>
<tr>
<td>Group organization</td>
<td></td>
<td>Weak capacities for extension to facilitate AIS</td>
</tr>
<tr>
<td>Farmers allowed to solve farming problems with local knowledge</td>
<td></td>
<td>Weak capacities for stakeholder engagements (coordination, collaboration, networking)</td>
</tr>
<tr>
<td>Leadership and facilitation skills</td>
<td></td>
<td>Weak farmer capacities to identify and demand innovation needs</td>
</tr>
<tr>
<td>Exchange visits, farmer to farmer learning</td>
<td></td>
<td>Missing participation of education institutions in the AIS at local level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weak capacities for extension and farmers in market oriented innovations and business support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inadequate farmer technical knowledge especially in livestock innovations</td>
</tr>
<tr>
<td><strong>2. Research and Knowledge Development</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action research at farm level</td>
<td>DARS, CGIARs, FAO</td>
<td>Weak capacities in demand-driven research and knowledge generation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Missing presence of research at district AIS platforms such as DAECC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low focus on livestock research and other innovation domains. More focus on crop research</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weak farmer capacities in conducting local research and data collection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inadequate research support to innovation</td>
</tr>
<tr>
<td>Key functions, services and process that made the innovations successful</td>
<td>Who performed those functions?</td>
<td>Observed weakness in innovation system functions (missing functions)</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>3. Communication Tools</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of radio, TV, social media, mobile van, Information, Education and Communication (IEC) materials especially in Balaka</td>
<td>Radio and TV stations, Government, NGOs, Inter-Governmental Organizations</td>
<td>Limited use of Information and Communications Technology (ICT) methods of communication</td>
</tr>
<tr>
<td><strong>4. Community Mobilization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement of local leadership-Village heads, VDCs, ADCs and communities</td>
<td>Local leadership, Government, NGOs</td>
<td>Inadequate involvement of DAESS structures for stakeholder mobilization and engagements</td>
</tr>
<tr>
<td>Participatory community sensitization which involved all local structures including MPs and Councillors</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5. Resource Mobilization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial and material support</td>
<td>Development Partners, Farmers, Government, NGOs</td>
<td>Low funding in research, extension and education/training for agricultural innovation</td>
</tr>
<tr>
<td>Supporting materials</td>
<td></td>
<td>Lack of incentives for private sector to participate in DAESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financing priorities by the donor community not in favour of AIS</td>
</tr>
<tr>
<td><strong>6. Coordination and Collaboration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAESS and Local Government structures (Balaka and Ntchisi Districts)</td>
<td>DAESS Platforms, Projects, Government</td>
<td>Inadequate coordination and collaboration mechanisms in innovation processes</td>
</tr>
<tr>
<td>Use of other groups like clubs, FFS groups</td>
<td></td>
<td>Weaknesses in use of DAESS platforms for collaboration and coordination</td>
</tr>
<tr>
<td>Participatory mapping of AIS actors (Balaka District)</td>
<td></td>
<td>Non-functional DAESS platforms in some cases like Mzimba and Thyolo (DSP, ASPs and VACs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commitment of actors to agreed standards (some stakeholders just want to register successes)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duplication of efforts crowded in one locality</td>
</tr>
<tr>
<td><strong>7. Technical Support Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision of technical support services to innovation processes</td>
<td>Government, NGOs, CGIARS, Inter-Governmental Organizations</td>
<td>Bureaucratic barriers - takes too long to get clearance for testing local innovations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inadequate technical backstopping by experts (i.e. No programmes to improve livestock breeds)</td>
</tr>
<tr>
<td><strong>8. Policy Support and Regulation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key functions, services and process that made the innovations successful</td>
<td>Who performed those functions?</td>
<td>Observed weakness in innovation system functions (missing functions)</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Development of relevant policies that promote AIS and climate relevant innovations i.e. NAEASS, NAP, NAIP, Malawi 2063</td>
<td>Government</td>
<td>Weak policy implementation mechanisms for promoting AIS (i.e. DAESS still not utilized as the platform for championing agricultural innovation after 21 years of existence)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weak regulation mechanisms for innovation</td>
</tr>
<tr>
<td>9. Marketing and Business Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainings in market oriented farming and agribusiness</td>
<td>Government, NGOs, CGIARS, Inter-Governmental Organizations, Farmers</td>
<td>Inadequate marketing knowledge, skills and infrastructure (processing and value addition, entrepreneurship, market linkages)</td>
</tr>
<tr>
<td></td>
<td>Inadequate technical support to marketing</td>
<td></td>
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<tr>
<td>10. Advisory Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participatory approaches in delivery of extension (FFS, IP, Lead farmers, Farmer groups, Model Villages, PICSA, HHA)</td>
<td>Government, NGOs, Inter-Governmental Organizations, Farmers</td>
<td>Extension focus mainly on production, leaving out post-harvest handling, processing, value addition, entrepreneurship and marketing</td>
</tr>
<tr>
<td>Farmer to farmer extension</td>
<td>Agriculture sector has a narrow focus (low focus on livestock extension and research, fisheries-extension. Very few extension staff in livestock, fisheries etc.)</td>
<td>The extension impact is on few farmers</td>
</tr>
<tr>
<td>11. Advocacy</td>
<td>None</td>
<td>Lack of skills in advocacy</td>
</tr>
<tr>
<td>12. Governance</td>
<td>Farmers</td>
<td>Inadequate mechanisms for accountability and transparency</td>
</tr>
</tbody>
</table>

**Source:** Data collected and re-elaborated by the AIS assessment team

**Note:** Missing functions are highlighted in red

**Capacity building:** Both farmers and extension workers in all the innovation case studies were provided with appropriate training which helped them to gain the required knowledge and skills to implement the innovations. Extension staff in the two FFS/FAW innovation cases were trained as Master Trainers (MTs) and the MTs trained lead farmers as Community Based Facilitators (CBFs). The CBFs managed the primary FFSs and facilitated secondary FFSs. Similarly, extension workers and farmers in the goat and dairy animal pass-on programmes were trained in various aspects of managing the animals and on the principles of the pass-on programmes. Farmers in the Horticulture Marketing Platform were also trained in various aspects of horticultural production and marketing. The trainings were provided by various actors which included public extension staff,
researchers, development partners such as FAO, NGOs and the private sector. These training sessions were very important to enable extension staff gain skills on how to facilitate implementation of the innovation cases while farmers gained skills on the actual implementation of the innovation cases. In addition, farmers were trained in and participated in conducting participatory gap analysis which helped them identify their needs and prioritise the innovation cases. The consultations also revealed that farmers needed more training in other aspects of the innovations, such as disease control in dairy and goats pass-on programmes.

Other capacity building tasks, services and processes that contributed to the success of the innovations were group organization, leadership, facilitation and farmer empowerment, all of which allowed them to resolve their problems by using their own local knowledge.

**Community mobilization:** Involvement of local leaders that included Village Heads (VH), VDC, as well as ADC members together with communities in participatory community sensitization played a big role in the success of the innovations. Community sensitization led to formation of farmer groups, community appreciation of the innovations and farmers commitment to implementation of the innovations.

**Resource mobilization:** The function of resource mobilization included activities like provision of:

- inputs such as seed, fertilizers and chemicals;
- other materials such as botanicals;
- land for the studies;
- equipment such as sprayers; and
- financial support in the FFSs in Mzimba and Balaka Districts.

Similarly, resource mobilization involved provision of resources such as:

- goats and dairy animals
- drug boxes
- financial resources for construction of various infrastructures, such as:
  - cooling tanks
  - milk bulking group structures
  - boreholes
  - installation of solar power
  - other facilities.
However, the study, revealed that the farmer innovators, as well as most actors, lacked resource mobilization skills, such as proposal writing and ability to link with potential donors and funding agencies. These weaknesses can affect the sustainability of the innovations.

**Coordination and collaboration:** Usage of DAESS, local government structures in Balaka and Ntchisi Districts and other groups in the other districts, was crucial in ensuring proper coordination and collaboration of stakeholders at various levels. The FFS in Balaka District were directly linked to VACs and their members were reporting to VACs and the goat pass-on groups in Ntchisi District. They were working with VACs, ASPs as well as VDCs and ADCs in activities such as enforcing by-laws and making decisions on beneficiaries. The FFS groups in Mzimba were working directly with local leaders, while dairy farmer clubs in Thyolo District were working with milk bulking groups and local leaders. DAESS and local government structures operate at various levels, from the field all the way to the district level, and the innovation cases that were working with these structures were very well connected in the district. The other innovation cases that used other groups were faced with the challenge of linkages to higher-level structures, thus causing coordination and collaboration issues.

Participatory mapping of AIS actors in Balaka District also demonstrated to be effective in promoting coordination and collaboration among AIS actors. The map in Figure 7 shows the actors involved in the innovation, their functions and roles. The interconnections and networking enhanced coordination and collaboration opportunities, which in turn contributed to the success of the innovation processes.

**Provision of technical support services:** Actors provided various technical and support services to the innovations. Examples of services that were provided included:

- training on FAW management techniques;
- training on how to implement FFS methodology;
- training on livestock management practices;
- providing artificial insemination services;
- providing disease control services for dairy animals and goats;
- providing other veterinary services.

These services were crucial to the success of the innovations.

**Provision of policy support and regulation:** Malawi continues to move towards having, policies that are relevant to promoting AIS as well as climate relevant innovations. Policies and strategies such as the NAP, Malawi vision 2063, the Agricultural Extension Policy, the national agricultural extension and advisory services strategy, are positively promoting
AIS and climate relevant innovations in the country. Policy and regulation support to innovators in the innovation cases included Livestock Pass-on Guidelines, DAESS, FFS Implementation Guidelines, Local Government Policy, Decentralization Policy, Livestock Policy, Movement of livestock Act, Disease control Act, Animal Identification and Registration Act, Meat and Meat Products Act and Milk and Milk Products Act. The policy instruments guided implementation of the innovations, which in turn contributed to the success of the innovation cases. However, the major challenge observed is the weak implementation of these policies and strategies. Some policy instruments have not been reviewed or updated for a long time and might not necessarily promote a systems approach in agriculture. Some Acts, for example, the Control and Diseases of Animals Act date back to 1967. There is also a need to develop appropriate policy guidelines and strategies to promote AIS in the country.

Provision of advisory services: Participatory approaches were used in the provision and delivery of EAS in most of the innovation cases, as these were crucial in helping farmers to implement their innovation cases appropriately. EAS were provided in areas such as crop management, goat and dairy animal management, group dynamics, FAW management and control and many other subjects. There were, however, a few challenges:

1. The impact of extension was not widespread across the communities due to the shortage of extension staff. The use of farmer-to-farmer extension approaches helped to mitigate this problem, nevertheless, the need to increase the number of well-trained extension staff is a priority. Also the Information and Communications Technology (ICT) based approaches is another opportunity which needs to be promoted as a way of further mitigating the problem.

2. Malawi's agricultural sector focuses mainly on crops ignoring other sub-sectors such as livestock and fisheries. A large proportion of the extension and advisory services focus on crops and farmers complained of the inadequate services in areas such as livestock and fisheries.

3. Most of the extension advice is on crop production with very little focus on post-harvesting, handling, processing, value addition, entrepreneurship and marketing. These missing skills are causing serious challenges on the profitability of agricultural enterprises thereby negatively affecting the success of the innovations.

Governance: Establishment of by-laws in the innovation cases was a crucial aspect for the success of the innovations. Farmers and actors formulated and agreed to follow set
guidelines. A good example is the by-laws which were set under goat or dairy animal pass-on programmes. These by-laws forced farmers to follow the pass-on guidelines even in cases where one particular farmer was not willing to pass-on offspring to other farmers.

A number of functions were completely missing or inadequately available in the innovation cases, including research and technology development, marketing and business support, communication tools and advocacy.

**Research and technology development:** Research and technology development was a major function missing in the innovation cases. Farmers from all the innovation cases felt that support from the national research system was inadequate. They experienced several problems that needed research response and they could not access research services and guidance. The design of FFS involves conducting and evaluating trials, requiring good research skills, which were not available in the field. Likewise, in the livestock related innovations cases, there were many research needs which were not responded to. There were problems related to breeding, livestock husbandry practices and disease control which needed research which was not available. Inadequate research support to the innovations negatively affected the success of the innovation cases.

The major weaknesses observed in relation to research in the innovation cases are summarized as follows:

1. weak capacities in demand-driven research and knowledge generation;
2. lack of research presence at district AIS platforms such as DAECC missing;
3. low focus on livestock research and other innovation domains. More focus is on crop related research;
4. weak farmer capacities in conducting local research and data collection; and
5. inadequate research support to local innovation.

**Marketing and business support:** Marketing and business support was another important function that was missing. Farmers were failing to link to the market and therefore ended up, in most cases, selling their produce at very low prices to local vendors. They lacked several marketing skills, such as:

- how to conduct market research
- how to link to markets
- how to present produce in such a way to attract better prices
- how to bargain for better prices
- how to engage in more favourable marketing contracts.
There were no actors to assist them gain such skills. Inadequate marketing knowledge, skills and infrastructure (processing and value addition, entrepreneurship and market linkages) and inadequate technical support to marketing were the two major challenges.

**Communication tools:** There was a limited use of various communication tools in almost all the innovation cases and sites. The FFS/FAW innovation case in Balaka District demonstrated a slightly better situation where the radio, TV programmes had been used, as well as mobile vans and limited use of mobile phones. The FFS/FAW innovation case in Mzimba District showed that there was also some slight usage of radio programming, however, there is a missed opportunity for all the innovation cases in all the sites to use IEC materials at a much lower cost, which needs to be promoted. Leveraging on the rapid ICT development in the country is another area that needs to be prioritised in Malawi AIS.

**Advocacy:** Lack of skills as well as actors in advocacy was another major challenge in all the innovation cases and sites studied. Farmers did not have skills to advocate for their activities and programmes. Farmers need skills to advocate for:

- ISS in support to their farming businesses;
- government support and incentives of their farming activities.

In all the innovation cases and sites actors to assist farmers gain advocacy skills and competencies where unavailable.

**6.2. Structural analysis**

In addition to the data collected through the FGD and KII checklists, network analyses were conducted to provide data for the structural analysis which were done using Kumu, an online tool for social networking mapping. Figures 6, 7, 8, 9 and 10 indicate the level of networking among AIS actors in the innovation case studies.
**Figure 6.** Network map for AIS actors in Ntchisi goat pass-on innovation case

![Network map for AIS actors in Ntchisi goat pass-on innovation case](https://kumu.io/AlfredTsitsi/ntchisi-pass-on-ais-assessment)

**Legend**
- Opposite
- AIS actor
- AIS function
- Person
- Organization
- Stock
- Flow

*Source:* Field data. Link: https://kumu.io/AlfredTsitsi/ntchisi-pass-on-ais-assessment
Figure 7. Network map for AIS actors in Balaka FFS/FAW innovation case

Source: Field data. Link: https://kumu.io/AlfredTsitsi/balaka-faw-case-ais-assessment
Figure 8. Network map for AIS actors in Thyolo dairy pass-on programme innovation case

Source: Field Data. Link: https://kumu.io/AlfredTsitsi/thyolo-pass-on-ais-assessment
Figure 9. Network map for AIS actors in Mzimba FFS/FAW innovation case

Source: Field data. Link: https://kumu.io/AlfredTsitsi/mzimba-faw-case-ais-assessment
**Figure 10.** Network map for AIS actors in Thyolo horticulture IP innovation case

**Thyolo IP marketing case AIS assessment**

*Source: Field Data. Link: https://kumu.io/AlfredTsitsi/thyolo-ip-marketing-case-ais-assessment*
The consultations revealed that there were many actors in all the innovation cases, however, the network analyses showed that the actors concentrated their activities on some functions more than others. They were mostly involved in functions such as capacity building, community mobilization, resource mobilization, coordination and collaboration and technical support services neglecting other important functions, such as research and technology generation, marketing and business support and advocacy.

The findings also indicate that there were no actors performing the functions of research and technology development in most of the innovation cases. Balaka FFS/FAW is an exception in that there was a United States Agency for International Development (USAID) funded project titled “Strengthening Agriculture and Nutrition Extension (SANE)”, which promoted activities to strengthen DAESS. One of the activities this project championed was research on various aspects of agricultural extension. The project worked in collaboration with DAES in its research activities with various farmer groups in the district. Researchers also assisted farmers in Balaka District to identify FAW management methods, including FAW forecasting studies.

There were very few actors involved in marketing and business support function across the innovation cases. These were involved in buying innovation products which included: butchers, men and women who bought goats from farmer in the goat pass-on programme, and milk processors who bought milk from the dairy animal pass-on programme in Thyolo District. Otherwise, no other actors performed any marketing and business support functions, like market research and analysis, value chain analysis and market linkages. Farmers ended up selling their produce at low prices due to shortage of buyers and inadequate skills in agri-entrepreneurship. In addition, there were no actors to assist farmers to gain marketing knowledge and skills.

The same is also true for advocacy, in all the innovation cases studied, The net maps show that in all the innovation cases studied there were no actors to provide services related to the function of advocacy, yet this is a very important function for the farmers.

Despite the presence of networking among actors, the net map also shows that crucial actors such as DARS and higher education institutions like the LUANAR were not part of these networks, yet they have crucial roles to play in Malawi AIS. They conduct research, technology generation and capacity building functions, which are essential for the well-functioning AIS. This shows a major weakness because, innovators are not accessing these important players therefore their crucial functions were therefore not integrated in the AIS of the country. The scarce involvement of DARS in the networks is only
occurring in crop related innovations and not livestock related innovations revealing the narrow focus on crops instead of livestock.

The assessment also generated tables highlighting power and influence from the FGDs and KIIs in all the innovation cases, as shown in Table 5. It presents the levels of interest and power/influence that various actors had. The purpose of collecting this information was to identify the level of interests and the influence of stakeholders in the innovation process.

<table>
<thead>
<tr>
<th>AIS Actor</th>
<th>Interest</th>
<th>Power/Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and Agriculture Organization</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>District Agriculture Office</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>BAYER Crop Science</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>NASFAM</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>DAEC</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>NGOs</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Local leaders</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Community Development</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Agro-dealer</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Community Radios</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Village Agriculture Committee</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Area Stakeholder Panel</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>District Stakeholder Panel</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Community Based Facilitators</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Master Trainer</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Farmers</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

Source: Data collected and re-elaborated by the AIS assessment team

The assessment findings, as highlighted in Table 5, indicate power imbalances between ISS providers and farmer innovators. Most of the technical agencies and service providers had more power and influence, therefore tended to dominate in most decisions regarding the innovation process. The role of farmers in decision-making was undermined. The local innovators had low power/influence despite high interest in their innovation cases. Decisions, such as, where to source goats for the pass-on programme in Ntchisi District, did not involve farmers. Similarly decisions on the type of treatments and experimental designs at FFS did not include farmers. In some cases this power imbalance had negative consequences on the innovation process. Sourcing of goats from areas far from Ntchisi District resulted in high mortality because the goats were not familiar with the conditions in the Ntchisi District. A similar challenge occurred in the marketing function where there was power imbalance between farmers as producers and as buyers of agricultural...
produce. The prices were principally dictated to the farmers whom had hardly any opportunity to bargain. This resulted in farmers selling products at very low prices, disregarding production costs and other related pricing factors.

**Figure 11.** Results of the assessment of systemic capacities of AIS in Malawi

Source: Data collected and re-elaborated by the AIS assessment team

### 6.3. Capacity analysis

The Capacity Gap Assessment (CGA) tool was the main source of data for the capacity assessment. It was supplemented with information generated from the FGDs and KIIIs. Figure 8 shows the results of the CGA tool.

The CGA results show that respondents felt that they had sufficient policy, networking and visioning capacity. However, they felt that they had low capacity in marketing, partial supportive and partial inclusion capacity.

The respondents who were mostly senior people at national level from the public sector, civil society, researchers, academicians, felt that they had sufficient capacity to:

- create a vision for improving innovators environment;
• formulate comprehensive and inclusive innovation policies and instruments and strategies; and
• sustain networking and brokeraging among AIS actors.

The fact that Malawi has numerous policies that are favourable for AIS shows that there is capacity and skill to do so. The CGA results are in this regard, agreeing with the literature review results reported in the following section.
6.4. Enabling environment analysis. The ability to implement the policies in the enabling environment section is weak, as reported in the related section and also as indicated below by one of the respondent.

However, the challenge is the low capacity to implement the policies, the existing rules and regulations.

The respondents also felt that they had sufficient networking capacity. This is generally in agreement with the information generated from the net maps as shown in Figure 7, indicating strong networking among the actors. Nevertheless, the actors tend to network only when dealing with certain functions and not others, leaving out research and advocacy functions. It should also be noted that important actors like DARS in research and LUANAR in higher education are not involved in the networks. The networking that respondents referred to in the CGA tool was therefore not comprehensive enough to support the innovations by way of addressing all the key functions.

The respondents also felt that they had sufficient knowledge to create a vision for improving innovators environment. In other words, they felt they had the capacity to create an enabling environment for innovators and service providers to implement successful innovations. Also, it should be noted that challenges such as dominance of top-down and supply-driven research and extension still exist, as observed in the innovation cases.

However, the respondents felt that they had low capacity in marketing, which is in agreement with what was observed in both the functional and structural analyses. This implies that there is a great need to improve marketing skills of actors in AIS in Malawi. Limitation in knowledge, skills and competencies in marketing among farmers is a major capacity limitation in all innovation cases. Marketing is a very important function for the profitability of farming enterprises. Poor marketing mechanisms demotivate farmer innovators from engaging in more production. Farmers in all the innovation cases and sites indicated that they were hardly able to recover their investments from their farming activities because prices of their produce were very low. As already observed, farmers lacked marketing skills and competencies to help them obtain better prices and increase their profits. The missing skills among farmers were:

- ability to link to good markets
- ability to negotiate better prices
- ability to engage in value addition
- ability to process and many others.

Unfortunately, all the innovation cases and all the sites lacked actors with knowledge and skills in marketing. This knowledge and skills gap is an extremely serious challenge in all the innovation cases and in Malawi AIS in general.

The respondents also felt that they only had partial inclusion capacity, which agrees with earlier findings where skills in advocacy and lobbying are lacking for most of the actors in AIS in Malawi. Partial supportive capacity implies the need to improve the capacities of
actors and service providers to deliver demand-driven innovation support services such as research and EAS. One of the most commonly cited capacity limitation observed in all the innovation cases is weak research-extension-farmer linkage, which led to a number of other problems such as:

- limited research knowledge and skills among farmers
- lack of demand-driven research
- lack of or inadequate responses to farmers research needs and demands.

For example, farmers need knowledge on safe and appropriate usage of botanicals in managing for FAW in FFS. Another example is the lack of research in the goat and dairy pass-on programmes.

The FGDs and KIIs also revealed weaknesses in the capacity to integrate indigenous knowledge into robust research and in the capacities to facilitate systems thinking.

Other capacity gaps observed from the FGDs and KIIs include:

- weak farmer capacity in terms of knowledge and skills for mobilizing resources;
- lack of technical competencies for designing FFS in livestock; and
- low emphasis on livestock extension and advisory services.

Other issues that contributed positively to the innovations included local leadership, availability of appropriate organizations, the existence of the extension policy of 2000 as well as DAESS implementation guide of 2006. Local leadership created an environment conducive for the success of the innovation. Local leaders were supportive to the activities of the FFS and provided land for conducting the FFS trials and they encouraged their subjects to participate in the FFS activities. Availability of appropriate organizations such as FAO, District Agricultural Office (DAO) and Plan International in the district was another aspect which contributed positively for the success of the innovation. It was easy for the farmers to consult, and/or involve the organizations in their FFS activities. The organizations helped to come up with possible solutions to the FAW problems. In addition, the availability of the organizations made it easy to share information among the actors.
6.4. Enabling environment analysis

The enabling environment analysis used a framework of five factors including:

- policy environment
- legal environment
- governance environment
- infrastructure environment
- institutional environment

Table 6 provides a list of the enabling and hindering factors of the success of the innovation cases.

**Table 6.** Enabling and hindering factors for the success of agricultural innovations

<table>
<thead>
<tr>
<th>Policy</th>
<th>Gaps/Weaknesses</th>
</tr>
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<tbody>
<tr>
<td>- Malawi 2063, an overarching national vision, recognizes innovation as an enabler under Effective Governance Systems and Institutions, for achieving inclusive wealth creation;</td>
<td>- Lack of policy guidelines in research;</td>
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<tr>
<td>- NAP and NAIP promoting demand-driven AIS for research, technology generation and dissemination;</td>
<td>- Weak implementation mechanisms for policies;</td>
</tr>
<tr>
<td>- National Climate Change Management Policy in Malawi promoting research, technology development, transfer of climate-relevant innovations, climate adaptation, mitigation technology transfer and capacity building;</td>
<td>- Lack of mechanisms for farmers to express their research needs and demands;</td>
</tr>
<tr>
<td>- National Environmental Policy which promotes local community, NGO and private sector engagement in environment and natural resources management;</td>
<td>- Narrow focus of the agricultural sector on crops with low focus on other sub-sectors such as livestock.</td>
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<tr>
<td>- The National Agricultural Extension Policy which is promoting demand-driven and pluralistic extension services;</td>
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<tr>
<td>- The DAESS Implementation Guide as well as Decentralization Policy which are promoting establishment of DAESS and local government platforms respectively;</td>
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<td>- Availability of Pass-on Programme Guidelines;</td>
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<td>- Promotion of farmer organizations - existence of Farmer Organization Development Strategy (FOBS);</td>
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<td>- Cooperative Societies Act which promotes farmer cooperatives.</td>
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<tr>
<td>Legal/Legislation</td>
<td>Enabling</td>
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<tr>
<td></td>
<td>– Availability of livestock related acts providing legal framework for</td>
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<td>the protection of goat and dairy production enterprises;</td>
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<td>– Availability of the Local Government Act which gave birth to the</td>
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<td>Decentralization Policy and subsequently the Extension Policy.</td>
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<td>Governance</td>
<td>Enabling</td>
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<td>– Existence of by-laws in farmer organizations;</td>
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<td>– Availability of traditional structures for enforcing by-laws.</td>
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<tr>
<td>Infrastructure</td>
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<td>– Availability of milk cooling centres and dairy bulking group</td>
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<td>infrastructures;</td>
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<td>– Provision of drug boxes.</td>
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<td>Institutional</td>
<td>Enabling</td>
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<tr>
<td></td>
<td>– Existence of farmer organizations and cooperatives;</td>
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<td>– Existence of traditional conflict resolution structures and</td>
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<td></td>
<td>mechanisms using local leaders;</td>
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<tr>
<td></td>
<td>– Culture of using botanicals as traditional medicines (indigenous</td>
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<tr>
<td></td>
<td>knowledge);</td>
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<tr>
<td></td>
<td>– Existence of enabling institutions like DAES, DARS, LUNAR and</td>
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<td>NASFAM.</td>
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Source: Data collected and re-elaborated by the AIS assessment team

Policy Environment: As already observed earlier, Malawi continues to move towards a positive policy environment for AIS, as well as promoting climate relevant innovations. Both the medium and long-term plans, like the Malawi Growth and Development Strategy III (MGDS III) and the Malawi Vision 2063, as well as short-term policies like the NAP and NAIP, are promoting AIS and climate relevant innovations. Most of the strategies
designed for the implementation of policy priority areas in NAP emphasize the provision of AIS services. The Agricultural Extension Policy, DAESS Guideline, the National Agricultural Extension and Advisory Services Strategy (NAEASS) and the National Decentralisation Policy are nevertheless providing for the creation of AIS platforms. Existence of the Agricultural Extension Policy of 2000 and DAESS Implementation Guide of 2006 led to the institutionalisation of DAESS with structures that created appropriate platforms, also incorporating different stakeholders together to address farmer needs. The structures are used as platforms to encourage diverse service providers to offer Innovation Support Services.

Consequently the policies have positively evolved over time towards accommodation of AIS. Nonetheless, it should be noted that more work has to be done to align them to the dynamic and complex context in Malawi. There is a need to continue to develop policies that can be implemented by various stakeholders in the country at all levels from national to the village level. The agricultural research sub-sector is a very good example in this regard where, despite the clear strategies in the NAP that stipulate provision of demand-driven research, there is no policy and strategic guidelines to guide the DARS in providing demand-driven research services. This lack of clarity and direction is evident among most of the research players and education providers such as LUANAR and research activities of DAHLD. The consequences of this is the predominance of top-down and supply-driven research and technology development, the results of which do not address farmer needs and problems. Moreover, due to weak implementation mechanisms, the effect of the policies is not felt among farmers and other actors. Farmers, who are supposed to be partners in the development, implementation and review of policies, are not even aware of the existing policies.

Legal Environment: The goat and dairy animal pass-on innovation cases provided good examples for the legal environment. By their nature, goat and dairy animal pass-on programmes require a good regulatory environment. The current policy and existing regulatory frameworks in Malawi had a positive impact on the success of the goat pass-on innovation. The policies and acts, which have been used to regulate the implementation of the programme, include Livestock Policy, Control and Diseases of Animals Act (1976), Animal Identification and Registration Act, Meat and Meat Products Act (2012), Milk and Milk Products Act (1971).

In addition to the policies and acts, there are guidelines for animal pass-on programmes and criteria for farmer selection guiding the goat and dairy animal pass-on innovations. The Local Government Act also provides an environment for the establishment of platforms in the local areas which can also be used as AIS platforms. The major gap was the weak enforcement mechanisms for the acts. Furthermore, some of the acts have outlive their relevance in the rapidly dynamic agricultural sector and probably need reviewing and updating.
Governance Environment: In addition, local government, DAESS structures and various farmer groups also came up with by-laws to guide the implementation of the programme contributing to the success of the innovation cases. Traditional structures, especially local leaders such as village and group village chiefs, were effectively enforcing these by-laws. However, inadequate financing from government institutions and the general shortage of extension staff, especially in livestock, frustrated the efforts of the actors involved in the innovation cases. Another challenge related to bureaucracy in most institutions further slowed down success in most innovation cases.

Infrastructure Environment: The state of infrastructures in rural Malawi is generally very inadequate. Poor road infrastructures, lack of electricity and inadequate marketing infrastructures negatively affect the innovation processes reducing inputs from the markets and the possibility for farmers to take their produce to the markets. Some innovations, like dairy production, require electricity for cooling services which was unavailable in rural and remote areas. However, on a positive note, there were cooling centres and milk bulking group facilities in the areas where farmers practice dairy production. Farmer clubs were also provided with drug boxes to be used for control of animal diseases. Similarly, farmers were provided with storage facilities in some of the innovation cases for example in the Balaka FFS/FAW case. Dilapidated agricultural offices and inadequate housing for extension workers is also a key challenge that negatively affects innovation.

Institutional Environment: The institutional environment was generally favourable to AIS in Malawi. The existence of and promotion of the formation of more farmer groups and organizations, as well as the existence of traditional conflict resolution structures and mechanisms through the local leadership, provided a very favourable environment for farmers and actors to operate. There were a few challenges that included low literacy levels and lack of entrepreneurial skills among farmers, as well as inadequate research support to local innovations. Another problem noted was centralization of projects. Some of the projects that were working in Mzimba District were managed centrally from Lilongwe, a situation which created bureaucratic bottlenecks, such as delays in financing DAESS activities thereby affecting functionality of DAESS structures. The existence of enabling institutions like DAES, DARS, LUANAR and NASFAM was also identified as an enabling factor. However, these institutions have inadequate capacity to champion AIS, as expressed by the KII and experts in the CGA tool.

In summary, the main challenge regarding the enabling environment was weak enforcement of the policies and regulatory frameworks, which in some cases affected the implementation of the programme negatively. The other challenge was that most of the districts did not have functional DAESS structures and this negatively affected coordination and collaboration among stakeholders.
7. Discussion and synthesis of results

The assessment has revealed that there are functions and capacities that are contributing to the success of AIS, while other functions and capacities are missing and therefore hindering the success of AIS in Malawi. Capacity building is a very important function in AIS. Actors need to have knowledge and skills on how to implement their innovations for them to succeed. Training is therefore a significant aspect that contributed to the success of innovations in the country. Despite the fact that the innovators are trained in most of the functions of their innovations, the results of the assessment show a need for more training in technical aspects, such as disease control in livestock innovations, treatment layouts in FFS. Farmer empowerment is another area which needs to be emphasized in AIS. The results of the assessment show that there is a lot of power imbalance between farmers and service providers who wield more power over farmers, negatively affecting the success of the innovations. The results also revealed that there is inadequate involvement of higher education institutions in capacity building in AIS at the local level. The networking, coordination and collaboration in the delivery of support services in education and training is key in AIS. Multi stakeholder partnerships permit organizations to collaborate and improve their performance by leveraging their capacities.

Functions such as community and resource mobilization, technical support and advisory services, policy support and regulation were generally available and contributed to the success of the innovations despite some specific challenges associated with them. A specific challenge on resource mobilization was the shortage of skills to mobilize resources such as the ability to link to potential donors and inability to write fundable proposals.

Advisory services also contributed significantly to the success of innovations by promoting participatory approaches in the provision and delivery of extension. The impact of extension services was not widespread as a result of shortage of extension staff. Most of the farmers were only contacted through farmer-to-farmer extension particularly in specialized areas such as livestock and fisheries. It is important to train and recruit more extension staff and to build more capacity in farmer-to-farmer extension, as well as ICT-based extension and advisory services. Another limitation associated with extension and advisory services was the narrow focus on crop production to the disadvantage of other sub-sectors like livestock and fisheries. Farmers and other actors engaged in livestock innovations felt strongly underserved by the extension system.

The agricultural policies are promoting diversification of the agricultural sector, but this is not supported by the investments in the sector. There is a need to seriously engage in diversification of the agricultural sector. The use of DAESS structures needs to be
promoted in all the districts in Malawi since these are ideal platforms where various actors and stakeholders in the agricultural sector are engaged. These also promote coordination and collaboration among stakeholders and are important fora for farmers to present their demands for services. Unfortunately, most of the districts in the country do not have functional DAESS structures. There is a need to make deliberate efforts to promote the establishment of functional DAESS structures in all the districts. Malawi needs to recognize agricultural extension as a whole, comprising of the entire set of organizations that support people engaged in agricultural production, livestock and fisheries, and facilitate their efforts to solve problems. Facilitating AIS, linking farmers to markets and other players within diversified agricultural value chains needs to be the core business of extension as proposed by Birner et al. (2009).

Research and knowledge development is a very important function for the success of AIS. The assessment has revealed a number of shortfalls in this function. The research sub-sector is not engaged in demand-driven research and technology development, and as a result, farmers and other actors do not adopt most of the technologies generated in the research system. Most of the research needs at the local level are not addressed by the research system due to poor research-extension-farmer linkage. There is a necessity for the research sub-sector to actively engage and network with other actors in the AIS. The aim is to use research initiatives to link community visions and action plans to opportunities and priorities of platform-level stakeholders, leading to cross-scale engagement.

The other problem with the research system is the narrow focus on crop related technologies with little focus on livestock, fisheries and other innovation domains. There is a need to diversify investments in the research sub-sector in accordance with the policy emphasize on agricultural diversification. Results in the structural analysis have also revealed that research and advocacy functions are not involved, due to a lack of capacity, yet these are crucial functions for the success of AIS. There is need to improve the capacity of actors in these functions.

Marketing is another very important function in AIS. Profitability is the main motivating factor for farmers to engage in agricultural enterprises. One of the major factors influencing profitability is availability of good markets offering attractive prices. The assessment has revealed that farmers and most actors in AIS in Malawi do not have adequate skills in marketing. Skills such as linking to good markets, negotiations for better prices, value addition and processing, grading and packaging are lacking. Farmers are therefore selling their produce at give-away prices to vendors. There is a need to make deliberate efforts and invest in capacity building in the area of marketing. Capacity building activities could include training, mentoring and development of farmer organizations. Market infrastructure and institutionalization of market structures are also key.
The assessment has also revealed that Malawi largely has favourable policies for AIS and for promoting climate relevant innovations. The main challenge is poor implementation and enforcement of such instruments. There is a need to put up an institutional framework for implementing and enforcing the policies, rules and regulations.

8. Conclusions and recommendations

8.1. Conclusions

This assessment has revealed that Malawi has both capacities that contribute to the success of AIS, as well as gaps that hinder success of the AIS. The capacities have been identified in four analytical categories of functional analysis, structural analysis, capacity assessment and analysis of the enabling environment. The four categories in this section present both the success, as well as the hindering factors.

Functional analysis

Eight functions were identified as contributions to the success of AIS and they include:

1. capacity building
2. community mobilization
3. resource mobilization
4. coordination and collaboration
5. technical and support services
6. policy support and regulation
7. advisory services
8. governance

The key activity that contributed to success of innovations under capacity building was training of both staff and farmers. This helped to build the skills of staff and farmers to implement the innovations. Other capacity related activities that contributed to success of innovations were farmer organization and leadership.

The main activity in terms of community mobilization was community sensitization that helped to create awareness and interest about the innovations among farmers and other community members, thus creating commitment among the actors to implement the innovations. The main issue in terms of resource mobilization was provision of both financial and material resources which were crucial to the success of the innovations. However, it should be noted that resources were not adequate, especially for government institutions, and this became a hindrance to the success of the innovations. Furthermore that most actors especially farmers lacked resource mobilization skills such as proposal writing, which are crucial for resource mobilization.
The fact that AIS involves many actors and stakeholders requires adequate coordination and collaboration. DAESS platforms and local government structures are very useful in promoting coordination and collaboration among actors. DAESS and local government platforms played an extremely critical role in promoting innovations. In terms of technical support services the assessment revealed that many actors provided various types of technical support to the innovations that contributed to their success.

The assessment has also revealed that Malawi has favourable policies and regulatory instruments for promoting AIS. The major challenge lies in its ability to implement them. The assessment also revealed that provision of advisory services was crucial to the success of the innovations. The main challenges were, however, the shortage of extension staff and low focus on sub-sectors such as livestock. In terms of governance, farmers in all the innovation cases studied were organized in form of groups or farmer organizations and each of them had by-laws which helped to regulate the conduct of all actors, and this was very important for the success of the innovations.

The assessment in all the cases studied also highlighted the inadequately availability or total lack of three very important functions:

1. research and technology development
2. marketing and business supports
3. advocacy.

Research and technology development is a central function in AIS, however, it was noted that farmers in all the innovation cases experienced problems that required research interventions, but these were not available to them. The research services were operating in a top-down and supply-driven mode rather than participatory and demand-driven mode. Marketing and business supports was another major issue. Farmers lacked good marketing skills and this negatively affected innovation. Lack of skills in advocacy was another crucial problem in the innovation cases.

Structural analysis

The assessment has revealed that while there are many actors in Malawi's AIS, these actors concentrate their innovation support services on a few functions, leaving out other important functions like research, marketing and advocacy and this had a negative effect on the innovations. The study has also established that other important actors like research services and academia are not networking with other actors and are not actively involved in the AIS activities, yet these are crucial actors. The assessment also revealed that there is power imbalance between innovation support service providers and farmers. ISS providers tend to exert more power over farmers and in some cases this has negatively affected the success of the innovations.
Capacity assessment

The study has established that Malawi AIS actors have sufficient capacity for:

- visioning
- developing innovation policies
- networking.

However, capacities to create new markets, lobby for new changes, as well as to deliver demand-driven innovation support services, are weak. Capacity to engage in demand-driven research and capacity to facilitate AIS is also limited.

Assessment of the enabling environment

The assessment revealed some enablers and hindering factors in the enabling environment in the areas of policy, legal, governance, infrastructure and institutional environment. Even if the country has favourable policies and legal instruments, the challenge lies in the ability to implement them. Lack of policy guidelines especially in research, weak implementation mechanisms for policies, shortage of material and financial resources, as well as poor infrastructure, are other hindrances to innovation.

8.2. Recommendations

Several recommendations have been made based on the findings of the Malawi national AIS assessment.

General recommendations

1. The first recommendation relates to the narrow focus of the agricultural sector in Malawi. Malawi needs to re-orient its AIS by building capacity in its actors to respond to diverse needs and demands of stakeholders in the agricultural sector and especially farming communities. There is a need to diversify investments in infrastructures and services to be able to respond to the broad diversity of demands in the sector. Efforts such as the Greenbelt Initiative show a renewed focus on irrigation which needs to be encouraged and sustained. In fact, the whole process of developing AIS in Malawi should be done with a diversity lens, where such issues like the composition of actors, capacity-building activities, mobilization of resources, development of policy support mechanism, provision of advisory services should be designed in such a way to promote diversification and multi-stakeholder processes.

2. The second recommendation relates to weaknesses in marketing and business
support. There is a need to build capacity in terms of knowledge and skills in AIS actors comprising farming communities in marketing including skills for lobbying for shifts in marketing and trade policies, and in market analysis. In an effort towards addressing these gaps, agricultural education institutions like LUANAR need to revisit their curricula, short-term and long-term programmes, as well as faculty and student research projects. There is also a necessity to build strong partnerships among AIS actors in the public, private and farmer organizations. These actors, such as the Ministry of Agriculture’s Department of Agriculture Planning Services (DAPS) and DAES, NASFAM and Agricultural Commodity Exchange (ACE), play various roles in agricultural marketing need to build on their experiences to strengthen agricultural marketing structures. There is a need to promote farmer organizations and create innovative market structures such as commodity exchange markets, auctioning, various forms of aggregation and marketing, contract arrangements, usage of electronic and social media platforms, etc. Implementation of well specified roles that each partner would be expected to play in building knowledge and skills of actors, as well as in creating efficient marketing mechanisms, institutions and trade policies, are some ways of strengthening such partnerships. Leveraging on the rapid ICT development to transform agricultural marketing is key.

3. The third recommendation is on the agricultural research system in Malawi. Despite the fact that the current national agricultural policy is emphasising the establishment of effective, demand-driven AIS for research, technology development and dissemination, the actual implementation of agricultural research in Malawi is predominately top-down and supply-driven. There is a need to develop policy or strategic guidelines for research to implement research activities that respond to the real needs of smallholder farmers. Agricultural research services need to be re-oriented to embrace systems-thinking toward AIS. There is a need for the research sub-sector to actively engage and network with other actors in the AIS.

4. The fourth recommendation is on the establishment of functional DAESS structures in all the districts. DAESS structures are very well positioned to serve as an innovation platform in Malawi’s AIS. All AIS actors, including government ministries, departments and agencies, research institutions, education institutions, district councils, private sector, farmers, bridging and networking institutions, donor community, the UN agencies and financing institutions, need to appreciate the powerful role that DAESS can play in promoting rural development. They need to embrace DAESS as a vehicle for meaningful development through multi-stakeholder processes. There is therefore the need to lobby and build the capacity of all these actors for them to embrace systems-thinking. The DAES should be enabled to play a central role in facilitating AIS, sensitizing and training the actors, facilitating the establishment and maintenance of functional DAESS structures in all districts in Malawi. There is also a need to lobby with Ministry of Local Government to include the establishment and usage of DAESS structures as one of the requirements for promoting rural development in the decentralization policy.
5. The **fifth recommendation** is on advocacy. There is a need to build the capacity of AIS actors to advocate for innovation support services. One way of doing this is by building partnerships with actors who are actively playing roles in advocacy such as Civil Society Agriculture Network (CISANET), Civil Society Organisation Nutrition Alliance (CISONA), Civil Society Network on Climate Change (CISONECC), Farmers Union of Malawi (FUM) and Farm Radio Trust (FRT). The partnerships can be used in building capacity of AIS actors in advocacy through activities such as training and mentoring.

6. The **sixth recommendation** is on the establishment, and supporting monitoring, evaluation and learning on the performance of AIS in Malawi. Monitoring and evaluation are very important functions of AIS. Information generated from monitoring and evaluation activities are useful for assessing performance. These aid in decision making on how to improve implementation as well as learning from the process on how to improve implementation of AIS activities in Malawi. Since the system is designed to involve many actors and stakeholders, it is important to use bottom-up and participatory approaches in the monitoring, evaluation and learning activities. This serve to enhance partnerships and build a sense of ownership and consensus among actors, in addition to many other advantages. It is therefore recommended that a participatory monitoring, evaluation and learning systems for the AIS are established and supported in Malawi. This could be achieved by developing and periodically updating specific guidelines for assessing the performance of AIS in Malawi and building on the guidelines developed by the TAP-AIS project team at FAO's Research and Extension Unit, Office of Innovation (OINR).

7. The **seventh recommendation** is relating to capacity to facilitate AIS in Malawi. The AIS Assessment has revealed key gaps in AIS expertise among actors in the country. Development partners need to collaborate and act by supporting education institutions to institute AIS training programmes as a study area. These could be targeted at PhD and MSc levels, plus short-term courses championed by LUANAR.

**Specific recommendations for the TAP-AIS DeSIRA Project**

This section provides some specific recommendations for the TAP-AIS DeSIRA Project to consider for the AIS capacity development phase of the project.

1. Capacitate and collaborate with Lilongwe University of Agriculture and Natural Resources (LUANAR), as it should serve as a centre of excellence for AIS in Malawi, providing/endorsing capacity development initiatives of the TAP AIS project through short-term and long-term training programmes, training key organizations, mentoring and implementing collaborative faculty and student research projects.

2. The Department of Agricultural Research Services (DARS) should be enabled to engage in AIS oriented research. The project needs to identify actors within the department and incorporate these scientists into the capacity development
initiatives of the project.

3. Capacitate the Department of Agricultural Extension Services (DAES) to promote the establishment and operationalization of functional District Agriculture Extension Services System (DAESS) platforms in all the districts in Malawi.

4. Capacitate and collaborate with National Smallholder Farmers Association of Malawi (NASFAM) to promote farmer organizations and advocate for services in AIS.

5. Capacitate and encourage partnerships between Ministry of Agriculture (MoA) especially DAPS, DAES with NASFAM and Agricultural Commodity Exchange (ACE) to promote marketing and business support to AIS in Malawi.

6. Establish a participatory monitoring, evaluation and learning system for AIS in Malawi. As already observed, a monitoring, evaluation and learning system for the AIS in Malawi is very important for the success of and the sustainability of the system. It is recommended that the Ministry of Agriculture’s Department of Agriculture Planning Services (DAPS) be capacitated to lead the establishment and support the participatory monitoring, evaluation and learning system for the AIS in Malawi.

Policy-level capacity development recommendations

There are two policy level capacity development recommendations made based on the key findings of this assessment.

1. Ministry of Agriculture, through the Department of Agriculture Research Services (DARS) needs to engage in a functional review process and re-orient the department to engage in pluralistic, demand-driven research services that embrace AIS. DARS needs to develop a policy or strategy to guide implementation of AIS relevant research and technology development activities.

2. Malawi Government needs to engage in dialogues with AIS actors to develop a policy and legal instruments that will guide and regulate agricultural marketing activities in Malawi. The policy should be designed to promote creation of new and innovative marketing opportunities in the country.
References


Government of Malawi. (2016). The District Agricultural Extension Services System:


Annexes

Annex 1. Checklist for focus group discussions

Introduction

The Ministry of Agriculture (MoA) through the Department of Agricultural Extension Services (DAES) and the Food and Agricultural Organization of the United Nations (FAO) are jointly implementing a project titled “Developing capacities in agricultural innovation systems: scaling up the Tropical Agriculture Platform (TAP) framework”. The ultimate goal of the project is to strengthen the capacities of Agricultural Innovation Systems (AIS) in Malawi. We are, as part of this project, conducting an AIS capacity assessment. We have chosen the innovation on FAW control in your district as one of the cases to study because of the successes it has registered. We are therefore going to ask some few questions and we would like to encourage you to interact freely and share your experiences with us.

FUNCTIONAL ANALYSIS

1. Please describe the FAW control using FFS approach.

   a. We would like to know the problem that motivated you to implement the programme.
   b. The number of households that were affected by the problem.
   c. Why did you decide to solve the problem using FFS approach?
   d. How has the programme started?
   e. What has happened up to date?
   f. The partners you have been working with.
   g. The impact of the programme, etc.

2. What made the programme a success?

   a. What are the key functions/tasks, services and processes that made the programme/innovation succeed?
   b. Who played these functions/tasks, services and processes? (Use Table 1 below)
Table 1. Stakeholder interests

<table>
<thead>
<tr>
<th>Functions</th>
<th>Who carries out this function? (list of stakeholders)</th>
<th>Specific role, by stakeholder</th>
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3. What were the key challenges?
   a. What were the missing functions/tasks, services and processes?
   b. Who was supposed to play these functions/tasks?
   c. Who was supposed to provide the services and/or processes?

4. What strategies did you use to address the challenges?

5. What could have worked better? (What functions or activities could have worked better to make the innovation case a success?)
   a. What are/were the key functions/activities missing?
   b. What are/were the opportunities to strengthen those key functions/activities, processes and services for facilitating or enabling the innovation?

STRUCTURAL ANALYSIS

1. What are/were the interests of the actors (organizations or individuals)?

2. What is/was the level of interest of the actors?
   a. What exactly is the role played by each actor in that particular function?
   b. What drives/motivates the particular actor to play a particular function/role?

Use the Table 2 below
Table 2. Stakeholder power and influence

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<tr>
<th>Organization or Actor</th>
<th>Level of interest (low, medium, high)</th>
<th>Level of Power/Influence (low, medium, high)</th>
<th>Observed problems if any</th>
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**CAPACITY ASSESSMENT**

1. What are the needed capacities for the AIS to succeed?
   a. Capacities to innovate for AIS actors.
   b. Capacities of service providers (extension workers, NGOs, expert facilitators in FFS and IPs and incubators, etc.) to deliver relevant support services to farmers.

2. What capacities are available?
   a. Capacities for AIS actors to innovate.
   b. Capacities of service providers (extension workers, NGOs, expert facilitators in FFS and IPs and incubators, etc.) to deliver relevant support services to farmers.

3. What capacities do you need for the programme to be successful?
   a. Capacities to innovate for the programme to be successful.
   b. Capacities of service providers (extension workers, NGOs, expert facilitators in FFS and IPs and incubators, etc.) to deliver relevant support services to farmers.
   c. Why are some capacities weaker than others?
   d. Which capacity domains are a priority for strengthening?
   e. Capacities to achieve what?
   f. What specific capacity development interventions are needed?

4. What systemic capacities do you need? (Capacities of institutions and policy actors to govern the AIS and create enabling environments for innovators and service providers)
a. Capacity to create a vision for improving innovators environment.
b. Capacity to formulate comprehensive and inclusive innovation policies and instruments.
c. Capacity to deliver demand-led innovation support services (in a responsive and coordinated manner).

**ENABLING ENVIRONMENT**

1. What aspects in the enabling environment helped a successful innovation process?
   
a. What aspects of the policy environment helped a successful innovation process?
b. What aspects of the legal and regulatory framework helped a successful innovation process?
c. What aspects of the governance environment helped a successful innovation process?
d. What aspects of infrastructure and investments helped a successful innovation process?
e. What aspects of institutions (norms, mindsets, incentives, partnerships, etc.) helped a successful innovation process?

2. What aspect of the enabling environment hindered the success of the innovation process?
   
a. What aspects of the policy environment hindered the success innovation process?
b. What aspects of the legal and regulatory framework hindered the success of the innovation process?
c. What aspects of the governance environment hindered the success of the innovation process?
d. What aspects of infrastructure and investments hindered the success of the innovation process?
e. What aspects of institutions (norms, mindsets, incentives, partnerships, etc.) hindered the success of the innovation process?
Annex 2. Checklist for key informant interviews

Introduction

The Ministry of Agriculture (MoA) through the Department of Agricultural Extension Services (DAES) and the Food and Agricultural Organization of the United Nations (FAO) are jointly implementing a project titled “Developing capacities in agricultural innovation systems: scaling up the Tropical Agriculture Platform (TAP) framework”. The ultimate goal of the project is to strengthen the capacities of Agricultural Innovation Systems (AIS) in Malawi. We are, as part of this project, conducting an AIS assessment. We have chosen the innovation on FAW control in your district as one of the case to study because of the successes it has registered. We are therefore going to ask some few questions and we would like to encourage you to interact freely and share your experiences with us.

FUNCTIONAL ANALYSIS

1. Please describe the FAW control using FFS approach to us.
   a. We would like to know the problem that motivated you to implement the programme.
   b. The number of households that were affected by the problem.
   c. Why did you decide to solve the problem by using FFS approach?
   d. How the programme started?
   e. What has happened up to date?
   f. The partners you have been working with.
   g. The impact of the programme, etc.

2. What made the programme a success?
   a. What are the key functions/tasks, services and processes that made the programme/innovation succeed.
   b. Who played these functions/tasks, services, and processes?

3. What were the key challenges?
   a. What were the missing functions/tasks, services and processes?
   b. Who was supposed to play these functions/tasks?
   c. Who was supposed to provide the services and or processes?

4. What were the strategies used to address the challenges?
5. What could have worked better? (What functions or activities could have worked better to make the innovation case a success?)

   a. What are/were the key functions/activities missing?
   b. What are/were the opportunities to strengthen those key functions/activities, processes, and services for facilitating or enabling the innovation?

**STRUCTURAL ANALYSIS**

1. What are/were the interests of the actors (organizations or individuals)?
   a. What drives/motivates a particular stakeholder to play a particular function?

2. Identify their interests (Use Table 1)

**Table 1. Stakeholder interests**

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3. What is the level of interest of the stakeholder?

**CAPACITY ASSESSMENT**

1. What are the needed capacities for the AIS to succeed?
   a. Capacities to innovate for AIS actors.
   b. Capacities of service providers (extension workers, NGOs, expert facilitators in FFS and IPs and incubators, etc.) to deliver relevant support services to farmers.

2. What capacities are available?
   a. Capacities for AIS actors to innovate.
   b. Capacities of service providers (extension workers, NGOs, expert facilitators in FFS and IPs and incubators, etc.) to deliver relevant support services to farmers.

3. What capacities do you need for the programme to be successful?
a. Capacities to innovate for the programme to be successful.
b. Capacities of service providers (extension workers, NGOs, expert facilitators in FFS and IPs and incubators, etc.) to deliver relevant support services to farmers.
c. Why are some capacities weaker than others?
d. Which capacity domains are a priority for strengthening?
e. Capacities to achieve what?
f. What specific capacity development interventions are needed?

4. What systemic capacities do you need? (Capacities of institutions and policy actors to govern the AIS and create enabling environments for innovators and service providers)

a. Capacity to create a vision for improving innovators' environment.
b. Capacity to formulate comprehensive and inclusive innovation policies and instruments.
c. Capacity to deliver demand-led innovation support services (in a responsive and coordinated manner).

ENABLING ENVIRONMENT

1. What aspects in the enabling environment helped a successful innovation process?

a. What aspects of the policy environment helped a successful innovation process?
b. What aspects of the legal and regulatory framework helped a successful innovation process?
c. What aspects of the governance environment helped a successful innovation process?
d. What aspects of infrastructure and investments helped a successful innovation process?
e. What aspects of institutions (norms, mindsets, incentives, partnerships, etc.) helped a successful innovation process?

2. What aspect of the enabling environment hindered the success of the innovation process?

a. What aspects of the policy environment hindered the success innovation process?
b. What aspects of the legal and regulatory framework hindered the success of the innovation process?
c. What aspects of the governance environment hindered the success of the innovation process?
d. What aspects of infrastructure and investments hindered the success of the innovation process?

e. What aspects of institutions (norms, mindsets, incentives, partnerships, etc.) hindered the success of the innovation process?
The TAP-AIS project

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