Malawi's Decentralized Agricultural Extension Delivery System: The Approaches, Services Offered and Linkage of Actors

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Abstract

Agricultural extension is central in the agricultural development process. Generally, Malawi has continuously been reforming her extension services in order to increase accessibility and uptake of technologies by farmers. The study on which the paper is based aimed at determining the strength of linkages of different actors in the Malawi's decentralized extension system. The study adopted the cross-sectional research design whereby a structured questionnaire was used to collect data from 150 randomly selected smallholder maize farmers in Mangochi district. Supplementary data were collected from 10 focus group discussions and 9 key informant interviews. IBM-SPPS was used to determine descriptive statistics. Social network analysis was used to determine the strength of linkages between actors in the agricultural sector. Findings show that the government, private sector and lead farmers are interconnected in the provision of agricultural extension services to smallholder farmers. It is concluded that the district has strong linkages of the three main actors in the provision of coordinated and uniform agricultural extension services to smallholder farmers. Therefore, there is need for the government and other agriculture sector stakeholders to build the capacity of the frontline extension staff on approaches that can help farmers practice what is taught using farmer field schools which are currently underutilized. In addition, all the extension service providers need to mobilize resources to strengthen Malawi's district agricultural extension structures specifically, at the Traditional Authority and Group Village Headman levels for improved coordination and linkages.

Keywords: Agricultural sector, extension services, linkages, smallholder farmers, Malawi, DAESS

Introduction

Malawi's economy is predominantly driven by the agricultural sector whereby about 90% of the population lives in the country side and nearly 11 million people are involved in subsistence smallholder farming. However, just about one-third of the land is appropriate for farming because of the existence of mountains, rough pastures and forests. In Malawi, smallholder farmers contribute 75% of the food consumed in the country by cultivating approximately 5.3 million hectares of arable land. In addition, agriculture represents about a third of the nation's GDP, represents about 80% of all exports and accounts for above two fifths (85%) of the work force: smallholder farmers contribute over 70% of Malawi's agricultural GDP while the rest is contributed by the estate sub-sector. Maize by far remains the chief component of the people's diet in Malawi and is cultivated by approximately 80 percent of all smallholder farmers (FAO, 2015a).

Based on the significance of the agricultural sector the government of Malawi since the 1950s has been improving her agricultural extension system (GoM, 2000; Magomero and Park, 2014). The latest being the country's introduction of its new extension policy "Agriculture extension in the new millennium: Towards pluralistic and demand driven services in Malawi" (GoM, 2000). The policy promotes provision of extension services required by farmers by a number of different players in line with a decentralized policy. In addition, the

policy creates an atmosphere in which extension services are able to provide effective solutions to challenges such as market liberalization, democratization process, shrinking public resource and public service reforms as well as others that may come along over time. Malawi's approach is in line with what has been reported in literature in relation to pluralistic advisory services. According to literature use of the above can help a country/region/district to overcome constraints such as funding and personnel shortages, and provide a strategy for tailoring agricultural extension services to the needs of specific sub-sectors/regions/districts (Birner *et al.,* 2006). Furthermore, it is also argued that pluralistic advisory services are a way of ensuring greater stakeholder involvement whereby pluralistic advisory systems can be used either in partnerships or through other types of collaboration between players, with the recognition that different players may have comparative advantages for different functions (Crowder, 1996 as cited by Birner *et al.,* 2006). In addition, pluralistic advisory services can allow the state to be a facilitator for the many other actors involved in advisory services—such as non-governmental organizations, farmers' groups and private advisory services (Gautam, 2000; McMillan, Hussain and Sanders, 2001; van den Ban, 2000 as cited by Birner *et al.,* 2006).

Further to the above, Malawi has received substantial resources from development partners geared towards reinforcement of its extension system (Ragasa *et al.,* 2015). Nonetheless, despite the changes and the resources being used to strengthen Malawi's extension system, smallholder productivity remains low (GoM, 2018). Generally, agricultural extension is a very vital part of the agricultural development process (Bingu *et al.,* 2016). According to Benor *et al.* (1984) attainment and sustainability of high agricultural productivity and related incomes cannot be realized in the absence of an operational agricultural extension service. Moreover, agricultural extension assists in transferring skills, and in supporting farmers solve their productivity issues by encouraging their involvement in agricultural information and knowledge systems (Danso-Abbeam *et al.,* 2018). Therefore, access to reliable extension services can lead to among others household, community and national food security (Rickards *et al.,* 2018). Generally, farmers awareness and adoption of improved technologies enables them to raise their productivity, however, the same is highly dependent on the extension approaches and methods used by extension agents. Anandajayasekeram *et al.* (2008) argue that, the different approaches and methods used by extension agents create awareness amongst farmers hence, enabling them to accept and adopt new and better-quality technologies hence, improving their productivity, income as well as general welfare. In addition, Al-Mashhadani *et al.* (2017) argue that extension approaches and methods stimulate smallholder farmers to accept agricultural messages as well as skills that are passed on to them. Therefore, extension workers should be acquainted with the different approaches and methods. In so doing, the extension workers will be able to pick the appropriate approaches and methods according to the farmers' situation (Abbas *et al.,* 2021). Nonetheless, for this to be realized there is need for linkages between the different extension service providers namely government, non-governmental organizations, farmer groups, and farmers. Generally, having well-structured linkages makes it easy for extension agents and other stakeholders to disseminate innovations which if adopted can directly improve the general welfare poor-resource farmers through increased productivity and higher incomes (Anandajayasekeram *et al.,* 2008). Therefore, the study on which the paper is based aimed at identifying the different approaches, methods and types of agricultural extension services offered to smallholder farmers under DAESS and, determining the linkages of different actors in the Malawi's Decentralized Agricultural Extension System (DAESS).

Theoretical framework

The study was guided by the Relational Coordination Theory (RCT). According to Gittell (2002), RCT explains the mutually strengthening process of an interaction between relationships and communication conducted for the purpose of integration of tasks. The theory

looks at coordination as having three attributes i.e. shared knowledge, shared goals as well as mutual respect. The shared knowledge attribute is explained as the capability of the actors to look at the associations that occur between their definite functions and the contribution that constitute the entire process. Shared goals are assumed to be superior to functional goals of each actor while mutual respect functions are regarded as a precursor for overpowering obstacles or challenges which if left unsolved may inhibit individuals from valuing and appreciating other actors' contributions. The study was also guided by the diffusion of innovation theory (DIT) (Rogers, 2003). The DIT explains how with passing time an idea spreads through specific people or communities. According to McRoberts and Franke (2008) the degree of interconnectedness of the actors in the agricultural sector and extension communication channels are some of the parameters of diffusion of innovation theory that influence provision of quality extension services. The two theories were used to complement each other based on the fact that, diffusion and adoption of an innovation is complex. Furthermore, the way innovations are promoted to farmers differs between institutions/organizations. Moreover, farmers interact with different institutions/ organizations in their endeavour to improve their productivity. In addition, the institutions may be working together or in isolation with the later complicating how farmers receive information on innovations or improved technologies. Moreover, Bolton *et al.* (2021) argue that to achieve desired outcomes, work is increasingly complex, specialized, and interdependent, requiring coordination across roles, disciplines, organizations, and sectors to achieve desired outcomes.

Conceptual framework

The study's conceptual framework (Fig. 1) shows how the different actors in the agricultural sector interact and link with each other as guided by policy. Generally, agricultural extension services or advise to smallholder farmers can be acquired through interactions with government extension staff, NGOs/CSOs, farmers groups and agro-dealers. In addition, the government extension staff can link with NGOs/CSOs and agro-dealers in reaching smallholder farmers in relation to new innovations geared towards improving their productivity. The policy is significant because it enables organizations to agree on extension services, the clientele/

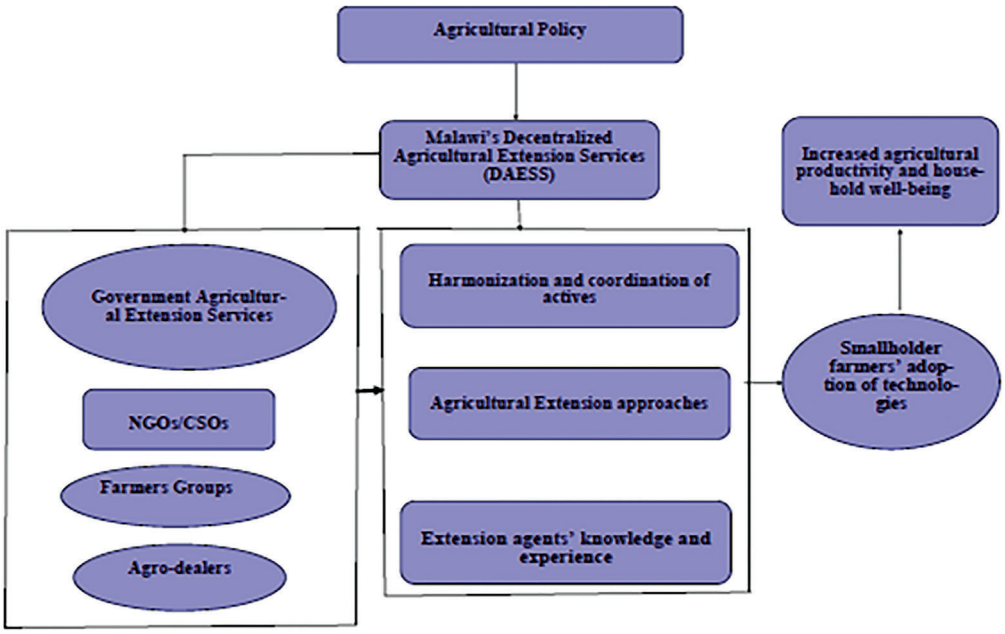

Figure 1: Conceptual framework for the effective agricultural extension service delivery

farmer to be served by different organizations, how extension services will be financed and the general provision of services. As such, a sound agricultural extension policy is essential for the success of agricultural programmes (Rusliyadi *et al.,* 2019). According to Altalb *et al.* (2015) agricultural extension is provided to assist farmers cultivate their abilities and acquire new knowledge, skills and altitudes for farming practice. Additionally, qualified extension officers need to work with other stakeholders in a well-coordinated manner to ensure farmers are served but, without duplicating efforts and wasting resources (Düvel, 2005 and, Rusliyadi *et al.,* 2019).

Research Methodology

Description of the study area

The study was conducted in Mangochi district, in the southern region of Malawi, at the southern end of Lake Malawi as it is called in Malawi or Lake Nyasa in Tanzania. The district lies between latitudes 14˚ 29' and 59.99" S and longitudes 35˚ 14' and 60.00" E. The district is about 200 kilometres from Blantyre, Malawi's major commercial and industrial city and it is about 320 Kilometres from Lilongwe, the country's capital. With a total land area of 6 273 square kilometres the district is the largest in the southern region and it is the third largest in the country and has a population of 1 053 585 people (GoM, 2017a). The predominant types of soils are lithosols and the district experiences a warm tropical climate and average temperatures range from 18ºC to 32ºC. The rainy season starts from October and ends in May and main food crops grown in the district are maize (*Zea mays*), sweet potatoes (*Ipomoea batatas*), rice (*Oryza sativa*), groundnuts (*Arachis hypogaea*), beans (*Phaseolus vulgaris*), soya beans (Glycine max), pigeon peas (*Cajunus cajan*) and cassava (*Manihot esculenta*) while main cash crops grown in the district are tobacco (*Nicotiana tabacam*) and cotton (*Gossypium*) (GoM, 2017a).

Research design

The study adopted the cross-sectional research design whereby data were collected once. The design allows collection of similar data from various subjects at one point in time (Neuman, 2014). In addition, the design was used because it allows data to be collected relatively faster without compromising the quality of data and it is inexpensive (Setia, 2016).

Sampling techniques and sample size

Mangochi District was selected purposefully for being one of the districts implementing DAESS. In addition, studies on the approach have not been conducted fully. Thereafter, 5 Extension Planning Areas (EPAs) and 150 smallholder maize farming households in Mangochi district were selected randomly to participate in the study. Respondents were selected based on the farmer registers obtained from the agricultural offices and local leaders. Generally, a study's mode of analysis determines its sample size. For example, exploratory factor analysis cannot be done if the sample has less than 50 observations and simple regression analysis needs a sample size of at least 50: generally a sample size of 100 is adequate for most research situations (Hair *et al.,* 2018 as cited by Memon *et al.,* 2020).

Data Collection

Primary data were collected from respondents using a structured questionnaire with closed and open-ended questions. The questions mainly aimed at collecting data on agents/institutions from which farmers get services, types of services offered by extension services providers. In addition, data were collected through focus group discussions (FGDs) and key informant interviews (KIIs). 10 FGDs were conducted, 5 with members of village agriculture committees (VACs) and Area Stakeholder Panels (ASPs) who are also smallholder farmers, and another 5 with frontline extension workers. The FGDs involved 6 to 8 participants and in total, 67 participants were involved. A total of 9 KIIs were conducted with the Director of Planning and Development (DPD), the Director of Agriculture and Natural Resources (DANR), the chair of District Agriculture Extension Coordination Committee (DAECC), chair of the District Stakeholder Panel (DSP) and with five Agriculture Extension Development Coordinators (AEDCs). It was

through these FGDs and KIIs that in-depth qualitative data were obtained to complement information gathered through the questionnaire administered to smallholder farmers. The above data collection methods aimed at allowing triangulation, which is a means of producing a comprehensive outcome through the help of two partial results which might not stand on their own (Kelle *et al.,* 2019). Prior to the actual data collection, the data collection tools were pre-tested in the Chilipa Extension Planning Area (EPA), Mangochi district. The main issues from the pre-testing were language barrier and lack of clarity of some of the questions. The former was due to most of the residents being only able to speak 'Yao' a language the researchers were not familiar to, therefore, an interpreter was sought to help out. As regards the unclear questions, the questionnaire was revised accordingly. Nonetheless, the data generated from the pretesting were not included in the analysis.

Data Analysis

The quantitative data collected through the questionnaires were analysed through IBM-SPSS whereby descriptive (frequencies and percentages) statistics were determined to identify extension approaches/methods used to deliver services to smallholder farmers as well as the types of extension services offered to smallholder farmers. Further to the above, tallying was done for the open-ended questions to establish the respective frequencies and percentages. In addition, social network analysis was done to identify the strength of linkages/ connectedness of the different agricultural actors available in the district. Qualitative data collected from the FGDs and the KIIs were analysed using content analysis, whereby codes and themes were developed for the various arguments.

Findings and Discussion

Respondent's demographic and socio-economic characteristics

Respondents' major demographic and socio-economic characteristics are presented Table 1 whereby the majority (60%) of the respondents were females. According to GoM (2019), there are more women (52.5%) in Mangochi than men. Furthermore, men and young men in the study area tend to be busy with fishing at the lake and others migrate to South Africa for greener pastures hence, more female respondents than males. The point above was emphasized in an interview with one key informant who said;

"The problem is that this district is close to the lake. A lot of men and young men prefer fishing while others prefer to go and work in South Africa leaving agricultural production largely to women and the elderly. For example, the district has 302 797 farming households of which 197,214 are female headed households and 105,583 are male headed households" (Key Informant, Ministry of Agriculture Irrigation and Water Development, 11th November, 2020).

Table 1 also shows that about half (49.3%) of respondents were adults aged between 36 and 60 years, followed by the youth aged between 18 to 35 years (38.7%) and 12% were old people above 60 years of age. The mean age of the respondents was 42.3 years. The observed average somehow resembles to the 43.49 years' average age of smallholder farmers interviewed by Allie and Demiryurek (2019) in Mangochi district on their access to credit. During the household surveys and FGDs it was pointed out that farming in the district was mainly done by female adults and older people. The observation is in line with the findings of Maliro and Kandiwa (2015) that about 70% of workforce in the production of maize in Malawi is provided by women. However, as pointed earlier during the time of the study many men had just returned to receive input coupons from the government. Study findings (Table 1) also show that the majority (82%) of the respondents were married and 11% were divorced.

The findings further show that about two thirds (63.3%) had attained primary school education, 22.7% had no formal education and only 14% had attained secondary school education. The observed proportion of respondents with formal education is almost similar to the observation by GoM (2017b) whereby 24.1% of Mangochi district residents were reported to have never attended school. According to Oduro-Ofori *et al.* (2014), improvement of agricultural productivity cannot

be meaningful without education. Formal education makes one to be more curious hence enabling him/her to be well updated with the changing concepts and innovations. In addition, being literate enables them to share knowledge gained with others. On land holding size, the study findings show that average land size in the area was 0.95 ha, with the majority (72%) having 0.8 to 1.6 ha followed by those having less than 0.4 ha (20.0%) (Table 1). This average landholding size is slightly lower than Malawi's 1.2 ha average household land holding size (FAO, 2015b).

Despite the fact that most men and young men out-migrate in search of greener pastures, the study findings show that almost all (98%) households depend on farming as their main source of income (Table 1). The observed proportion is higher than what was reported by IFAD (2017) that 85 % of the rural people in Malawi depend on agriculture as their source of livelihood. In addition, above one-third (38.7%) indicated to have more than 19 years of farming experience, followed by about a quarter (26%) who had a farming experience of 10 to 14 years and less than a quarter (18.7%) who had farming experience of 5 to 9 years. According to Nonu and Baker (2021) farming experience is significantly associated with agricultural crop productivity.

Approaches/methods, types of extension services

Approaches/methods used

Figure 2 shows that about three-quarters (73.3%) of the smallholder farmers interviewed accessed different agricultural extension services through the lead farmer approach while about two-thirds (62.7%) accessed different agricultural extension services through demonstrations and just over a half (54.7%) accessed the same through farmer groups. In addition, 43.3%, 10.3% and 7.3% of the smallholder farmers interviewed accessed different extension services through farmer field days, model villages and farmer field schools respectively. Nonetheless, these approaches/ methods were implemented simultaneously. The use of various extension approaches/ methods simultaneously brings improvement in effectiveness and efficiency in serving farmers. According to Ragasa and Mthinda (2020), people tend to remember 10%, 50% and 90% of the things they hear, see and practice at the same time respectively. Moreover, during the key informant interviews, it was noted that most service providers prefer using lead farmers to disseminate information to fellow farmers as it is cost-effective amidst shortage of staff hence, featuring high. One of the service providers from the NGO sector said:

"Due to shortage of extension staff, we use lead farmers to reach many farmers since they live in the same communities. This approach ensures that more farmers are reached with little costs. We train them, provide them with resources to mount demonstration plots and enable them to conduct field days. Apart from that we have also noted that farmers easily adopt technologies being promoted by fellow farmers than when promoted by extension agents" (Key Informant, Mangochi district, 13th November, 2020).

According to Andersen (2019), Malawi's agricultural extension services are encountering serious challenges as the number of extension workers has been falling and due to limited resources the government has not been able to fill the vacant positions with about 70% of the positions at the 'Extension Planning Area' level remaining unoccupied. Nonetheless, according to Oyelami *et al.* (2018) the lead farmer approach has been proved to be cost effective with wider reach amongst grassroots farmers. Moreover, Khaila *et al.* (2015) and Andersen (2019) argue that the lead farmer approach has shown to be highly relevant to the needs of smallholder farmers as well as the requirements of government policies as it addresses the serious challenges of climate change, low agricultural productivity, poverty and hunger (Andersen, 2019). According to Franzel *et al.* (2019) an extension approach is judged to be cost effective if the cost per farmer trained is lower than that of the alternative approaches. In other approaches, the extension worker trains farmers while in the lead farmer approach, it is the lead farmer that trains the farmers. Generally, it is less costly to hire an additional lead farmer than hiring an extension staff. For example, the cost of a

Table 1: Respondents demographic and socio-economic characteristics (n = 150)

Respondents' Characteristic		Mean	Frequency	Percentage
Sex				
	Female		90	60
	Male		60	40
Age				
	18-35 years	42.3	58	38.7
	36-60 years		74	49.3
	>60 years		18	12
Marital Status				
	Never married		2	1.3
	Married		123	82
	Divorced		17	11.3
	Separated		2	1.3
	Widowed/widow		6	4
Education Level				
	No formal education		34	22.7
	Primary		95	63.3
	Secondary		21	14
Household Size				
	< 3	5.36	11	7.3
	3 - 5		82	54.7
	6 - 8		47	31.3
	9 - 11		10	6.7
Farm Size (in ha)				
	< 0.4	2.38	30	20
	0.4 – 1.6		108	72
	2 – 2.8		11	7.3
	>2.8		1	0.7
Major Source of Income				
	Farming		147	98
	Business		1	0.7
	Ganyu		2	1.3
Farming experience (in years)				
	< 5	17.47	5	3.3
	5 - 9		28	18.7
	10 - 14		39	26
	15 - 19		20	13.3
	>19		58	38.7

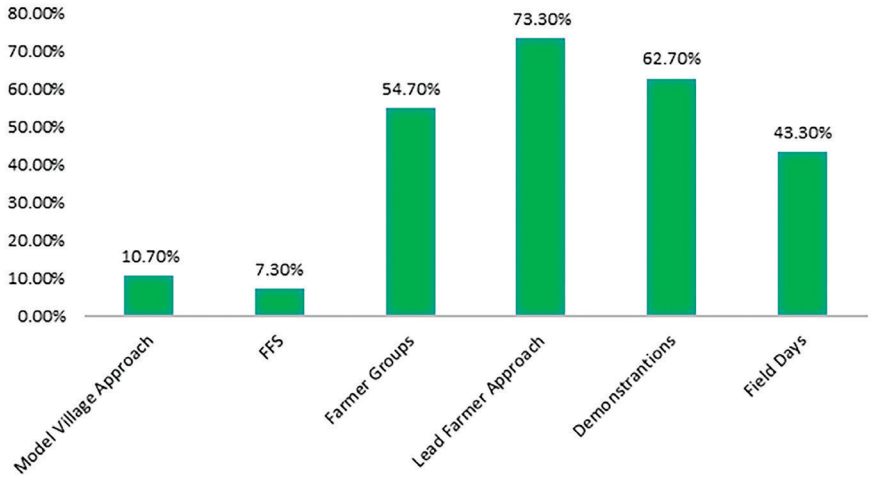

Figure 2: Approaches/Methods used by service providers in 2019/20 season

front-line extension staff member in Kenya is $6440 per year, and the cost of a farmer-trainer is $260 per year (Franzel *et al.,* 2014 and 2019). Similar results of the approaches and methods promoted by service providers (group approach, farmer field schools, lead farmer approach also known as farmer-to-farmer approach and field days) were recorded in the studies conducted by Jafry *et al.* (2014), Kundhlande *et al.* (2014) and Masangano and Mthinda (2012). However, according to Masangano and Mthinda (2012) the commonest approach used was the group approach followed by the farmer field school approach, unlike in this study where the commonest approach was the lead farmer.

However, whereas use of the lead farmers model can reduce extension cost and workload of extension staff it does have its own limitations (Simpson *et al.,* 2015: Meena *et al.,* 2016). For example, the farmer-trainers need coaching and technical backstopping, without which their performance may be poor. The above is particularly critical when a programme recruits more farmer-trainers than they are able to effectively backstop which reduces the overall performance of the programme. Furthermore, conflicts can arise between extension staff and the lead farmers if the former perceive them to be competitors rather than complementors to their own services conflicts between farmer-trainers and extension staff may occur (Meena *et al.,* 2016). Lastly, the use of lead farmers may simply be an arm of a top-down technology transfer model where communication is one-way hence, denying smallholder farmers the opportunity to raise their own concerns. Simpson *et al.* (2015) argue that in the absence of injection of new technical content or information, lead farmers may not be able to offer additional benefits to their communities or groups, thus, may become redundant. Therefore, in using lead farmers the government and other stakeholders need to ensure that roles and responsibilities are clearly spelt out to avoid unnecessary conflicts between extension staff and the lead farmers. In addition, frequent training is required (Simpson *et al.,* 2015; Meena *et al.,* 2016).

Types of extension services offered

Figure 3 shows that smallholder farmers accessed information on new seed varieties, pest control services, fertilizer application, organic manure making, irrigation, general animal care, animal disease and vaccination, contract farming and agro-forestry. Of the mentioned types of services, the study findings (Fig. 3) show that pest control (99.3%); manure making (96.7%); fertilizer application (92.7%), use of new seed varieties (90.0%) and animal diseases and vaccination (72.7%) were the major services received in the 2019/20 season. The study findings are in line with what has been reported in literature (Ragasa *et al.,* 2016; Ragasa and Mthinda, 2020) that the majority of smallholder

farmers are able to access different agricultural extension services from different providers. The prominence of pest control emanates from the fact that in the 2019/20 agricultural season Malawi was under attack of the fall army worm (*Spodoptera frugiperda*) thus, resulting into many service providers providing farmers with chemicals and technical know-how to control the pests.

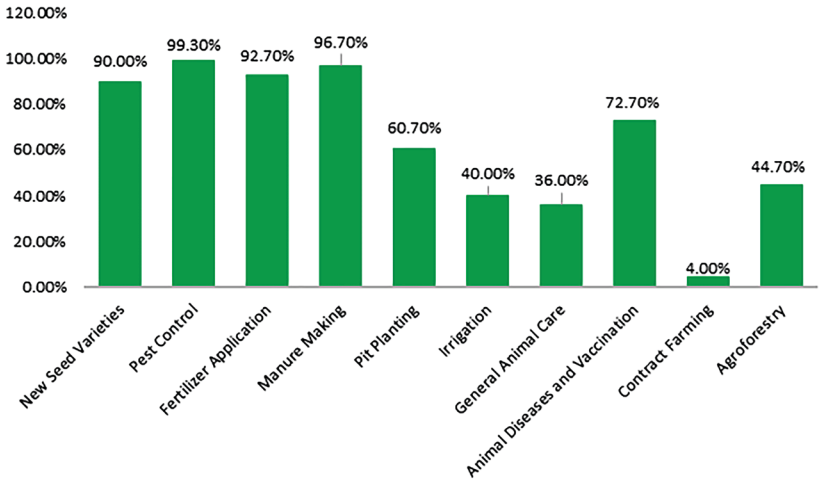

Figure 3: Types of agricultural extension services offered to smallholder farmers

Linkages of different actors in the Malawi's DAESS

Implementation of the new extension policy in Malawi "Agriculture extension in the new millennium: Towards pluralistic and demand driven services in Malawi" (GoM, 2000), has led to an increased availability of actors in the agricultural sector. In order to be able to the linkages among various actors, identification of different actors that are directly and indirectly involved in the collaboration process was done. Through the household surveys, key informant interviews and the FGDs eight (8) major agricultural sector actors operating in Mangochi district were identified who are:

i. Government extension services, these are directly involved in the agricultural extension services as a result of their nature of work and mandate;
ii. NGOs/CSOs, these represent some of the more prominent actors in the sector. They are well-known for being reasonably well endowed with financial resources for their activities;
iii. Private input suppliers, who are involved in the supply of improved inputs as well as amassing smallholder farmers' awareness of improved products;
iv. Lead farmers, these are elected by the community to be trained on a specific technology and disseminate that to fellow farmers;
v. Local leaders, are involved in mobilizing farmers;
vi. Councillors who are responsible for ensuring that the service providers discharge their responsibilities efficiently and effectively;
vii. Members of parliament, are involved in policy formulation and direction; and
viii. Farmers, who are the ones being targeted by various service providers.

Further to the above, Figure 4 shows the linkages of the above-mentioned actors as determined through use of the social network analysis whereby the different coloured arrows show the strength of interaction between the different actors (Fig. 4). In this regard the red arrows represent high interaction, while green arrows and black dotted arrows represent medium and low interaction respectively. The different actors were assigned different abbreviations as follows: GVT- Government Extension Service, NG- Non-Governmental Organization, LF- Lead Farmers, F- Farmers,

LL- Local Leaders, PT- Private Traders, MP- Member of Parliament, and CNL- Councillor (Fig. 4).

The results of the social network analysis (Fig. 4) show different levels of interaction/ linkages between actors in the district. Generally, there is a high interaction between farmers and lead farmers and government and medium interaction with NGOs. Figure 4 also shows existence of a high interaction between the government and NGOs, farmers, lead farmers as well as local leaders: on the other hand, lead farmers have strong linkages with the government and farmers while with NGOs they have medium linkages. Links from farmers to different actors were based on ease of accessibility of agricultural extension services while for actors involved with service provision, their interaction with farmers, lead farmers and local leaders was based on easiness to mobilize them when it came to awareness creation or promotion of new innovations. Linkages between different service providers were based on their coordination and harmonization of their activities in the district. However, weak linkages observed among actors with the Members of Parliament (MPs) and Councillors' and that this was due to MPs being busy with political party issues while councillors are not involved in many activities because each time they are involved they demand an allowance. The study findings are in line with the observations made by Masangano and Mthinda (2012) that organizations tend to have strong linkages with the government extension services at a district level with weak linkages existing between the organizations and the private traders (input suppliers). However, at the national level, Bingen and Simpson (2015) point out that very few organizations and private traders coordinate their activities with the Department of Agricultural Extension Services (DAES) of the Ministry of Agriculture. As regards farmers' interaction with service providers, Gebremariam *et al.* (2021) argues that in Ethiopia, poor farmers interact more with the government extension services unlike better off farmers generally able to afford improved inputs and other resources who can interact with any service provider. Attesting to the above observation, one of the key informants said:

"When the MPs (Members of Parliament) have won the elections, they move to towns only to come back again during campaign period while for councillors, anytime you involve them they always want an allowance so due to some financial constraints, we normally don't interact with them. For the case of private traders, they

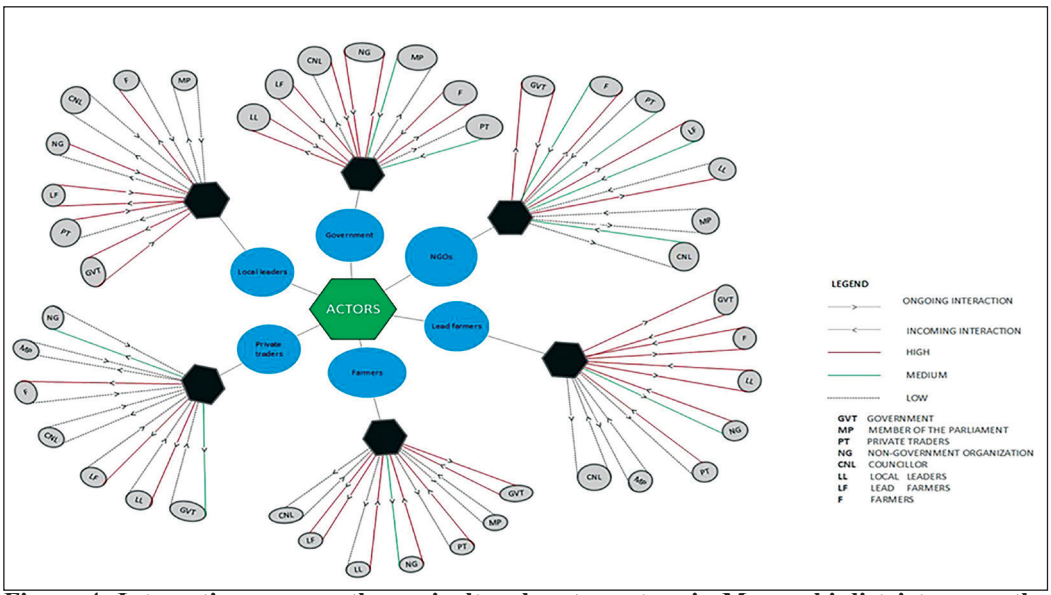

Figure 4: Interactions among the agricultural sector actors in Mangochi district as per the social network analysis

are not willing to bring improved inputs to some areas we advise, as such they don't use our office" (Key informant, AEDC, 23rd November, 2020).

The study findings suggest that the linkages/coordination between actors in the agricultural sector are actually enhanced by the availability of the DAESS structures such as District Agricultural Extension Coordination Committee (DAECC), District Stakeholder Panel (DSP), Area Stakeholder Panels (ASP) and Village Agriculture Committee (VAC). This is in line with the observation of Ragasa and Mthinda (2020), who reported that existence of DAESS in Malawi has brought improvements and responsiveness among different service providers. However, the study observed that most of these structures in the district are not currently functional.

Conclusions and Recommendations

Conclusions

Based on the study findings it is concluded that actors in Malawi decentralized agricultural extension system (DAESS) are strongly linked to each other. Generally, strong linkages are of paramount importance when it comes to raising agricultural productivity as it results to limiting dissemination of uncoordinated information as well as preventing duplication of efforts which could result in confusing farmers. It is also concluded that Mangochi district uses different types of approaches/methods in serving smallholder farmers. However, the most popular approach is the lead farmer's approach. Nonetheless, no approach is used in isolation as two or more approaches or methods are used simultaneously for effectiveness hence, enabling farmers to see, hear and practice what they are taught. Lastly, it is concluded that the DAESS and the implementation of pluralistic extension policy in the provision of agricultural extension services to smallholder farmers in Malawi has led to an increase in the number of actors in the agricultural sector with a goal of improving agricultural productivity. Actors actively involved in the provision of extension services in the district are the government, lead farmers, non-governmental organization.

Recommendations

Based on the study findings and conclusions the following are recommended:

i. The Government and all stakeholders in the agriculture sector should strive to build the capacity of the frontline extension staff on approaches that help farmers to practice the things being taught. This can be achieved through the farmer field schools (FFS) which are currently, not being adequately used due to a lack of knowledge on the approach and resources.
ii. The Government and all stakeholders in the agriculture sector should mobilize resources for strengthening the DAESS structures more especially at the Traditional Authority (TA) and Group Village Headman (GVH) levels for increased coordination.
iii. Lastly, the Government and the stakeholders should improve the quality of linkages of smallholder farmers to service providers by empowering them to be able to demand extension services that can respond to their priorities and needs.

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