

7.1 Introduction

Malawi has made some progress in increasing its agricultural production and economic growth and in reducing food insecurity in recent years, although there is much yet to be done. Malawi has not yet achieved the 6 percent target in agricultural growth, despite having exceeded the agricultural investment target of 10 percent under the Comprehensive Africa Agriculture Development Programme (Malawi, MoAIWD 2016a). Undernutrition and food insecurity are still widespread, with 37 percent of children under five being stunted, according to the 2015/2016 Demographic and Health Survey (DHS), and 6.7 million people estimated to be in need of food assistance in the 2016/2017 crop year due to severe drought (Malawi, MoAIWD 2016a).

Despite the early successes of the government's flagship agricultural program, the Farm Input Subsidy Programme (FISP), agricultural productivity has stagnated and food insecurity conditions in many areas of the country remain. For instance, in the case of maize, since the 2010/2011 season, productivity has been around 2 metric tons per hectare, remaining below the Agriculture Sector Wide Approach (ASWAp) target of 3 metric tons per hectare (Malawi, MoAIWD 2016a). This necessitates bold actions to revisit the design and implementation of FISP and, at the same time, rethink the other complementary services and systems within agriculture and other sectors that need to be strengthened.

Agricultural extension and advisory services are one of those critical complementary services and systems that remains underfunded (Ragasa et al. 2017). In early 2015 extension services were highlighted as the most important priority area for increasing agricultural productivity during the extensive consultation process on the content of the National Agriculture Policy (NAP), which involved representatives from a broad range of agricultural stakeholder groups coming from 28 districts. Snapp et al. (2014) suggest that lack of information among farmers on the appropriate use of hybrid maize seed and fertilizer due to ineffective extension services may have been a factor in the

observed low nutrient use efficiency observed among beneficiaries of the FISP, thus limiting the productivity and development impact of Malawi's flagship agricultural development program. A recent analysis of the Malawi Integrated Household Panel Survey (2010, 2013) by Ragasa and Mazunda (2018) suggests that access to agricultural advice does not necessarily lead to greater crop productivity and food security. However, it is the quality of extension services, measured in terms of the farmer's perceived usefulness and relevance of the advice, that is a significant predictor of agricultural productivity and household food security. These findings and observations suggest a need to look more closely at the extension system in Malawi to identify the issues and constraints that currently prevent it from making a substantial contribution to the country's development objectives.

A number of initiatives are being implemented in response to this identified need. Among them, the United States Agency for International Development (USAID) implemented a five-year project (Strengthening Agricultural and Nutrition Extension [SANE]), and the European Union currently funds a five-year project (KULIMA), both of which primarily focus on extension services and their links to agricultural research. Malawi's Ministry of Agriculture, Irrigation and Water Development (MoAIWD) has also requested a study to look closely at the state of extension services provision, with the intent to further strengthen it to contribute to food security, economic growth, and other development goals. This has led to the three-year project (Assessing and Enhancing the Capacity, Performance, and Impact of the Pluralistic Agricultural Extension System in Malawi), funded by the government of Flanders and the German Agency for International Development, led by the International Food Policy Research Institute (IFPRI). This chapter summarizes the assessment data collected from this IFPRI project, synthesizes its research papers, and extensively reviews relevant literature on the evaluation of extension services approaches in Malawi. The chapter is structured following the best-fit framework discussed in Birner et al. (2009) and presented in [Chapter 2](#).

Section 7.2 presents the sources of data analyzed and the analytical methods used. Section 7.3 describes the enabling environment, while Section 7.4 summarizes the structure and landscape of the extension system, management systems of organizations involved in extension services provision, capacity and incentives of extension services providers, and coordination and certification systems. Section 7.5 summarizes the various extension services approaches applied and the evidence of the effectiveness and impact of

these. Finally, Section 7.6 concludes with major recommendations from the assessment.

7.2 Methods and Data Sources

This chapter utilizes various surveys and interviews conducted in Malawi between August 2016 and March 2017 by IFPRI, Wadonda Consult Limited, Lilongwe University of Agriculture and Natural Resources students and other partners in Malawi (detailed in [Table 7.1](#)). [Figure 7.1](#) presents a map of Malawi, showing all districts (except Likoma) included in the main household survey datasets used in this chapter; the shaded districts where the census of extension service providers were conducted, and dotted points where two rounds of the focus group discussions with farming communities were conducted.

7.3 Governance Structures and Policies

The provision of extension services in Malawi has been guided by the National Agricultural Extension Policy (NAEP) put in place in 2000. The vision in this policy is that “all farmers are able to demand and have access to high quality extension services from those best able to deliver them” (Malawi, MoAIWD 2000: 16). Thus the main aim for introducing the policy was to ensure that farmers are able to demand and have access to high-quality extension services. The government of Malawi introduced a policy that promotes the provision of decentralized, demand-driven extension services and encourages the participation of many extension services providers. The policy sets out nine guiding principles to help extension services actors operationalize this policy, which includes demand-driven extension services, accountability, equalization, and decentralized coordination, among other principles.

The implementation of this policy was linked to other subsectoral policies and strategies whose effectiveness depend on sound provision of extension services and therefore support the implementation of extension policy. These include the Food Security Policy; Crop Production Policy; Livestock Development Policy; the Agricultural Research Master Plan; Gender, HIV, and AIDS Strategy as well as AIDS Agricultural Sector Policy; National Fertilizer Strategy; National Irrigation Policy and Development Strategy; and Land Resource Conservation Policy; among others. Thus the effectiveness of these policies depends on the sound provision of extension services.

TABLE 7.1 Datasets used in this chapter

Dataset and year of data collection	Description and sampling	Extension focus	Analytical method
IFPRI household and community surveys (2016, 2018)	Nationally representative panel household surveys covering 3,001 households in 299 randomly selected communities; community surveys answered by 4–8 knowledgeable representatives in the community: all districts (except Likoma) are covered. In each district, sections were randomly selected based on probability proportional to the population size of the district. In each selected section, one community is randomly selected. Dataset also contains 5,069 female and male primary adults within these 3,001 households, which enables intrahousehold analysis, particularly looking at women's empowerment and gender gaps in these dimensions within dual-headed households.	The survey focuses on agricultural extension and technology adoption. The survey also contains many other data, such as socioeconomic and production data, to allow linking extension services access to outcome indicators.	For the 2016 dataset: both descriptive analysis and econometric modeling conducted by authors presented for the first time here in this chapter or cited from published papers of the authors using same datasets. For the 2018 dataset, only descriptive analysis is done so far since the data is still being analyzed more in-depth at the time of the last revision of this chapter.
IFPRI interviews with extension service providers (2017)	Census of 217 extension service providers in 15 districts, which were selected by the research team in consultation with key stakeholders to represent the different regions, agroecological zones, agricultural development divisions (ADD), and farming systems (see Ragasa et al. 2017).	Three-page questionnaire mainly on general extension services provision.	Descriptive analysis conducted by authors and presented for the first time here in this chapter or cited from authors' published papers using same datasets.

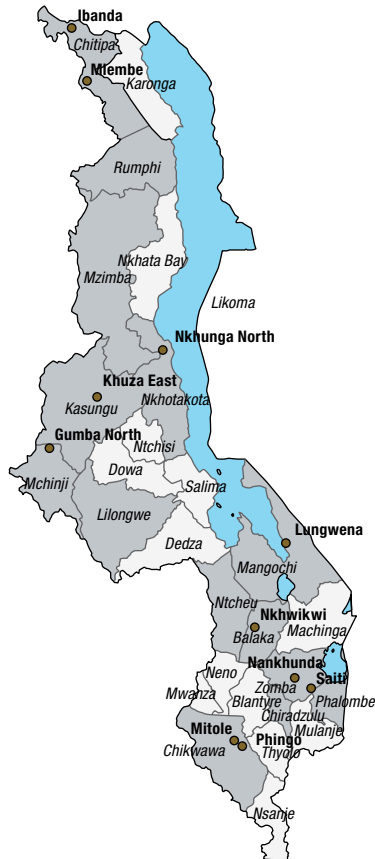
The government of Malawi launched its National Agricultural Policy in 2016, which has become the umbrella policy for the agriculture sector. The main agenda for NAP is the transformation of the agriculture sector, which is expected to lead to significant growth in agricultural production, productivity, and real farm incomes (Malawi, MoAIWD 2016b). To achieve this, NAP has set out nine priority areas for realizing this transformation, one of which is sustainable agricultural production and productivity. This priority area cites weak agricultural extension services delivery as a key constraint. In addition, the provision of extension services is found in all the priority areas identified in the NAP, especially in the areas of agricultural productivity, crop diversification, and commercialization. NAP therefore promotes innovative, demand-driven, and pluralistic extension services as it is considered critical to the achievement of its goal.

Dataset and year of data collection	Description and sampling	Extension focus	Analytical method
IFPRI interviews with heads of organizations (2017)	Dataset covers 30 organizations, selected from the census of extension service providers above; each organization selected to represent and provide extension services provision data across diverse types of service providers.	Eight-page questionnaire that asked more details on extension services provision, staffing, budget, and others (to provide more details on extension services provision by type of providers).	Descriptive analysis conducted by authors and presented for the first time here in this chapter or cited from authors' published papers using same datasets.
IFPRI focus group discussions (2017, 2019)	Linked to the household and community surveys above, one remote community and one central community are randomly selected from the selected districts to represent the different regions, ADD, agroecological zones, and farming systems.	Six-page guide questions on feedback on extension services and technologies being promoted.	Coded and analyzed using Nvivo; descriptive analysis conducted by authors and presented for the first time here in this chapter or cited from authors' published papers using same datasets.
Strengthening Agricultural and Nutrition Extension project (SANE) (2016)	Census of all Area Stakeholder Panels (ASP), District Stakeholder Panels (DSP), and District Agricultural Extension Coordination Committee (DAECC) in 10 of 28 districts that the USAID Feed the Future zones of influence operate. This census is part of the monitoring and evaluation of the SANE project.	Semistructured questionnaire is mainly on extension services and functioning of these structures.	Descriptive analysis conducted by authors and presented for the first time here in this chapter or cited from authors' published papers using same datasets.

Source: Authors' compilation.

NAP was necessitated due to the existence of the many policies and strategies that were incoherent and limited the ability of the agricultural sector to respond to changing economic opportunities and challenges. The government is hopeful the NAP will provide a comprehensive policy framework for each sub-sector to positively contribute to agricultural development and the economy in a coherent manner. Subsectors are expected to respond with relevant strategies in line with the new agricultural policy. As such, the national agricultural extension policy was recently reviewed and a new national agricultural extension strategy is being drafted. Experts agree that Malawi has an appropriate policy environment for implementing extension services, although the policies are not fully operationalized due to a number of factors, including government funding and unclear implementation guidelines (MEAS 2012; Chowa, Garforth, and Cardey 2013; Ragasa, Mazunda, and Kadzamira 2015; Masangano 2017).

FIGURE 7.1 Malawi focus districts for the study of extension service providers and focus group discussions



Source: IFPRI interviews (December 2016–March 2017).

Note: All districts are covered in the household and community surveys; those shaded gray are the 15 focus districts of the census of extension services providers; and those with dots are the locations of the focus group discussions.

7.4 Organizational Capacity and Management

There is a broad set of different providers for extension services in Malawi, indicating quite a strong degree of pluralism. Extension service providers identified by key informants in the focus districts include the government; trusts; international nongovernmental organizations (NGOs); local organizations including church-based organizations, farmer-based organizations, community or youth organizations; private companies including banks, agrodealers,

traders, and commodity exchange; and mass media operators including radio, mobile application, and call centers.

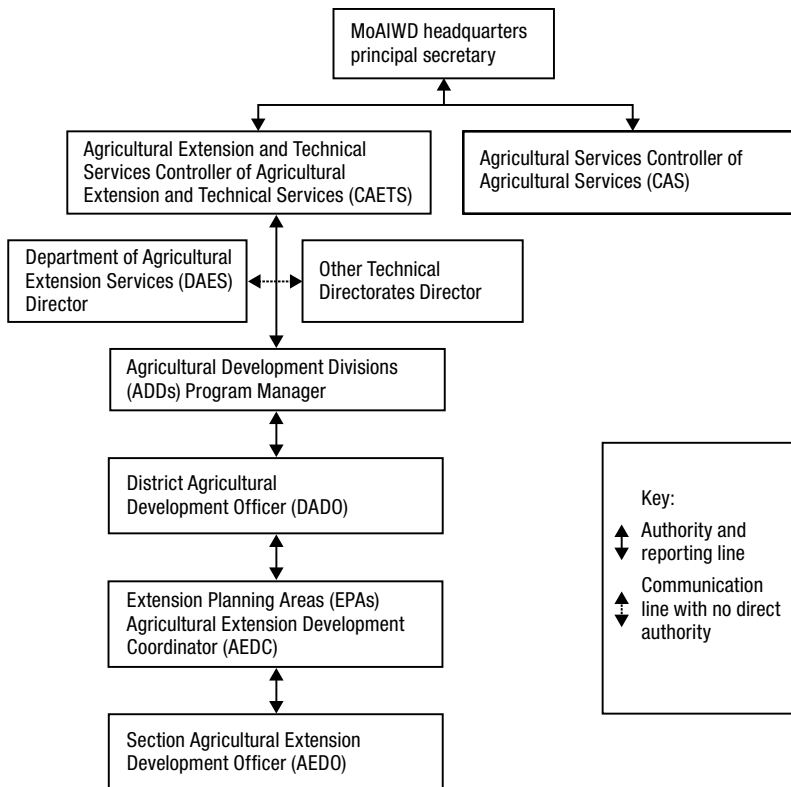
Public Extension System

Even though the Malawi extension system has become increasingly pluralistic, the public extension system is still the largest extension service provider in Malawi. In a district there are roughly 82 government frontline workers and a total of 41 frontline workers for all nongovernment service providers on average (2:1 government to nongovernment ratio).¹ Moreover, almost all nongovernment service providers work with extension agents to implement their activities and compensate them with fuel allowance and training opportunities (Ragasa et al. 2017). In addition, the community survey shows that 99 percent of group villages have been visited by government agents; while only 15 percent of group villages have been visited by nongovernment agents (Ragasa and Niu 2017). Therefore, there still remains limited spatial coverage in the provision of agricultural extension and advisory services by nongovernment actors when viewing the national scope.

MoAIWD operates through its own structure as well as the decentralized local government structure (Figure 7.2). The ministry headquarters is in Lilongwe, the capital city. The technical services, such as extension services, crops, research, and land resources in the ministry are headed by the Controller of Agricultural Extension and Training Services (CAETS), who supervises the directors. For agricultural planning and implementation purposes, the country is divided into eight agricultural development divisions (ADDs). The ADDs are further divided into districts and extension planning areas (EPAs). The EPAs, which are the basic agricultural operational units, are divided into sections and then villages. There are total of 28 districts, 185 EPAs, and 2,880 sections (Kamkwamba 2015). It is in the districts that the ministry's structure is aligned along the local government structure. That is, for local government the structure begins with the district, which is divided into traditional areas. These areas are further divided into group villages and then villages, where farm families are located. Kamkwamba (2015) estimated the number of farm families to be about 4 million.

The ADDs are headed by the program manager and cover two to five districts. Program managers coordinate all agricultural activities from the

¹ There is also a possible interexchange or mixing of what subject matter specialists and frontline workers are within the nongovernment service providers, so the figures are our best interpretation of the data available.

FIGURE 7.2 Organizational structure of the MoAIWD

Source: Adapted from Masangano and Mithinda (2012).

Note: MoAIWD = Ministry of Agriculture, Irrigation and Water Development.

ministry's technical departments, such as crops, land resources, and conservation, livestock, fisheries, irrigation, research, and extension. With decentralization, MoAIWD works through the district assemblies headed by the district commissioner. In each assembly, extension services fall under the responsibility of a district agricultural development officer (DADO), supported by a team of subject matter specialists (SMSs) from various technical departments who backstop the frontline extension agents, who are referred to as agricultural extension development officers (AEDO) in Malawi. The DADO is responsible for all agricultural programs in the district, including extension services. Similarly, the agricultural extension development coordinators (AEDC) head the EPAs and are coordinators of all agricultural activities in the Ministry of Agriculture. However, the AEDOs manage the sections

and are responsible for implementing all agricultural activities in the sections. Ideally, it should be one AEDO per section, although due to inadequate staff, some sections have no AEDO. For consistency throughout this chapter, AEDOs will be referred to as “extension agents.”

Within MoAIWD, the public extension services are provided and coordinated through the Department of Agricultural Extension Services (DAES) structure. At the national level, DAES has five technical branches with subject matter specialists: namely, Extension Methodologies and Systems, Food and Nutrition, Agricultural Communication, Agribusiness, and Gender and Extension Support, headed by the director of agricultural extension services. These branches are represented at the ADD and district levels by one or two subject matter specialists. The chief agricultural extension officer (CAEO) heads the extension team at ADD level and assists the program manager and district commissioner (DC) in supervising all extension activities at ADD and district levels respectively.

Figure 7.2 shows that agricultural staff at the ADD and district level report extension information to DAES through the supervisors at their respective levels. On a day-to-day basis, the staff report to their direct supervisor at their duty station. However, they are all technically accountable to their supervisor in DAES, and this arrangement is typical with all technical departments in the ministry. Staff recruitment, training, performance management, and promotions are all centralized in the technical department, which poses a challenge of unity-of-command principle in management between the central technical departments and decentralized services, including extension (Chiweza 2010). However, there is hope for improvement as government is moving toward completing the sector devolution process. This move can encourage nongovernment service providers to become more demand-driven.

Nongovernmental Service Providers

There are also about 120 nonstate extension service providers active in the 15 sample districts covered. The number of service providers per district averages 14, and ranges from 6 in Chiradzulu to 25 in Balaka and 35 in Lilongwe. Two-thirds are local NGOs, farmer-based organizations, or private companies (including input dealers, banks, local radio stations, and mobile telephone operators). One-third are international NGOs. With all nonstate providers combined, each district has roughly 16 nonstate specialists (a 1:1 state-to-nonstate ratio) and 47 nonstate frontline workers (a 2:1 state-to-nonstate ratio).

Farmers’ organizations are also active as extension services providers to their members. According to the extension policy, the roles of farmers’

organizations include the provision of extension services to their members, adequately representing farmers' interests, contributing to policy formulation, and capacity building of members. The Farmers' Union was established in 2003 as the umbrella body of farmers' organizations in Malawi, with 256-member organizations of about 1 million smallholder farmers in 2016. The National Association of Smallholder Farmers of Malawi (NASFAM) is the largest independent, smallholder-owned membership organization in Malawi. Unlike other farmers' organizations, NASFAM has a fully-fledged extension system. The extension services is headed by the farm services manager. As of 2013, there were 1,571 farmer trainers who were being used by 62 association field officers (AFOs) to facilitate the delivery of extension services (Kumwenda 2013). In addition, NASFAM has three farm services specialists and 14 association business managers, and the national association also uses these lead farmers. NASFAM commissions its own research, which is done through government research stations, the university, and international research centers. It has a business entity that facilitates marketing of produce for its associations. However, NASFAM works in partnership with the government extension system as its field staff is located at the EPA level. Hence, the national association works with government AEDOs and lead farmers in the villages. NASFAM reaches its farmers through radio and TV programs as well as through newsletters and leaflets. It conducts its own demonstrations and field days. It supports its staff with training and necessary working materials such as stationery, transport, and communication.

Media-based extension services providers largely focus on market information provisions. Most commonly, they collect and disseminate information on prices for key agricultural commodities in rural and national markets as well as on technologies that would best suit farmers' local conditions. Such information is also provided online, through short message services and radio programs. Some extension services providers (for example, startup mobile application developer Geek Bit) have gone a step ahead to develop and roll out mobile applications that would help farmers with information on farming practices, comparative market prices for seeds, farm products, and farming resources. Most information displayed on the application is collected from seed manufacturing companies, agrodealers, and research stations (as per a key informant from Geek Bit). However, other extension services providers such as Human Network International—in partnership with mobile phone operators, the government of Malawi, and some key development organizations—launched 3-2-1 and 7-1-1-1 service to increase access to information for

farmers.² Farmers on the Airtel or TNM mobile network can access the application through 3-2-1 or 7-1-1-1 service, respectively, by dialing and following prompts to listen to information of interest.

Radio operators, including Farm Radio Trust, design radio programs to spread messages or technologies to wider masses of the farming community. Such programs can be 30-minute broadcasts repeated weekly over some defined period of time. These can cover a wide range of topics or content, depending on what would be of interest for farmers. For example, the topics may touch on issues of soil fertility improvement; effects of climate change on the community; climate change solutions; nutrition; or accessing market information. Such broadcasts could take the form of studio interviews, mini-dramas, testimonials, phone interviews, panel discussions, subject matter specialist presentations, live phone-ins, on-farm recordings, or feedback from listeners through recorded discussions in community listener groups (Chapota, Mthinda, and Fatch 2014).

Coordination through the District Agricultural Extension Services System

Adding to the already complex setup is the District Agricultural Extension Services System (DAESS), which mirrors the decentralized local government structure (Malawi, MoAIWD 2004, 2006) and the main structures envisioned to implement NAEP. The DAESS is the cornerstone in the Agricultural Extension Policy Implementation Guide developed in 2004. The DAESS is composed of interlinked structures—from the village to the district and national levels—as a system for demand articulation from the bottom up, to improve coordination and responsiveness among different service providers. The DAESS aims to (1) reduce information asymmetry between users and service providers, (2) provide platforms for demand articulation and aggregation, (3) coordinate and harmonize the activities and messages of extension service providers, and (4) improve accountability among various service providers to provide better-quality extension services. Put differently, with an emphasis on improving coordination and making agricultural extension services more demand-driven, the government of Malawi promoted the creation of various connected structures at various levels, starting with farmers' involvement at the village level. These different structures are model villages and village

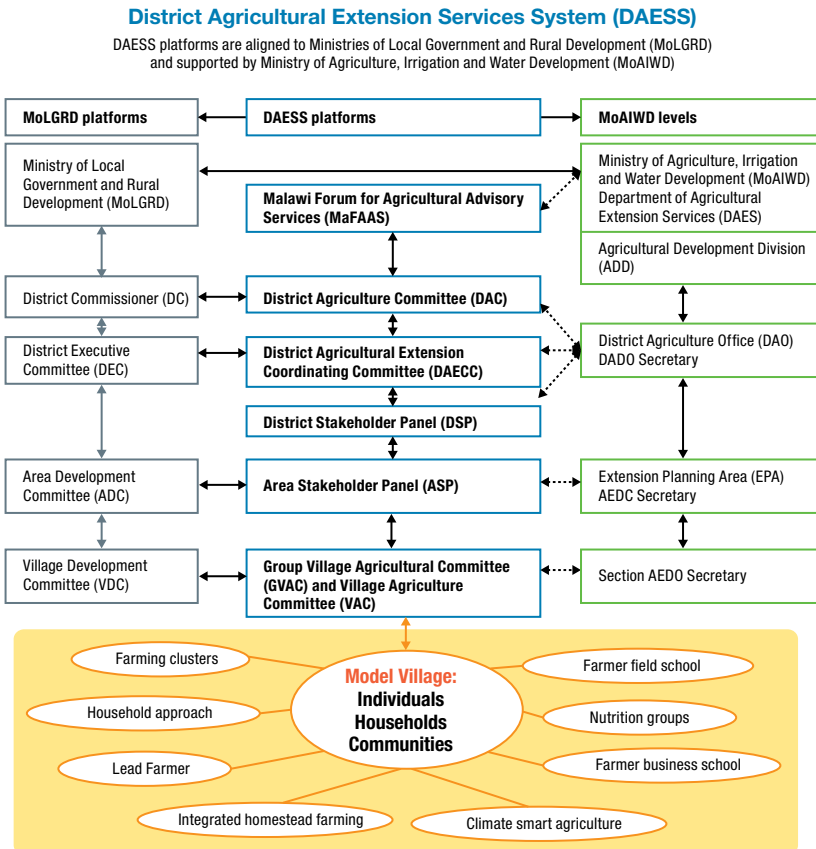
2 These are the names of the mobile apps; the numbers represent the numbers that farmers dial to access the apps.

agriculture committees (VACs) at the village or group village level; area stakeholder panels (ASPs) at the extension planning area level; district stakeholder panels, district agricultural extension coordination committees, and district agriculture committees (DACs) at the district level; and a national stakeholder panel, the Malawi Forum for Agricultural Advisory Services (MaFAAS) at the national level (Figure 7.3).

Within the DAESS, each structure performs key functions. The model villages are the entry point for agricultural development programs and use participatory approaches to plan, implement, monitor, and evaluate the progress of those programs at the village level. Also, at this level the VACs, which are subcommittees under the village development committees (VDCs), serve as forums for farmers and other relevant stakeholders such as NGOs and agribusinesses to express their demands and agree on common issues that require action. ASPs perform a similar function at the EPA level by serving as a discussion space to identify agricultural priorities, ensure representation of varied stakeholders, and aggregate villages' agricultural demands to obtain quality responses. At the district level, the DSP collects the agricultural demands expressed at the ASPs and, with extension service providers, coordinates responses to the prioritized agricultural needs. The DAECs are responsible not only for ensuring that quality extension services are provided throughout the district but also for advising the DACs on agricultural development issues and for mobilizing resources in support of agricultural extension services. The DACs also connect the multilevel extension structure with other institutions of the local government by being composed of elected members of the district councils.³ Last, DSPs and DAECs are linked to the national stakeholder panel (MaFAAS) at the top, which connects to the higher levels of the Ministry of Agriculture, Irrigation and Water Development. Altogether, this system aims to create pluralistic, demand-driven, and decentralized extension services that assist farmers in an efficient and effective way.

In addition, the establishment of the National Agriculture Content Development Committee (NACDC) in 2014 presents another opportunity for enhancing coordination. The purpose of NACDC is to improve quality of agriculture extension to avoid conflicting technical messages. This committee was initiated by the service providers interested in disseminating extension messages to farmers using platforms that are based on information and

3 The DACs work with the district councils to, for example, make recommendations on extension service policy, support local agricultural institutions and development, assist in resource acquisition, and encourage community participation.

FIGURE 7.3 Agricultural extension governance structures in Malawi

Source: Modified from Malawi, MoAIWD (2006).

Note: Straight lines reflect reporting lines from the DAESS platforms to the MoLGRDs. For instance, the ASPs report to the area development committees on agricultural development at the area level and the functioning of the ASPs. A similar structure applies to the other levels (village, district). The dashed lines connect MoAIWD with the DAESS platforms in terms of facilitating the existence of these platforms, being part of them (for example, the district agriculture development officer chairs the DAECC), and building their capacity so that these platforms perform their key functions. MoAIWD is also an advocate for the role of MaFAAS at the national level. The DAES is part of MoAIWD, together with the other technical departments concerning fisheries, livestock, crop development, land resources, and agricultural development. The DAESS structure encompasses all of these technical departments, so the heads of the agricultural technical departments are represented on the DSPs and DAECCs.

communication technologies (ICTs). However, the committee's mandate has since been broadened to include all agricultural extension messages to ensure that farmers receive messages that are validated and are of good quality. Membership of NACDC is open to public and private service providers in the agriculture sector who are cautious on the quality of messages disseminated

and is chaired by a nongovernment service provider. As the committee is relatively new, its capacity and workings would need strengthening to help harmonize and coordinate agricultural extension service provision in Malawi. In addition, since the committee is only at the national level, an opportunity exists to test it at the district level through the DAEC.

Human Capacity and Training

QUANTITY INDICATORS

In a district there are roughly 18 technical staff or subject matter specialists from nongovernment and 16 SMSs from government (1:1 ratio). As mentioned previously, there are roughly 86 government frontline workers and a total of 47 frontline workers for nongovernment extension services providers in a district, on average (2:1 government to nongovernment ratio).⁴ In addition, in a district there are roughly 1,520 lead farmers on average, although this can be overestimated since the lead farmers of all government and nongovernment extension services providers are summed, except that these can be the same lead farmers. This shows that there are a substantial number and size of nongovernment extension services providers, and the need for coordination and harmonization in this pluralistic system has never been more essential and urgent.

In particular, the number of farming households is not consistent in Malawi, with the Agricultural Production Estimates Survey (APES) providing much higher numbers of households than the Agricultural Census. Farmer-to-government agent ratio is roughly 2,240 or 3,316, depending on whether one is using APES or the Agricultural Census. The farmer-to-all agents ratio is roughly 1,568 or 2,232, depending on whether one is using APES or the Agricultural Census. Given that there are no good data for benchmarking, it is hard to establish where Malawi is in terms of farmer-to-staff ratio. Given available data from other countries, these ratios are much higher than some countries in Africa south of the Sahara, including Ethiopia, are comparable to Tanzania, and are much lower/better than Nigeria or India (see [Figure 6.2, Chapter 6](#)). While there is much attention on farmer-to-agent ratios, without funds for operating costs, additional people in the payroll will not make an impact. Therefore, there should be a balance and prioritization of

⁴ There is also a possible interexchange or mixing of what SMSs and frontline workers are within the nongovernment extension providers, so the figures are the best interpretation of the data available.

additional funding in order to make a positive impact in terms of coverage and agricultural outcomes.

QUALITY INDICATORS

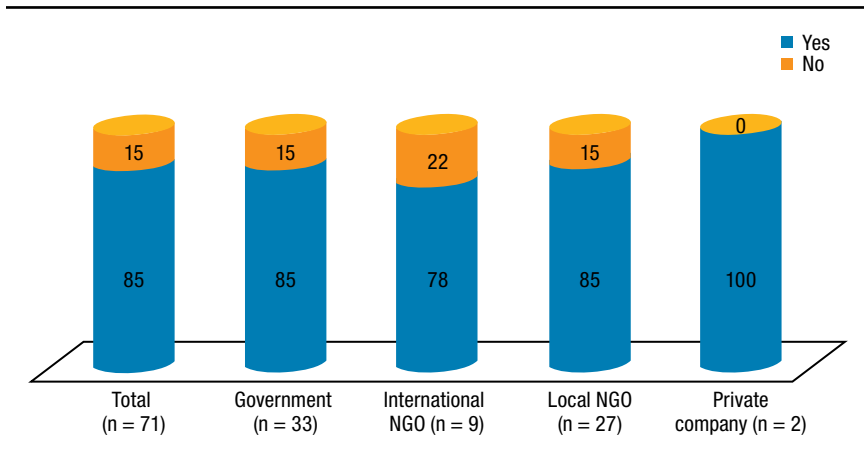
Based on the interviews with 71 extension workers, the majority (64 percent) of frontline workers have at least a two-year diploma, most common for government and nongovernment organizations. A fifth have a one-year certificate/diploma, dominated by government. Interestingly, 16 percent have only a primary or high school education (19 percent from nongovernment) and do not have at least a certificate or diploma. In the case of AEDOs, further investigation was carried out, since there appears to be an error, given the requirement of two-year diploma to be an AEDO. The one-year certificate course was phased out to become a diploma course in the 1980s. At one point, government-recruited secondary-level candidates were to be trained on the job and later trained to diploma level at Natural Resources College (NRC) on a part-time basis following employment. Those AEDOs with no certificate or diploma may represent the remnants that did not make it to NRC.

AEDO trainees were recruited toward the end of 2016 under the Sustainable Agriculture Promotion Programme (SAPP). These are individuals who have generally completed secondary education. They are expected to periodically attend NRC for short training courses and return to their designated EPAs for field work. Once they complete the required training, they will become fully fledged AEDOs. The focus was on individuals remaining in the rural area so that they can stay and work in the same area upon becoming an AEDO. Besides formal education, the majority of frontline workers (85 percent) reported that they ever had received professional training, similar to that of government and nongovernment (Figure 7.4). This means that 15 percent have never received training or retraining.

About half of the frontline workers for government and nongovernment received some training in 2016 (Table 7.2). It can be assumed that roughly 50–60 percent received training in the past three years, which means that roughly 40–50 percent have never received any training and retraining in at least three years. This has serious implications on the skills upgrading among frontline workers in government and nongovernment. This, ultimately, has implications on the quality of advice and extension services being provided to the farmers.

GENDER COMPOSITION

Female subject matter specialists are roughly 19 percent of all government SMS. There is a higher proportion of female frontline workers (25 percent

FIGURE 7.4 Frontline workers who received professional training (%)

Source: IFPRI in-depth interviews of 71 frontline workers (December 2016–February 2017).

TABLE 7.2 Proportion of frontline workers by last time they received professional training, 2010–2016 (%)

Latest year of training	Total (n = 60)	Government (n = 28)	International NGO (n = 7)	Local NGO (n = 23)	Private company (n = 2)
2016	47	50	57	43	0
2015	7	4	0	13	0
2014	7	0	14	9	50
2013	7	7	0	9	0
2012	5	4	0	9	0
2011	2	0	14	0	0
2010	8	11	0	9	0

Source: IFPRI in-depth interviews with 71 frontline workers (December 2016–February 2017).

in the government and 32 percent in nongovernment). There is also a greater proportion of female lead farmers (35 percent). These figures are higher or better than some countries (for example, 5 percent in the Democratic Republic of the Congo), although considering the proportion of female farmers to the farming population in Malawi, the proportion of female technical staff and extension services workers may still be low.

There is evidence showing that gender equality at the level of policy and extension services providers affects gender equality in accessing extension services (see Ragasa [2014] for a review). Evidence shows that extension services

from female agents may be better targeted to female farmers. For example, the World Bank and IFPRI (2009) find that female extension services workers serve a higher proportion of female farmers than do male agents (the average ratio of female farmers to male farmers who were provided with extension services by agents is 1.3 for female agents and 0.53 for male agents for the countries under study: Ethiopia, India, and Ghana). This shows that female agents are more likely to work with a greater proportion of female farmers, while male agents are more likely to work with a greater proportion of male farmers. If the aim is to ensure that female farmers have equal likelihood of having access to extension services to male, and to address the earlier reported bias in their access to these services, efforts will have to be exerted to achieve more gender balance at the level of the extension services provider and frontline worker. Gender-based constraints, such as social norms that limit women's school attendance or mobility, also limit their opportunities and willingness to work as extension agents. It may be difficult at a practical level for a married woman to work in a rural area away from her husband and family or to find appropriate housing and schooling for her children.

TIME ALLOCATION

It is essential to understand the workload of frontline workers, since it affects the quality of their work. Possible reasons for underperformance among extension agents may be because they are unmotivated or demoralized by the lack of support to the extension system or that they are overworked and that the expectations from them are too high compared to the amount of resources they are given to perform their work. Some also question the added responsibilities of government extension services workers in FISP or APES, which, according to some critics, are not really a part of training and supporting farmers with knowledge and skills, and may crowd out the scarce time and energies among extension services workers, keeping them from undertaking more knowledge-brokerage and technical assistance.

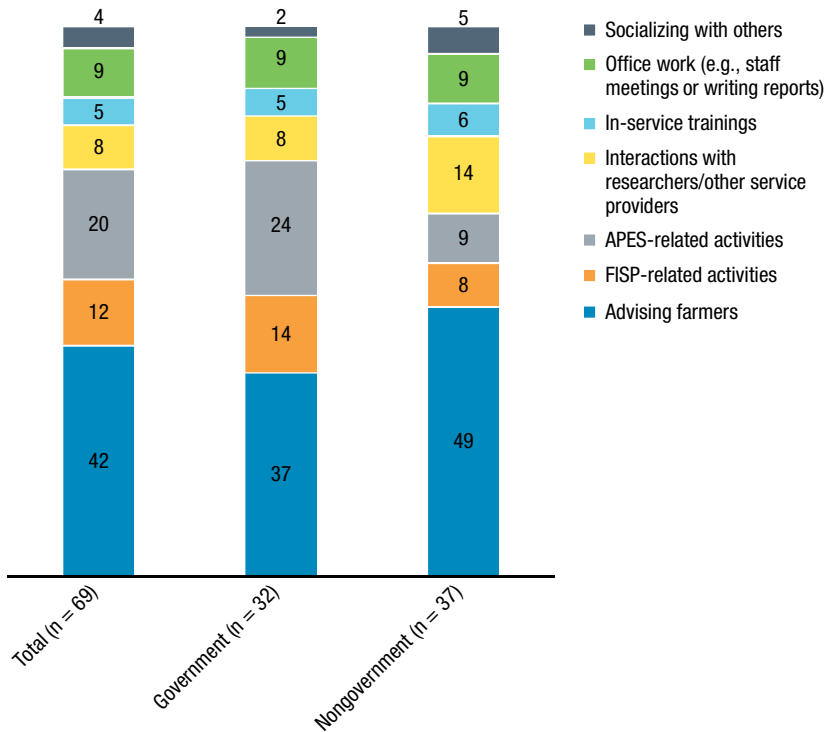
The data show that among AEDOs, only 37 percent of their time was spent on working with farmers and 38 percent is spent on FISP and APES-related activities (Figure 7.5). We are not sure if AEDOs' involvement in FISP might have reduced following the change in the program implementation; identification of beneficiaries is now done centrally, after we had already collected our data. The time allocation proportions were much better for nongovernment frontline workers who spend half of their time helping and supporting farmers. Still, it seems that expectations are too high for frontline workers, who are not guided and not supported enough, especially the state AEDOs.

If this time-use and expectations were to continue, it would be necessary to support extension workers to perform all these roles, including the following: (1) provision of motorbikes and fuel allowance, which should be a relatively low-cost investment to ensure better mobility of extension workers; and (2) use of low-cost mass media (radio, mobile phone/text messaging, videos) to ensure that more farmers are reached with information and options to create greater demand for extension services.

INCENTIVES

An average monthly salary for an AEDO is Malawi kwacha (MWK) 79,440 (US\$110) to MWK 113,260 (US\$160) for a nongovernment frontline worker. The monthly salaries of nongovernment extension services workers are 40 percent higher than those of the government. The field allowance per year is minimal (MWK 33,500 to 34,500 per year, or US\$4 per month) and similar for government and nongovernment employees. Despite not having major differences in monthly salaries and yearly allowances between government and nongovernment agents, one major difference is the type of mobility. Almost all frontline workers from nongovernment are provided with a motorbike and fuel allowances, while most frontline workers in the government are provided with only a pushbike. This is exacerbated whereby an AEDO is requested to cover two sections due to staff shortages, made worse in hilly areas. Only 32 percent reported having access to a motorbike. The fuel and maintenance allowance per month for nongovernment frontline workers is MWK 40,000 (US\$55) compared to MWK 1,900 (US\$1.50) for AEDOs.

This poor mobility, especially among government extension services workers, is clearly obvious in the responses of frontline workers when asked about their constraints and motivations. The overwhelming majority of AEDOs (85 percent) reported better mobility as their top motivating factor. Others cited good remuneration packages, support for activities (funding, protective gear, and quick responses to issues raised by communities), frequent and more refresher courses, provision and maintenance of good housing, and timely provision of field allowances. Among nongovernment frontline workers, responses were more diverse and less concentrated, although the most common were reliable means of mobility, good remuneration packages, support for activities, and frequent and more refresher courses. Though noted by very few frontline workers, the last five factors seem to suggest that some nongovernment frontline workers look beyond for such things as work relationships, collaboration, and the sort of feedback they get from the communities they serve.

FIGURE 7.5 Time allocation of frontline workers during planting season (%)

Source: Authors' in-depth interviews of 71 frontline workers (December 2016–February 2017).

Note: APES = Agricultural Production Estimates Survey; FISP = Farm Input Subsidy Programme.

Similarly, the most pressing general constraint was the poor mode of mobility for frontline workers, which is more pronounced for government frontline workers. The other major constraint most common for both frontline workers was inadequate or lack of resources for activities, including funds and materials. The other constraints for AEDOs were poor housing conditions; low salaries; limited recognition in terms of promotion, rewards, or allowance; and lack of skills upgrading and retraining. In-depth interviews pointed to poor housing conditions as a major constraint hindering AEDOs in performing better. For government and nongovernment, some also cited constraints such as the lack of interest, cooperation, and commitment from farming communities.

Monitoring and Accountability

Monitoring of performance and evaluation of outcomes and impacts are poor, particularly in the government system. Under both state and nonstate systems, targets are usually limited to inputs and outputs (such as the number of households trained) and do not reach the level of outcomes or impacts. Very few (13 percent of frontline workers and 10 percent of all service providers) reported having outcome indicators, such as crop yield performance or number of households that are food secure, as their performance targets. While much data are collected through APES, it is often not linked and utilized to inform how extension services are performing or how they can be improved. At a national scale, the main indicator still used is farmer-to-agent ratio, which can potentially be counterproductive, putting more strain on scarce resources without clear impact if no operating funds are added for extension work. Moreover, there are few incentives for good performance and no system to evaluate government extension workers and hold them accountable for their performance.

Financial Capacity

Government funds for extension services are mainly for personnel compensation (73–83 percent), with operating funds (known as “other recurrent transactions”) being limited (17–27 percent).⁵ The latter are mainly for administrative expenses, and funds to do actual extension work and farmer support are extremely limited. The estimated public funds for extension services are roughly 740,000 Malawian kwachas (MWK) (US\$1,000) per AEDO per year, or MWK 250 (US\$0.33) per farmer per year, which is very little.⁶

To put this into context, salaries for agricultural research are roughly 40–60 percent of the budget in most African countries, and in cases such as Ghana—with more than 80 percent of total research budget for personnel—salaries are considered very alarming (Flaherty, Essegbey, and Asare 2010). One would assume that the operating fund requirements for extension services would be similar, given that technologies and knowledge are disseminated to widely spread rural communities.

5 These figures include development projects, such as ASWAp-SP and SAPP, that enter the government accounting system, but they do not include any agriculture-sector funds given to NGOs.

6 It was difficult to collect reliable data from both government and nongovernment service providers in the 15 sample districts (see [Figure 7.1](#)). The figures summarized here were from the government district offices (DADOs) and verified with approved budgets from the Ministry of Finance and the National Local Government Finance Committee.

Numerous projects and programs provide extension services. However, these are largely uncoordinated efforts. One would think of these efforts as “projectized,” which generally are ad hoc, irregular, and infrequent. Focus group discussions also confirmed issues of duplication and concentration of the efforts, which result into conflicting and inconsistent messages that tend to confuse farmers. Survey results also reveal existence of gaps in many areas such as disadvantaged groups (females, uneducated farmers, and youth) being often left out. Together, all this mirrors the tendency of checking boxes to achieve quick results in many of the short-term projects. Ultimately, such development efforts tend to be unsustainable and deepen the sense of dependence and dole-out mentality among rural communities.

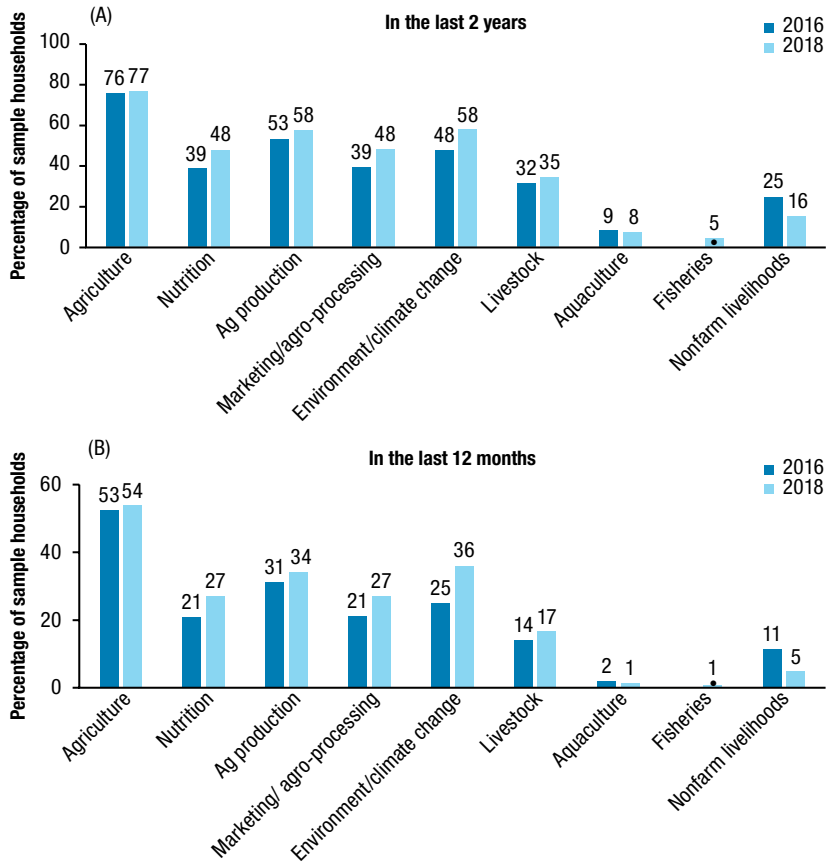
7.5 Evidence of Effectiveness and Impact of Extension Services

Access to Extension Services

Three-quarters of households reported having received some agricultural advice in the past two years (Figure 7.6). This mirrors major efforts in extension service delivery overall. However, half of households received advice in the past 12 months, indicating that provision of advice is irregular and infrequent as we see a large difference between access to advice within a two-year duration (panel a) versus a one-year duration (panel b). About 48 percent of the households reported access to nutrition advice in the past two years and 27 percent in the past 12 months, respectively—not quite as high (Figure 7.6). Moreover, provision of advice is heavily focused on crop production; with only 27 percent reportedly receiving information on market access or marketing and 17 percent reporting receiving information on livestock in the past 12 months (Figure 7.6).

Comparing 2016 and 2018, we see some improvements in extension service delivery. In panel b, 54 percent of the households reported access to agriculture advice in 2018—a 1 percent increase from 2016. Improvements are mainly in access to marketing/agro-processing and environment/climate change. There was a decline in advice on nonfarm livelihoods. In nutrition advice we see a significant increase in the proportion of households reporting accessing nutrition advice, with 27 percent of the households reporting access to nutrition advice in 2018—up from 21 percent of households in 2016.

While the National Extension Policy envisions equity and states that “the public sector must make sure that the poorest segments of the population,

FIGURE 7.6 Households receiving agriculture or nutrition advice from any source, 2016 and 2018 (%)

Source: IFPRI household surveys (2016, 2018).

Note: Agriculture combines all non-nutrition-related advice, including crop production, market/agro-processing, environment/climate change, livestock, aquaculture, fisheries, and nonfarm livelihoods. The dotted bar (fisheries) means only 2018 data were collected on this subject. Survey question: “In the last 2 years [In the last 12 months], did you receive any information or advice on any of these topics?”

women, youth, and people with disabilities are not left out of the development process” (Malawi, MoAIWD 2000: 25), our dataset shows that access to extension services is lowest among the more disadvantaged segments of the farming population (see Ragasa and Niu 2017). The poorest households, households with young heads, those adults with no or only a few years of primary education, female producers, and those in more remote areas are less

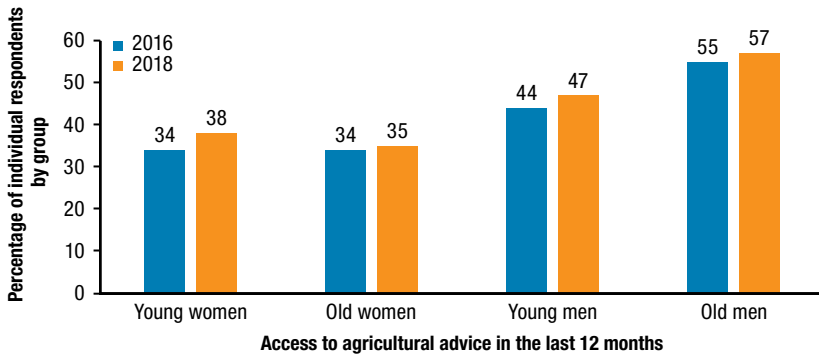
likely to access agricultural advice (see Ragasa and Niu 2017; Ragasa and Comstock 2019).

The issue of youth is of particular interest. Youth (defined here as younger than 35 years of age) are less likely to access advice on most of these topics. In general, youth are less likely to participate in village and less likely to demand or request advisory or extension services (Ragasa and Niu 2017). As a result, youth are less likely to be aware of, to try out, and to adopt improved technologies than their older counterparts. Youth are less likely to receive extension services and advice compared with their older counterparts (Figure 7.7). This is a topic that needs further investigation since these results contrast with claims and hopes that youth are the drivers of agricultural innovation and rural transformation.

Males are more likely to receive agriculture-related advice than females, although both are equally likely to receive advice on other livelihoods and or health/nutrition. Older men are more likely to receive agricultural advice than younger men and women of both age groups (Figure 7.7). Among females, female members in male-headed households have a lower likelihood of receiving agriculture advice than females who are household heads. This may be due to the persistent focus on household heads as recipients or beneficiaries in many extension, training, and capacity-building programs. A study by Ragasa, Aberman, and Alvarez-Mingote (2019) find that reducing the gender gap and targeting both female and male adults in the same household can increase productivity and food security of the households.

Quality of Extension Services

Farmers gave very high ratings and are satisfied with the advice that they receive overall: 76 percent of farmers are very satisfied; 77 percent said they found the advice very useful; 86 percent said they followed the advice; 92 percent said the advice was something they wanted or needed (Table 7.3). This is largely similar for 2016 and 2018 data. Ratings are similar to those reported in the Integrated Household Survey (IHS3) (see Ragasa and Mazunda 2018; Ragasa and Comstock 2019). Spielman et al. (2019) and World Bank and IFPRI (2009) also reported high ratings and satisfaction of extension services, but this may be due to the free provision of these services—from the perspective of farmers, something free is better than none, and better to report as useful than not get any information at all. Either the extension services are really of high quality or our measurement and survey questions are not capturing the issues in terms of quality and content of extension services. One implication is that self-reported satisfaction ratings should be interpreted

FIGURE 7.7 Access to extension services, 2016 and 2018 (%)

Source: IFPRI household surveys (2016, 2018).

Note: “Youth” is officially defined in Malawi to cover those under 35 years.

with caution; and the focus could be on understanding the barriers to uptake and adoption of extension messages. Satisfaction questions should be accompanied by questions and assessment of actual adoption or use of the messages and practices being promoted by the extension services.

Demand-Driven Extension

Most farming households do not participate in meetings or processes where they would be able to articulate their demands for agriculture- or nutrition-related advice. Only 14 percent of those receiving advice actually demanded or requested it (see [Table 7.3](#)), indicating that not many farmers are requesting or articulating their demand for extension services. This indicates that the provision of nutrition and extension services is still heavily supply-driven, rather than demand-driven, as envisioned in the National Extension Policy.

The majority of respondents are either those who received advice—despite the fact that they did not request it (41 percent of respondents)—those who did not seek advice, or those who did not receive agriculture-related advice (half of respondents). Within the latter, one-third of them reported having particular needs or demands for advice, which implies that there is still scope for extension services providers to improve their reach to farmers. In general, the majority of respondents neither adopt nor demand advice on particular technologies being promoted. This may be a reflection of the projectized extension service provision, characterized by lack of coordination and limited awareness and information campaigns on options available to farmers to support their demand for services and inform their choices and decisions.

TABLE 7.3 Farmers' feedback on the latest advice received from agricultural extension service providers

Topic	Were you satisfied with the advice on topic [...]?			Was the advice on topic [...] useful?			Did you follow advice on the topic?	Was it something that you needed?	Was it something you requested?
	Not satisfied	Somewhat satisfied	Very satisfied	Not useful	Somewhat useful	Very useful			
Agricultural production	1	1	19	1	2	19	85	89	12
Livestock	1	1	19	1	2	21	79	92	14
Aquaculture	3	14	43	1	19	37	24	67	12
Marketing	1	2	17	1	4	14	66	90	5
Postharvest	1	0	19	0	1	17	88	95	13
Sustainable land management	1	1	29	1	1	26	86	93	20
Environment	1	1	27	0	2	25	84	89	13
Health or nutrition	0	1	23	0	0	22	94	93	15
Total	1	1	22	1	2	21	86	92	14

Source: IFPRI household survey (2016). Similar results for 2018 household survey.

Promoted Technologies

In terms of specific types of agricultural technologies and practices being promoted (see Ragasa and Niu 2017 for the list), awareness rates range from 14 percent to 49 percent for soil fertility and land management technologies; we see improvements in terms of proportion of households being aware and knowledgeable about these technologies (Figure 7.8). The only exception is on multiple food groups (dietary diversity), where fewer household heads reported having knowledge or awareness of this advice. Of the new questions asked in 2018, there was widely reported adoption of orange-fleshed sweet potato (59 percent of households). Awareness of Purdue Improved Crop Storage (PICS) bags (currently at 26 percent of households), fall army worm control (21 percent of households), and aflatoxin control (13 percent) can be further improved.

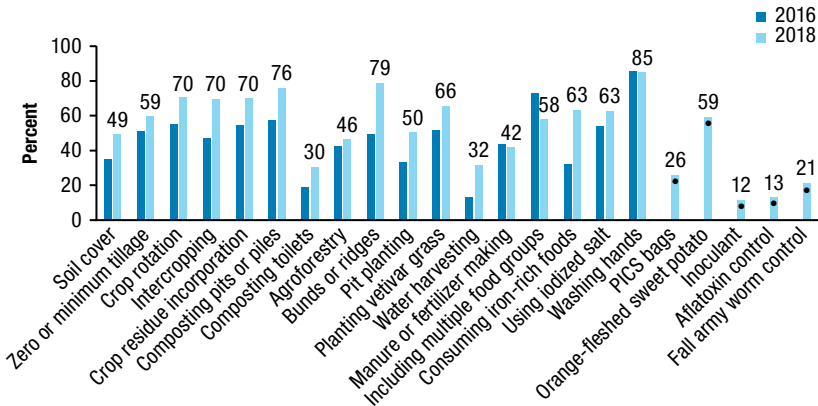
Looking at plot-level management practices and production data, we see major improvements in technology adoption from 2016 to 2018 (Figure 7.9). In 2018 more households reported adopting the agricultural technologies being promoted. Major improvements were seen in the adoption of bunds/ridges, crop residue incorporation, proper plant spacing, water management, row planting, and intercropping. We see higher usages of pesticides, maybe due to fall army worm. We do not see improvements in soil cover or mulching, minimum tillage, and pit planting.

Comparing awareness and adoption, we see major gaps (Figure 7.10). Aside from intercropping, there are large gaps in the awareness and actual adoption of practices/technologies being promoted. It seems that extension services are not able to fill the gap between awareness and adoption or that there are major bottlenecks beyond information constraints that limit technology adoption.

Impact of Extension Services on Productivity and Food Security at the National Level

Ragasa and Mazunda (2018) examine the interplay between Malawi's input subsidy and access to extension services, and the impact of both on farm productivity and food security using Malawi's Integrated Household Panel Survey. A correlated random effects (CRE) device is used, and consistency and robustness of results are checked using various other estimation models. The receipt of fertilizer and seed subsidies is shown to have an inconsistent impact on farm productivity and food security; at the same time, access to agricultural advice is consistently insignificant in explaining these. Further analysis, however, shows a statistically significant and strong association with farm

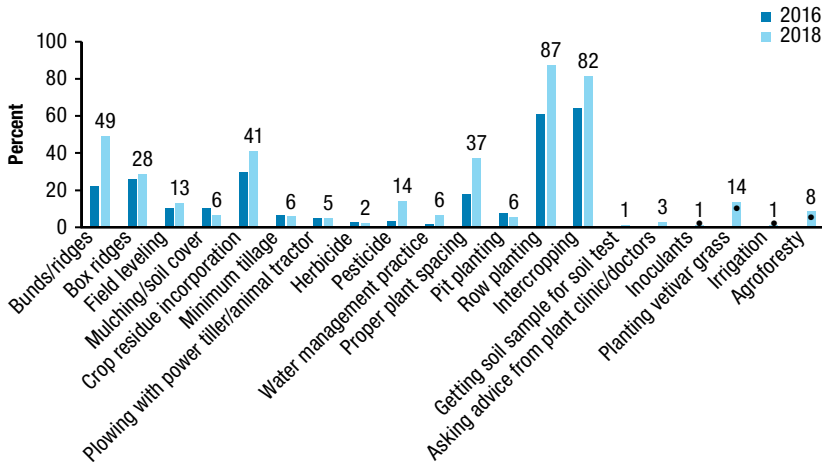
FIGURE 7.8 Household heads aware or knowledgeable of specific technologies, 2016 and 2018 (%)



Source: IFPRI household surveys (2016, 2018).

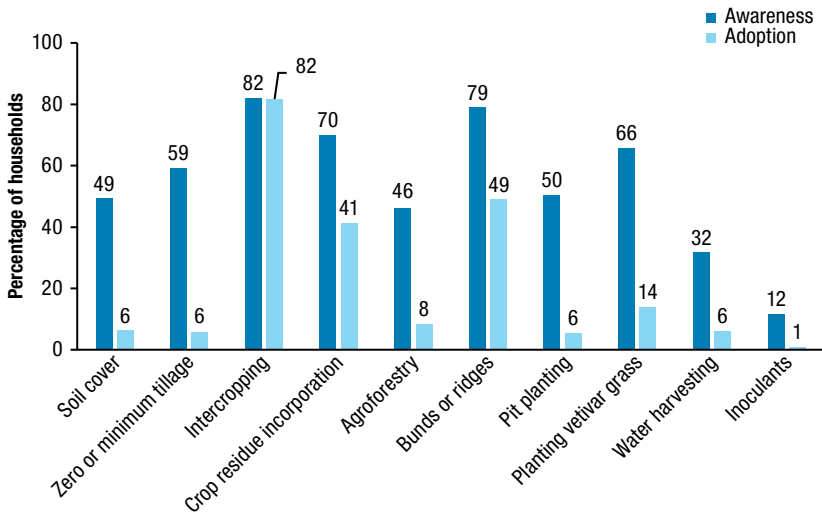
Note: Dotted bar (PICS bags, orange-fleshed sweet potato, inoculant, aflatoxin control, fall army worm control) means only 2018 data were collected.

FIGURE 7.9 Household heads adopting specific technologies, 2016 and 2018 (%)



Source: IFPRI household surveys (2016, 2018).

Note: Dotted bar (Inoculants, Planting vetiver grass, Irrigation, Agroforestry) means only 2018 data were collected. "Getting soil sample for soil test" and "Asking advice from plant clinic/doctors" are not specific technologies per se, but added here as they are actually the messages by extension officers for advice on soil quality and crop pests and diseases.

FIGURE 7.10 Gap in household heads awareness versus adoption of specific technologies, 2018 (%)

Source: IFPRI household surveys (2016, 2018).

productivity and food security when access to extension services is unpacked to include indicators of usefulness and farmers' satisfaction.

For each crop studied, households receiving "very useful" agricultural advice saw the largest boost to computed plot-level crop productivity and household food security; while those reporting "not useful" advice are strongly associated with lower levels of productivity and food security. More so than the type of advice or its method of communication to farmers, the relevance of extension advice, often measured by the satisfaction of farmers with agricultural outreach, is a signal of quality and relevance of the information provided and reliable predictor of improved farm-level and household-level outcomes. After all, to farmers, agricultural services are only as helpful as they are useful. Providing generalized outreach is not enough; advice to farmers must be locally tailored to be effective, and there is need to ensure the provision of relevant and useful agricultural advice. We also found positive impact of agricultural extension, coupled with market access information. This is consistent with Andarge and Ragasa (2019), in which they found strong effects of market extension on commercialization and crop diversification using the MIHS (2010–2016).

When it comes to effective agricultural extension services, content and quality of information are important to achieving agricultural development

outcomes. These results suggest the following ways to better target extension services: (1) get feedback from farmers as consumers of agricultural outreach products; and (2) use the findings to create timely, reliable, relevant outreach materials that go beyond the current focus on crop production (mainly chemical fertilizer and modern seed varieties) to include markets, agro-processing, other livelihoods, nutrition, and climate resilience—all tailored to local conditions.

Impact of Extension Programs or Approaches

Evidence of the effectiveness of extension programs or approaches is scanty. A relevant assessment of successful approaches is the effort carried out by MaFAAS to document innovative extension services in Malawi. Selection of these approaches was based on the Framework for African Agricultural Productivity principles. The assessment criteria provide a useful framework for extension services providers to assess extension services approaches and methods for their effectiveness and innovativeness, which is lacking. Mthinda (2015) summarizes the selected eight documented innovative approaches: farmer-to-farmer extension (by National Association of Smallholder Farmers of Malawi, NASFAM); host farmer demonstrations (Agricultural Research and Extension Trust, ARET); radio-based extension delivery (Farm Radio Trust); long-term extension programs for significant poverty alleviation (World Vision Malawi); farmers' clubs (Development Aid from People to People, DAPP); farmer voice radio (Malawi Broadcasting Corporation); lead farmer approach (Development Fund of Norway); and farmer cluster and the *Ulimi wa Mndandanda* model (Department of Agricultural Extension Services, DAES).⁷ All these approaches seem to have the commonality of putting farmers at the center of the process. For some, the long duration of the program, the long-term approach to institutional and human capacity building, and the keen attention to monitoring and reporting on their development objectives were key. However, these are based on self-reported achievements of the project teams, with limited validation, and no impact evaluation. Other studies have attempted to evaluate different extension approaches used in Malawi. Here we draw the main lessons from these studies.

First, combining approaches has worked better than relying on a single delivery tool. One of the successes of Farm Radio Trust is the ability to

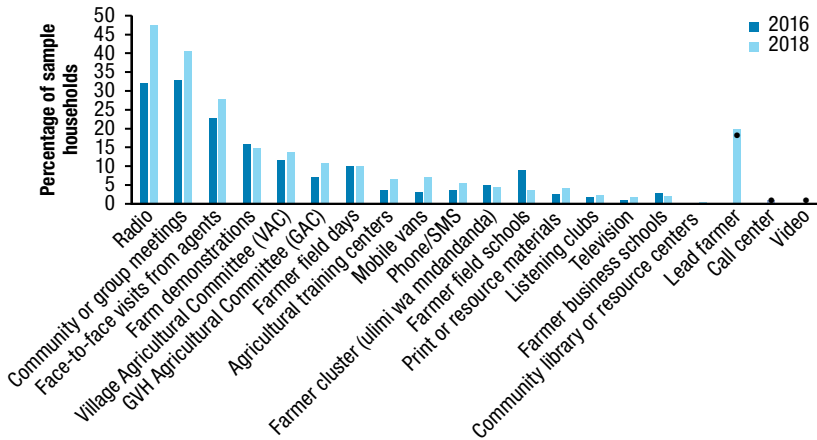
7 Regarding the farmer cluster and *Ulimi wa Mndandanda* model, farmers in a stretch of not less than 1 kilometer agree to implement similar recommended and innovative agronomic practices in their field, more like collaborative large-scale demonstrations.

combine radio programs with call-in features and text messaging (Chapota, Mthinda, and Fatch 2014). Ragasa and Niu (2017) highlight the huge potential of radio and other mass media in technology awareness campaigns to create demand for extension services. Ragasa (2019a) found that radio has the widest coverage of all extension delivery methods, reaching 48 percent of households in 2017/2018 (Figure 7.11). More than half of women (52 percent) reported listening to radio at least once a week. Younger women and men used radio more than other sources for their agricultural information needs. Younger and older men used radio more than other sources for nutrition education. Radio seems to be a critical delivery platform for nutrition education for men, circumventing strong gender norms on women's role in domestic work and nutrition while men are usually teased and laughed at when attending meetings/trainings related to nutrition. Ragasa (2019a) shows the significant effect of interactive radio programming on both women's and men's empowerment scores. Relative to other sources, access to radio had a greater effect on improving the empowerment of women than men. Mechanisms for this gendered outcome come from lower time burden and awareness campaigns and messages on gender equality. Access to radio by women and by men improved crop diversification and legume harvested area and improved dietary diversity.

Niu and Ragasa (2018) also stressed the importance of more intensive training and face-to-face interactions for complex agricultural management practices. Follow-up and continued mentoring by extension agents, facilitators, or field officers of both lead farmers and other farmers are necessary. For instance, Ward et al. (2018) and Fisher, Holden, and Katengeza (2017) detail the complexities of conservation agriculture and show that encouraging the adoption of the whole conservation agriculture package leads to very low compliance. Rather, it may be more effective to find "leverage" points and prioritize and sequence the promotion of specific dimensions of conservation agriculture based on a farmer's current practice (see specific suggestions in Ward et al. 2018). For some technologies, reassessment and reevaluation will be critical to know if they are really beneficial to farmers and what is constraining their adoption.

Second, an evaluation of farmer business schools (FBS) implemented by the government, using the case of Dedza, shows no follow-up of graduates and poor monitoring of project outcomes. A third of FBS participants did not complete the program; the most common reason was that the facilitator or the program did not continue for various reasons; some initial participants mentioned that they just lost interest. Chilemba and Ragasa (2018) show no impact of FBS participation or graduation; and only a few FBS

FIGURE 7.11 Household heads participating in various methods or approaches, 2016 and 2018 (%)



Source: IFPRI household surveys (2016, 2018).

Note: Dotted bar (Lead farmer, Call center, Video) means only 2018 data were collected. "Village Agricultural Committee (VAC)" and "GVH Agricultural Committee (GAC)" are not extension approaches or methods per se, but respondents mentioned them as sources of agricultural advice so they are included here.

participants experienced (small) increases in income. Malawi has implemented various extension approaches in the past. They involve good principles and are well-intentioned and effective in delivering information to communities. Oftentimes, it is not the extension approach that is the source of concern. Limited access to information or low awareness and adoption of promoted technologies is often due to lack of funds to scale up proven good approaches. When projects finish, so does much of the extension service provision.

Third, another potentially low-cost extension approach being heavily promoted in Malawi is the lead farmer approach. Musopole et al. (2013) show that transparent community selection of lead farmers, as well as incentives and support for lead farmers, can be critical to the success of the approach. Fisher, Holden, and Katengeza (2017) and Niu and Ragasa (2018) stress the complementarity of the lead farmers approach to other approaches. In fact, experiments by Beaman et al. (2018) show that most farmers are convinced to adopt a new technology only if they receive information about it from multiple sources. The challenge would be to use local contextual knowledge to find entry points or opportunities where most farmers would have multiple contacts or sources of information.

Ragasa (2019b) shows that while lead farmers play a crucial role in supporting and assisting AEDOs' activities in the communities (farm demonstrations, community and group meetings, etc.), their current coverage or interactions with farmers is limited (7 percent of households claimed that they have received advice from a lead farmer in the past 12 months and 20 percent claimed to have ever interacted and participated in any activity or meeting organized by lead farmers). Ragasa (2019b) shows no statistical association of farmers' exposure, access to, and interactions with lead farmers on awareness and adoption of most technologies being promoted.

When the type and heterogeneity of lead farmers were unpacked, Ragasa (2019b) shows that access to quality lead farmers, adoption behavior of lead farmers, and regular training received by lead farmers have strong and consistent effects on awareness and adoption of most technologies being promoted. The implications are the need for regular training of lead farmers; ensuring an inclusive and transparent selection of quality lead farmers, including greater sensitization of communities; supporting and incentivizing quality lead farmers, including periodic orientation and joint stakeholder supervisory visits by extension agents of local leaders on the lead farmer approach; and mobilization of the communities and local leaders to take ownership of the process and the approach.

Another implication is that activities of lead farmers seem to depend on how active and motivated the AEDO or NGO extension worker is that they are supporting. If the AEDOs or NGO agents are not active in the community, lead farmers are also not active. Serious issues in terms of building capacity, motivation, and accountability at the service provider level need to be addressed first so that farmer-to-farmer extension can be more effective. So equipping them with proper training and support is crucial. Also needed is to go beyond using lead farmer-to-farmer ratio as a main indicator of extension service provision. Instead, indicators should be on the number of households that have adopted the technologies and that are better-off because of the knowledge imparted by the lead farmers. Similar to the conclusions of Behaghel et al. (2018), the lead farmer approach should be supported by a well-working extension system and come as a complement to that system, not a substitute.

Fourth, the surveys and interviews highlight the need to revisit the expectations placed on the decentralized structures for demand articulation and coordination and to be realistic about what they can really do. Only a third of the communities have a village or group villages agricultural committee (VAC/GAC) set up; and participation by households in these VAC/GAC/VDC is low (only a third of those farmers aware of these committees were

actively participating). There is generally low awareness of these VAC/GAC/VDC and much confusion about their roles and functions. Only a fifth of the randomly selected communities have implemented the model village concept, being promoted as an integrated approach for solving communities' challenges. The model village concept is not associated with improved community outcome indicators based on econometric models; and its implementation should be reviewed and improved in order to improve development outcomes (Ragasa, Alvarez-Mingote, and McNamara 2018). Moreover, only a few VAC, ASPs, and DAECC are active and responsive; almost all district stakeholder panels (DSPs) are not working; and many of them do not have the institutional setup, resources, and capacity to coordinate, monitor, and harmonize service provision at the district level (Ragasa, Alvarez-Mingote, and McNamara 2018). Current capacity strengthening of these structures seems to be done mechanically, focusing on their setup but without providing adequate support for their long-term functionality such as designing monitoring practices and tracking of key objectives.

Last, several studies highlight that in many instances information may not be the only binding constraints—access to inputs and capital is also crucial. Chilemba and Ragasa (2018) show that the lack of positive impact of farmer business schools on farm incomes in Dedza district is likely due to limited resources of FBS participants to apply the FBS lessons and start profitable ventures. A study by Ambler, de Brauw, and Godlonton (2018) of NASFAM farmers in Ntchisi and Dowa districts shows that financial support to farmers (cash and in-kind transfers) lead to shifts away from tobacco toward groundnut and soy production and increases in legumes production; no difference in impact was found among different extension approaches used. Therefore, a holistic approach to production and livelihoods is necessary, including information access. A holistic approach highlights putting farmers as the center, and all technical departments and service providers contributing in a coordinated matter and not working in silos.

7.6 Conclusion and Recommendations

This section makes concluding remarks and provides recommendations to improve the state of agricultural extension in Malawi.

Governance Structures and Policy Environment

The policy environment for Malawi's extension services can be considered enabling. The National Agricultural Policy was launched in 2016 with a focus

on strengthening key drivers for the transformation and commercialization of the agriculture sector, with a prominent role for extension services. A national extension services strategy is being developed in response to the new NAP. Once this is finalized, the Malawi MoAIWD should sensitize stakeholders at all levels so that they know what is expected of them. The ministry and its partners should mobilize resources for it to become operational. In addition, the ministry should develop detailed and clear implementation guidelines for the different levels of service provision. As other subsectors develop their strategies, the DAES and MaFAAS should ensure these strategies address extension and advisory issues.

More funding from government for extension services (with greater balance between operating versus salary costs) is needed, especially to fulfill its function in terms of coordination and addressing the gaps in the provision of extension services, where nongovernment providers are not filling (for example, sustainable production systems, natural resources management, and disadvantaged groups). Without funds for operating costs, adding staff to the payroll will not help and would be counterproductive, crowding out other investments that can better deliver development outcomes. Moreover, the system has to move beyond farmer-to-agent ratio as its main performance indicator and should monitor farmers' access to useful information and their feedback on the messages and technologies being promoted.

Organizational Capacity and Management

PUBLIC SECTOR

This chapter has demonstrated that the public extension system operates through a dual decentralized and centralized system. This is because the agriculture sector has not fully decentralized its system, allowing both structures to operate simultaneously. As such, DAES at the national level and the ADD level continue to directly influence priorities in the districts and which farmers' demands are responded to. This has resulted in an unhealthy unity of command and dual accountability that stifle the full implementation of the extension system. In addition, it continues to implement the extension policy through the District Agricultural Extension Services System with limited success. The DAESS is generally weak with limited resources and support from its stakeholders, which renders it ineffective for the articulation of farmers' demands and for the provision of a coordinated response by extension services providers. Although DAESS staff participates in developing work plans and budgets and monitors activities through these structures,

not much is being done on the monitoring of outcomes, impacts, and lessons learned.

To improve the organization and management of extension services, Malawi's MoAIWD can do the following:

1. Abide by the decentralization act and complete the decentralization process by empowering farmers to articulate their demands and for stakeholders at the district and national levels to organize a quality response.
2. Thoroughly review the DAESS to establish the key bottlenecks and opportunities, as well as generate lessons from best practices to effectively implement the pluralistic demand-driven extension policy.
3. Ensure that field staff report activities they do on behalf of or jointly with other service providers. Incentives systems can be aligned not only on the activities organized but also on the level and quality of coordination and collaboration with other extension services providers.
4. Strengthen its monitoring system by going beyond activities/inputs to include outcomes, impacts, and key lessons.

PRIVATE SECTOR AND NGOS

The number of nonstate actors has increased as a result of the introduction of the pluralistic extension policy, which is a welcome development. These are present in every district in varying degrees, offering a wide range of extension services. Their increased presence has resulted in unhealthy competition for resources and clients in some districts, resulting in unsustainable tactics such as free handouts to farmers. Few farmers' organizations participate in extension services provision and most of them are young. For the nonstate actors to provide more effective extension services, there is a need for a more coordinated and regulated extension services. Malawi's MoAIWD should therefore establish a mapping system of extension services providers by district to determine their strengths and opportunities as well as how best they can be supported to enable them to provide quality extension services. The ministry should strengthen its efforts in empowering farmers' organizations to participate in the provision of extension services as well as help organize their demand for the same.

DECENTRALIZED COORDINATION

Since the pluralistic extension policy was launched in 2000, the government of Malawi has made efforts to establish the DAESS with limited success. Some efforts by the donor community were made to strengthen the DAESS

structures. There is some evidence that many of these structures are active and functional because of these new efforts. However, participation of households in these structures remains very low, and ratings in terms of their responsiveness are generally low. Constraining factors include unwillingness of the nonstate extension services providers to own the DAESS structures, viewing them as still heavily linked to the national level Department of Agricultural Extension Services and to the centralized decision-making process.

It therefore is recommended that Malawi's MoAIWD should critically review the DAESS to fine-tune it. Particular attention should focus on the DAESS structure, operational procedures, performance, knowledge management, efficiency, and sustainability. In addition, service providers should adhere to the decentralization act and complete devolution of decision-making powers to the districts to enhance coordination and linkages among extension services providers in the agriculture sector. The MoAIWD should walk the talk and set a good example to nonstate actors. In addition, the MoAIWD should continue to build capacity at the lower levels to understand and use the structures for organizing and responding to farmers' demands.

PROFESSIONALIZATION, REGISTRATION, CERTIFICATION OF EXTENSION AGENTS

There is a substantial number, size, and coverage of nongovernment extension services providers, and the coordination and harmonization of messages in this pluralistic system has never been more important and urgent. The government of Malawi can focus on this role through the District Agricultural Extension Coordinating Committee (DAECC) at the district level and national structures, such as MaFAAS, at the national level. The NACDC is a good start and should continue to be funded and strengthened.

The MoAIWD with MaFAAS should promote professionalism in the provision of extension services by doing the following:

- Establishing acceptable qualifications of professional extension agents,
- Monitoring the conduct of members of the profession,
- Acting as a regulatory body and licensing extension organizations, and
- Advising and influencing curricula of higher learning institutions as well as its students.

FOCUS ON HARMONIZED AND RELEVANT CONTENT OF EXTENSION SERVICES

A critical step for harmonization and certification is relevant content. First, research, other technical departments, and extension should collaborate on

assessment of the productivity, profitability, and usefulness of technologies and extension messages being promoted. A common assumption is that the “improved” technologies promoted are productive and profitable, when in fact various studies (summarized in Ragasa and Mazunda 2018) highlight that this may not always be the case. There are wide variabilities in soil types, farming systems, and local conditions; highly productive and profitable technologies on average may not be productive and profitable to many conditions. Evidence presented in this chapter reinforces the need to further review and evaluate the technologies being promoted to determine how they really impact different farming communities.

CAPACITY AND TRAINING

Regular training of extension services workers to upgrade technical and facilitation skills will be required. Nongovernment extension agents are being trained by projects more often, although several of these capacity strengthening efforts are largely uncoordinated. Coordination of these and a feedback system to and from the agricultural colleges and training institutions will be useful to ensure that demand and supply of skills and expertise meet. Quality training and follow-up training should also extend to lead farmers and community volunteers. Most important, there is need to strengthen the agricultural education and training institutions that are critical in molding future extension services workers in the country. Exchange forums on how to strengthen these systems and reform the curricula and training modules should be initiated. Hands-on training of students and programs for internships and apprenticeships should be supported.

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