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Full Length Research Paper

Malawi's experiences with the implementation of pluralistic, demand-driven and decentralised agricultural extension policy

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Clear agricultural policies and strategies are very crucial for influencing the performance of agricultural extension and advisory services (AEAS). Malawi has implemented its agricultural extension policy titled "agricultural extension in the new millennium: towards pluralistic and demand driven services in Malawi" for a period of seventeen years. The policy specified seven guiding principles which include provision of demand-driven extension services, ensuring accountability, promoting user participation in extension financing, ensuring resource sustainability, ensuring equal access to extension and advisory services, promotion of pluralism and provision of decentralised but well-coordinated AEAS. The study assessed the effectiveness of four of the seven principles in ensuring user access to quality AEAS. The study used a mixed methods approach which included action research, focus group discussions, key informant interviews and review of various documents. The results show that the four guiding principles which included pluralism, demand-driven services, decentralised coordination and user participation in extension financing had some potential for a positive influence on increasing access to quality AEAS. Pluralism helped in increasing number of service providers thereby increasing farmer access but did not influence the quality of extension. Most of the farmers are not demanding for services and most districts do not have functional District Agriculture Extension Services System (DAESS) structures. Most service providers are not using DAESS structures and this is resulting in poor coordination of services. Malawi should put more efforts in implementing the policy if its fruits are to be fully realised. Particularly, institutionalization of DAESS structures and ensuring their effective operationalization will help to ensure that the benefits of the principles of demand driven services and decentralised coordination are realized. The country also needs to train and engage more extension workers in order to increase farmer access to quality extension services.

Key words: Agricultural extension policy, accountability, coordination, decentralised extension, demand-driven services, extension financing, pluralism.

INTRODUCTION

Existence of clear agricultural policies and strategies has a major impact on the performance of agricultural extension services. Several authors have argued that countries that have enacted extension policies through

their legislative systems tend to have properly organized and financially stable extension systems which have sustainably been effective in assisting farming communities to develop their agricultural systems

(Hanyani-Mlambo, 2000; Oladele, 2011). The Smith-Lever Act of 1914 which established the Cooperative Extension System is one of the oldest and good examples of agricultural extension legislations that created a well-organized extension system with good financing mechanisms and has had a very good impact on agricultural development in the United States of America. The Act provided for mutual cooperation between the United States Department of Agriculture and land-grant universities and colleges in conducting agricultural extension work in the states. It provided mechanisms for extension financing and operations. The Act is frequently applauded for providing a good educational linkage from federal government to rural communities, a characteristic needed in most developing countries. Other pieces of agricultural extension policy legislations normally commended for having similar impacts include the 1948 Japanese Agricultural Promotion law which created and provided funding for Japan's Cooperative Agricultural Extension Service as well as the 1957 Agricultural Extension law and the 1962 Rural Development Law in South Korea (Contando, 1997; APO, 1994).

Agricultural extension and advisory services (AEAS) in Malawi have gone through several changes. A number of authors have provided detailed descriptions of the changes (Dequin, 1970; Kettlewell, 1965; Masangano and Mthinda, 2012; Masangano et al., 2016; Mkandawire, 1987). The changes were mostly based on the historical conception that agricultural extension is a process of extending scientifically proven knowledge, practices and policies to users in order for them to use such knowledge for improving their agricultural production systems. This conception of agricultural extension was premised on the assumption that scientific knowledge was always better than farmers and other user's knowledge and experiences. The implication being that extension should be a top down process where farmers and users are at the receiving end. This conception of extension had a number of weaknesses including:

- (1) It usually did not take farmers interests and concerns into consideration;
- (2) It did not value farmer's knowledge and experiences and hence it was not possible to build on indigenous knowledge systems;
- (3) It very often promoted technologies which were not suitable under farmers' conditions; and
- (4) It was very narrow based because it was only concerned with farmers and producers without taking into consideration the extension needs of other value chain actors.

Evidence from literature shows that farmers' response to

extension advice was generally low (Masangano, 1989; Carr, 1988; Mkandawire, 1988; Mkandawire and Chipande, 1988). The reasons for this low response included the fact that farmer needs and interests were most often not taken into consideration (Masangano and Mthinda, 2012) and that the technologies promoted were in some cases not suitable for the farmers (Carr, 1988). A good example occurred in the colonial period as well as soon after independence in the mid-1960s where extension promoted cash crops which were intended for export such as cotton and tobacco while farmers were more concerned with ensuring food self-sufficiency (Masangano and Mthinda, 2012). Extension in the 1980s on the other hand tended to promote capital intensive technologies which most low resource farmers could not afford (Carr, 1988). The result of this was that farmers tended to perceive that extension was for the resource rich and credit worthy club members only. Another weakness of the top-down system was the fact that valuable farmer knowledge and experiences were most often not taken into consideration in the development process. In addition to these weaknesses, the whole responsibility of extension service provision was left to the public sector and this had its own challenges. Public sector resources for extension were and are consistently shrinking. Despite the fact that the national budget has been increasing, spending on extension as a percentage of the agricultural budget has consistently been decreasing over time. This has resulted in a situation where the extension budget has only been sufficient to pay for staff salaries with very little resources left for operational costs. In 2010/2011 financial year for example, 96% of the spending for extension was on salaries. Government could not maintain provision of high quality extension services with the limited resources. In addition to all these weaknesses, research shows that farmer awareness of recommended technologies is low and this is a major cause for low adoption. A 2017 IFPRI study shows that adoption rate increases very significantly among farmers who are aware of the technologies being promoted. The study showed that adoption ranged from 4 to 35% among all respondents in the study but this range increased to 31 to 81 among respondents who were aware of the technologies in Malawi (Ragasa and Chiyu, 2017).

The introduction of multiparty system of government in 1993 together with the weaknesses associated with the extension systems at that time led to the introduction of an extension policy which promoted pluralism, demand-driven and decentralization extension services in 2000 (Masangano and Mthinda, 2012). The vision of extension as articulated in the policy was that all farmers should be

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able to demand and have access to high quality extension services provided by those who are best able to deliver them (GoM, 2000). The policy has a total of seven guiding principles which were considered important for the achievement of its objectives and these include; promotion of demand-driven services, ensuring accountability, encouraging user participation in financing provision of extension services, ensuring resource sustainability, promoting the principle of equalization, promoting pluralism and promoting decentralized coordination. In addition to these guiding principles, the policy specified an institutional framework where among other functions, the Department of Agricultural Extension Services (DAES) which represents government at the central level, was supposed to play the key role of monitoring and enforcing minimum standards in order to ensure quality service provision (GoM, 2000). In addition DAES was supposed to come up with a policy implementation guide to be used for orienting relevant stakeholders on the implementation of extension services. Other roles of DAES included co-ordination of national stakeholders and facilitating the provision of pre-service as well as in-service training of extension workers in order to ensure availability of an adequate pool of well qualified extension staff in the country.

Though not officially legislated through parliament, the policy received a cabinet blessing in 2000 and it has been in use in Malawi since then. It has provided guidance on the provision of AEAS for more than one and half decades. However, the effect and impact of the policy on the quality of extension service delivery have not been well documented. This paper provides evidence of such effect and or impact focussing on four of the seven guiding principles using data and information generated from a number of research projects and activities. The specific objectives pursued in the study were:

- (1) To assess whether the policy guidelines have been implemented.
- (2) To assess whether implementation of the policy guidelines have led to improved quality of AEAS provision. More especially to assess whether implementation of the extension guidelines have led to: (a) increased availability of AEAS in the country and (b) a financially stable extension system.

The four guiding principles selected were pluralism, demand-driven services, decentralised coordination and provision of services at cost and they were selected because they were considered to have more impact on the objectives of the study.

METHODOLOGY

The study was conducted using a mixed methods approach under a number of research and development projects and forums. One of the projects under which part of the study was conducted is the

“Support to Agricultural Extension and Training Services programme (SAETS)” which was implemented with financial support from the Government of Flanders. An action research approach was used in this programme and the main objective was to pilot test implementation of the policy guidelines titled the District Agricultural Extension Services System (DAESS) implementation guide while observing and drawing lessons from the implementation process. The study was conducted in Chipala and Kaluluma Extension Planning Areas (EPAs) in Kasungu district as well as in Emfeni and Luwerezzi EPAs in Mzimba district. The study started with a community and contextual analysis using one meeting which involved staff from Kasungu and Mzuzu Agricultural Development Divisions (ADDs), action planning using district stakeholder workshops conducted in Kasungu and Mzimba districts followed by implementation and experimentation activities as described in more detail by Masangano et al. (2016).

Additional data and information was collected through consultations using focus group discussions (FGD) and key informant interviews (KII) which were conducted under a project titled “Integrating and Strengthening Capacity of Farmers into District Stakeholder Panels for Improved Agricultural Extension Service Delivery in Malawi” which was also implemented with financial support from the Government of Flanders. The consultations were conducted with senior staff at DAES Headquarters and in three districts of Rumphi, Mzimba and Kasungu. In addition to district level stakeholders, consultations were also conducted with stakeholders at EPA level in one EPA in each of the three districts. Table 1 provides details of the number and type of stakeholders consulted.

Data and information was also generated through a review of papers from six of the eight Agricultural Development Divisions² (ADDs) of the country. These are papers which were submitted and some of which were presented at the Malawi Forum for Agricultural Advisory Services (MaFAAS) extension week in 2016. The ADDs which submitted the papers are Blantyre, Karonga, Kasungu, Lilongwe, Salima and Shire Valley. Other additional data and information was generated from a review of MaFAAS reports on district visits which were conducted in the following districts: Rumphi, Nkhatabay, Ntcheu and Mulanje.

FINDINGS AND DISCUSSION

There is a general agreement among various stakeholders consulted that the country came up with the right type of policy which is in accordance to the multiparty democratic dispensation in which Malawi is also promoting decentralised governance system. The change to multiparty democracy brought with it societal changes such as various types of freedoms like freedom of choice and freedom of expression. The introduction of demand-driven and pluralistic extension system is in tandem with these freedoms. The principle of demand-driven services created an environment which provides an opportunity for farmers and other users to demand the type of services they want. Demand-driven AEAS are more likely to address felt needs of farmers and other relevant stakeholders. The AEAS are therefore more likely to be perceived as being more relevant by the stakeholders and thereby enhancing the usage of such services among

²Malawi is divided into 8 agricultural development divisions (ADDs). Each of the ADDs covers several districts ranging from 2 to 5 and the districts are further divided into extension planning area (EPAs).

Table 1. The Number and Category of Respondents at each Site.

Site	Type of respondents consulted	Type of consultation	Number of respondents
DAES headquarters	Senior members of staff	KII	3
Rumphi headquarters	District Agricultural Development Officer (DADO)	KII	1
	District Agricultural Staff	FGD	6
	District Farmers Union of Malawi (FUM)	KII	1
	Farmer Organisation Facilitator		
Mhuju EPA in Rumphi district	3 District FUM leaders and 1 district stakeholder panel (DSP) leaders	FGD	4
	Agricultural Extension Development Coordinator (AEDC)	KII	1
	Agricultural Extension Development Officer (AEDO)	KII	1
Mzimba headquarters	3 EPA FUM leaders and 3 area stakeholder panel (ASP) leaders	FGD	6
	DADO	KII	1
	District agricultural staff	FGD	5
Manyamula EPA in Mzimba district	District FUM Farmer Organisation Facilitator	KII	1
	6 District FUM leaders & 3 DSP leaders	FGD	9
	AEDC	KII	1
Kasungu headquarters	AEDO	KII	1
	1 EPA FUM leaders and 10 ASP leaders	FGD	11
	DADO	KII	1
Chulu EPA in Kasungu district	District agricultural staff	KII	1
	3 district FUM leaders and 3 DSP leaders	FGD	6
	AEDC	KII	1
Group village headman	AEDOs	KII	2
	1 EPA FUM leaders and 12 ASP leaders	FGD	11
	Members of cooperative society	FGD	4
	Village agricultural committee members	FGD	3
	Group village headman	KII	1

FGD stands for focus group discussions and KII stands for key informant interviews.

among farmers and users. The policy is also in tandem with the market liberalisation process which took place under the structural adjustment programmes of the late 1980s to the early 1990s (Easterly, 2003). Market liberalisation created opportunities for a diversity of market demands. Farmers have a wider choice of what to grow and produce thereby creating a wider diversity of extension demands.

The principle of pluralism on the other hand allows many service providers to participate in service provision thereby creating an opportunity for farmers and other users to choose the service providers they want to receive services from. Pluralism also results in a diversity of service providers thereby creating a better environment for responding to the diversity of extension demands. It has also created opportunity for diversifying sources of financing and resourcing extension services thereby helping to mitigate the challenge of shrinking public sector resources for extension.

However, the results of the study show that achievement of the vision of the policy and its objectives is mixed. There are significant achievements in some of the principles and objectives of the policy but not for others. Subsequently, the results of the study for four of the seven guiding principles are presented by addressing three questions; (a) whether the country has implemented the guiding principle, (b) whether the implementation of the particular guiding principle has led to an increased availability of AEAS, and (c) what impact the implementation of the particular guiding principle is making.

Pluralism

The principle of pluralism was introduced as a way of responding to some of the challenges that extension was facing. Both the liberalisation and democratisation processes that Malawi went through from the 1980s to

Table 2. Categories of AEAS Providers Operating in Malawi.

Category of service provider	Number of providers	Brief description
Public sector	13	DAES and other technical departments in MoAI&WD as well as departments from other related ministries
NGO	61	National NGOs like TLC, FRT, Goal Malawi, etc. Most of them use resources provided by international organisations.
International NGO	23	They encompass a wide range of international NGOs like Care International, WVI, Plan International, etc.
Private Sector	25	This category includes banks, marketing organisations, input providers, media houses as well as producer organisations
Farmer Organisations	9	These include FUM and NASFAM as well as commodity specific organisations like milk producers, tobacco, coffee and grain legume associations
Donor Funded Projects	3	There are a number of projects which provide AEAS in addition to other development activities
CGIAR	4	Some CGIARs and research institutions provide both research and development services. Examples include ICRISAT, CIAT and ICRAF.
Academia	3	Two LUANAR colleges and Mzimba College of Agriculture

Key:

DAES Represents Department of Agricultural Extension Services
 MoAIWD Represents Ministry of Agriculture Irrigation and Water Development
 TLC Represents Total Land Care
 FRT Represents Farm Radio Trust
 WVI Represents World Vision International
 FUM Represents Farmers Union of Malawi
 NASFAM Represents National Smallholder Farmers Association of Malawi
 ICRISAT Represents International Crops Research Institute for Semi-Arid Tropics
 CIAT Represents International Centre for Tropical Agriculture
 ICRAF Represents World Agroforestry Centre
 LUANAR Represents Lilongwe University of Agriculture and Natural Resources

the late 1990s created a good environment where farmers had more freedom to choose and diversify their production systems. Heemskerk and Davis (2012) argued that pluralistic AEAS help to capitalise on the competitive advantages among different actors thereby helping farmers and other users to choose those who are better able to provide services they are looking for. Soon after introducing the principle of pluralism, the country experienced a large increase in the number of service providers. The service providers are in a number of categories including; the public sector, non-governmental organisations (NGOs), the private sector, farmer organisations, donor funded projects, international research centres and academic institutions. Table 2 provides information about the categories of AEAS providers operating in the country as according to a database of members of the Malawi Forum for Agricultural Advisory Services (MaFAAS).

The main public sector organisation providing agricultural extension services is the DAES under the Ministry of Agriculture Irrigation and Water Development (MoAI&WD). The Department has approximately 2000 field level extension workers who operate in sections at the EPA level. This is against a requirement of about 3,500 implying a staff vacancy of about 1,500 field level extension workers. Each EPA is sub-divided into sections and these sections are manned by the field level extension workers. The number of sections per EPA varies depending on the geographical coverage and the number of farmers ranging from a minimum of five up to a maximum of twenty five. The staff vacancy of over 1,500 is a major constraint to the provision of quality extension services in the country. Other technical departments in MoAI&WD provide extension services mostly in collaboration with DAES. These include Department of Land Resources Conservation, Department of Animal

Health and Livestock Development, Crops Department, Irrigation Department and Fisheries Department. In addition there are other ministries and departments outside MoAI&WD which provide extension services for promoting their areas of focus which are related to agriculture. They include such ministries like the Ministry of Industry, Trade and Tourism which is implementing an agricultural programme titled "Rural Livelihoods Economic Enhancement Programme (RLEEP)", the Ministry of Natural Resources Management, Ministry of Gender and Social Welfare, Department of Environmental Affairs, Department of Forestry and Department of Nutrition, HIV and AIDS, Green Belt Initiative of the Office of President and Cabinet.

NGOs are another category of AEAS providers which have increased very significantly since the introduction of pluralism in Malawi. There are two types of NGOs including international and local ones. Based on the data presented in Table 2, it can be estimated that about 60% of all the AEAS providers operating in Malawi are in the category of NGOs and other civil society organisations. The NGOs are operating in all the districts of the country despite the fact that they are not equally distributed. Some districts have more concentration of them than others. Most of the NGOs operate in relatively smaller geographical areas but with relatively better concentration of physical and financial resources for operating the extension programmes. One major challenge however is that most of these NGOs do not have adequate and well trained staff of their own. They most often rely on government extension staff especially those belonging to DAES to implement their activities. This has been a major concern considering that DAES itself does not have adequate staff to implement its activities.

The private sector includes institutions such as input suppliers like seed companies, fertilizer and chemical companies, marketing organisations, banks, producer companies and media houses. Most of the companies provide extension and advisory services (EAS) designed to promote their line products while the producer companies tend to provide services in situations where they use out-grower schemes. The extension and advisory services in this case are designed to promote production of high quality produce from such out-grower schemes. Similarly, marketing institutions provide EAS designed to promote production of high quality produce as demanded by the market. Commercial banks on the other hand provide agricultural loans to their clients and they provide EAS designed to assist them increase production of high quality produce from their enterprises. This helps the clients to increase profits thereby reducing the likeliness of default among them. The main media houses in the country like the Malawi Broadcasting Corporation (MBC) and Zodiak Broadcasting Services (ZBS) mostly work in collaboration with other organisations which sponsor them to air AEAS related programmes through radio or television.

Farmer organisations on the other hand mostly encourage farmers to organise themselves into various forms of groups in order to take advantage of various group strengths like bulk purchasing and marketing as well as other value addition activities. These farmer organisations provide extension services to their members in order to enhance their productivity and improve quality of their produce. The other categories such as research and academic institutions as well as donor funded projects are also involved in the provision of AEAS in order to ensure achievement of their research and development objectives.

Overall, Malawi has successfully established a pluralistic agricultural extension and advisory services system where players from a diverse background are involved in the provision of AEAS. The major challenge however is that the increase in the number of service providers has not necessarily resulted in an increase in the number of extension staff. Shortage of extension staff is a major strain on the provision of good quality extension and advisory services in the country. The staff to farmer ratio is very low hovering around 1:3500 as opposed to the mid 1980s under the block extension system, a modified training and visit system, where the staff to farmer ratio was as high as 1:800. The low staff to farmer ratio means that most of the farmers are not able to access extension services thereby putting into question the assumption that introduction of pluralistic AEAS would result in increased accessibility and improved quality of the services. Another weakness is that the AEAS providers tend to focus on providing production related messages, technologies. Little attention is given to value addition messages and technologies. Issues such as processing, packaging, marketing and transportation are not emphasised and the result of this has been marketing of raw produce which tends to fetch low prices.

Provision of demand-driven extension services

Another guiding principle promoted in the policy is provision of demand-driven services. This guiding principle was articulated in recognition of the weaknesses of the previous extension systems whereby farmer's needs, interests as well as constraints were not considered when designing interventions. Demand-driven extension services are designed to empower farmers and users by changing their status from simply beneficiaries to being clients and or customers, thereby making them more in control of the services. Demand-driven services are more likely to be in accordance to farmers' needs, interests and more likely to take into consideration their constraints. Providing AEAS which are demanded by the users increases the likeliness of providing services which are relevant to users thereby making them more willing to use such services. It was also expected that with the introduction of multiparty democracy in the 1990s, where

people have freedoms of choice and expression and also considering the demands associated with market liberalisation, the demand-driven extension services would be more appropriate. It was therefore assumed that demands for extension services would be very high. This is however not the case. Most of the farmers are not able to demand for extension services. The results of the study show that only a few farmers especially those who are organized and in most cases better resource endowed are the ones demanding and especially so in districts where DAESS is working. One reason suggested by some respondents during FGDs and KIIs was that farmers were not adequately sensitized on the policy change. An IPFRI study conducted by Ragasa and Chiyu (2017) came up with similar findings where they noted that farmers were not adequately sensitized of the technology options available. The KII results also showed that most of the extension workers did not see their role in facilitating farmer articulation of demands. This was also due to limited understanding of the principle. One key informant argued that *“extension workers need to work as marketing people by promoting the technology options in the same way a sells officer would be promoting a product for sale”*.

Masangano et al. (2016) observed that the facilitation role of extension workers is very crucial for the generation of farmer demands. Extension workers need to create awareness of the technology options available among farmers. Efforts to encourage farmers to individually demand for services have in most cases not worked except in situations where they have been organised into some form of groups. The results of the action research have however demonstrated that farmers have the ability to articulate their demands when they are organised in forums such as village agricultural committees (VACs), area stakeholder panels (ASPs) and other such forums. Of course as Masangano and others (2016) observed, most of the demands tend to be for physical assets rather than services and that response to such demands is sometimes not available. It is very important therefore, to organise farmers into various forums and farmer groups if they are to be successfully encouraged to demand for services. The District Agricultural Extension Services System (DAESS) which was introduced is a very effective way of ensuring that all the farmers are organised in the country. Farmers should also be encouraged to organise themselves into special interest groups such as commodity based farmer clubs, associations and cooperatives.

Decentralised coordination

Another guiding principle of the policy is decentralised coordination. This principle is two pronged in its design. It is designed on the one hand to promote decentralisation of agricultural extension services in the country while on the other hand it is designed to promote provision of well-

coordinated extension services. Malawi adopted a decentralisation policy and its associated local government Act in 1998 (GoM, 1998a, 1998b). Decentralisation is one of the public sector reforms which were promoted and implemented in most developing countries beginning from the late 1980s (Chasukwa et al, 2014; World Bank, 2000). The proponents of decentralisation argue that it helps to improve the delivery of public services thereby increasing economic and social welfare of the people and also promotes involvement of local people in decision making thereby empowering the citizenry (Prud'homme, 2010; Swanson and Rajalahti, 2010). Nambiro et al. (2006) found that increasing level of decentralisation in agricultural extension resulted in increased access to extension services as well as enhanced level of awareness of different channels of delivery of extension services among farmers. The Agricultural Knowledge and Information Systems (AKIS) Thematic Team of the World Bank on the other hand, argued that decentralisation of agricultural extension and research seeks to increase user participation and to make programmes more accountable to users (World Bank, 2000). One of the requirements of the decentralisation policy in Malawi is that the role of providing services such as agricultural extension and advisory services be moved from the central to the district level.

Implementation of this principle was facilitated by coming up with DAESS guidelines (GoM, 2006) as described in detail by Masangano et al. (2016). All districts are supposed to establish functional DAESS structures. Two of the DAESS structures to be established at the district level include the DAEC and the district stakeholder panel (DSP). A review of ADD reports presented at the 2016 MaFAAS extension week shows that most district have established these structures as in Table 3. The challenge, however, is that the structures especially the DSP are not functional and the most cited reason is that operations of the DSP are costly.

The major purposes of the DAESS structures are to provide a forum for farmers to articulate their demands, involving stakeholders in decision making at decentralised level and facilitating coordination of AEAS service provision in the districts. DAECs are composed of representatives of service providers while DSPs are composed of both farmer representatives and service providers. Non functionality of DSPs means that farmers do not have a good forum for articulating their demands nor participating in decision making at the district level. Consultations with key informants and focus group discussions revealed that most service providers do not follow the DAESS guidelines nor use the DAESS structures when implementing their extension activities and this results in poor coordination of AEAS services.

An important requirement for pluralistic and decentralised extension services is establishment and implementation of effective coordination mechanisms. Heemskerk and Davis (2012) argued that despite the

Table 3. Status of DAESS structures at District Level

ADD	Number of districts	Number of DAECs		Number of DSPs	
		Target	Achievement	Target	Achievement
BLADD	7	7	7	7	7
KADD	4	4	4	4	4
KRADD	2	2	NA	2	NA
LADD	3	3	3	3	NA
MADD	4	4	NA	4	NA
MZADD	3	3	NA	3	NA
SLADD	2	2	2	2	1
SVADD	2	2	1	2	1

BLADD: Blantyre Agricultural Development Division; KADD: Kasungu Agricultural Development Division; KRADD: Karonga Agricultural Development Division; LADD: Lilongwe Agricultural Development Division; MADD: Machinga Agricultural Development Division; MZADD: Mzuzu Agricultural Development Division; SLADD: Salima Agricultural Development Division; SVADD: Shire Valley Agricultural Development Division.

benefits that pluralistic AEAS have, coordinating the activities of different organisations having a wide diversity of mindsets and worldviews is a major challenge. Poor coordination of the activities of most service providers has therefore been identified as one of the major challenges affecting the quality of extension and advisory service provision in the country.

Provision of services at cost

Provision of services at cost is a principle which has been very highly contested from the time the policy was first introduced. This principle was introduced with the recognition that it is impossible for government to continue to provide high quality services when public sector resources for extension are shrinking. The total agricultural budget has consistently been above 10% of the total national budget which is in line with CAADP commitments. The relative expenditure in extension has however been decreasing due to other competing priorities in the agricultural sector. It is therefore proposed that extension services which promote private interests need to be financed using private resources. Financial participation in extension and advisory service provision has several other advantages. It fosters empowerment and creates a sense of ownership among farmers and users (Katz, 2002; Neuchatel Group, 2002). Katz has argued that farmers who pay for extension services develop some sense of ownership which normally puts them in a position to demand for services and fight for greater influence on the services. Financial participation actually helps to transform users from just being merely beneficiaries to clients.

Financial participation by users also promotes accountability of service providers to users (Katz, 2002; Neuchatel Group, 2002) and this normally leads to the provision of good quality and effective services. Users including farmers will usually not express any concern

when they receive services which are not useful to them, if they have not participated in financing such services because they feel it is somebody's money being wasted. If they participate in financing the services on the other hand, even if their contribution is as low as 5%, they will demand for services which are useful to them, thereby resulting into better quality services. In this regard, financial participation of users forces service providers to be accountable (Katz, 2002).

The third advantage of financial participation by users is that it contributes to financial sustainability. As already observed earlier, public sector resources are continuously shrinking as demands for such resources continue to increase. This is leading to provision of poor quality services. Financial participation by farmers and other users can in practice take several different forms such as paying of user fees, contributing to publicly funded services, indirect payments like membership fees, levies, earmarked taxes and service level agreements where service providers receive a share of the profits.

Despite the strong resistance to the principle, the study has revealed that certain categories of farmers are already paying for extension services. There are several examples cited through the KII and FGD consultations. These include:

(1) Tobacco farmers who pay for extension and advisory services through a levy deducted from every kilogram of tobacco sold through Auction Floors. This levy is paid to the Agricultural Research and Extension Trust (ARET), the organisation which provides research and extension services to the tobacco farmers.

(2) Smallholder sugarcane growers who pay a levy for every kilogram of sugar to the Illovo Sugar Malawi. Illovo sugar is a company which grows sugarcane and manufactures sugar in Malawi. It also uses out grower schemes to increase its production in order to satisfy its market demands. These out grower schemes are organised into smallholder cane growers associations

Table 4. Assessment of achievement of the three objectives.

Guiding principle	Implementation status	Increase to farmer/user access to AEAS	Quality of AEAS
Pluralism	Successfully implemented in terms of increasing number of extension service providers	Limited influence on increased farmer/user access to AEAS	Limited influence on improved quality of AEAS
Provision of demand-driven services	Implemented with limited success. Most farmers are not demanding for services	Limited influence on increased farmer/user access to AEAS	Improved quality where demands have been successfully expressed and responded to
Decentralisation coordination	Mixed level of implementation-more efforts are required	Has demonstration good success where implementation of DAESS guidelines is advanced	Has demonstrated good potential for improving quality where implementation is advanced
User participation in extension financing	Some good examples of implementation	Has shown good potential	Has good potential

which are further organised into Dwangwa Cane Growers Limited (DCGL) and Kasinthula Cane Growers Limited (KCGL). DCGL and KCGL provide extension and advisory services to the smallholder cane growers and they are financed through the levy deducted from their sugar sells.

(3) Models similar to 1 and 2 are also practiced in other commodity based extension services such as those of Mzuzu Coffee Planters Cooperative Union Ltd, Smallholder Tea Authority, the three milk producers associations (Shire Highlands Milk Producers Association (SHIMPA), Central Region Milk Producers Association (CREMPA) and Mzuzu Dairy Farmers Association (MDIFA).

(4) Farmer associations such as the National Association for Smallholder Farmers in Malawi (NASFAM) provide extension services that are financed partly through membership fees.

(5) Catholic Relief Services (CRS) has been working with several NGOs which have been promoting and implementing the private service provider (PSP) model. The NGOs recruit and train selected community members and there after they train them and commission them as PSPs to provide extension and advisory services to farming groups such as village savings and loan (VSL) as well as agribusiness groups. The groups pay the PSP for providing services to them and study results show that farmers are very willing to pay for services which result into a financial benefit.

Examples 1, 2 and 3 show how farmers are paying for extension and advisory services through levies, example 5 is showing how farmers are paying for such services through membership fees. The last example is mixed where in some cases, farmers pay through membership fees while in other cases farmers pay an agreed

contribution as group to the PSP. Some of these user participation in AEAS financing schemes have resulted in increased production and incomes for farmers. Examples of such include the smallholder coffee farmers of the Mzuzu Coffee Planters Cooperative Union, Smallholder Sugar Producers under DCGL and KCGL as well as the milk producers under SHIMPA, CREMPA and MDIFA. One obvious implication is that, farmers are more likely to participate in extension financing when they are organised and operating in groups.

CONCLUSIONS AND RECOMMENDATIONS

From the results of the various studies, implementation of the four guiding principles of the policy have had mixed results in the sixteen years. Table 4 shows the assessment of achievement in terms of the objectives of the study.

Decentralisation and coordination have in this table been separated for purposes of clarity in reporting but they are classified as one principle in the policy which has been referred to as decentralised coordination.

The table shows that most of the guiding principles have been implemented with limited success. More efforts are required to fully implement them if the benefits of the policy are to be realised. There is potential to increase availability and access as well as to improve the quality of AEAS in Malawi. It is therefore strongly recommended that all the relevant stakeholders including service providers in Malawi be encouraged to put more efforts in implementing these instruments. There is specifically need to:

(1) Address the challenge of shortage of field extension workers in the country. One way of addressing this is

recruiting school leavers from rural areas and training them on the job. This approach has a lot of potential as shown by the results of the pilot initiative which was done under the SAETS Project. Similar initiatives are already being pursued by government through other donor funded projects. The working and living conditions of extension staff in rural areas need to be improved in order to ensure more staff retention in the rural areas.

(2) The other extension service providers need to be encouraged to recruit their own extension workers to work in rural areas to supplement those provided by government.

(3) Farmers need to be encouraged to organise themselves in various forms of groups in order to empower themselves and have a valued voice. The study has demonstrated that various farmer groups and organisations tend to be more aware of the technology options available and are better able to articulate their demands and service providers tend to listen to them much better when they are organised. The study has also demonstrated that farmers tend to participate in extension financing more easily when they are organised.

Establishment and implementation of DAESS needs to be enhanced. All districts need to establish functional DAESS structures and all AEAS service providers need to use DAESS system in implementing their extension activities. This will help to empower farmers and improve coordination of AEAS activities thereby improving access and quality of extension service provision in the country.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Full Length Research Paper

Analysis of factors influencing information access among rural communities in Tanzania

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Information access in rural communities of Tanzania is very important as it keeps its members aware of what happened and what happening in the world. This importance can not be undermined since it helps farmers and other members of the rural community to make the right decision about their activities. Rural community areas are surrounded by many factors which in one way or another influence or hinder accessibility of information. Several works have been done on analysis of these factors; however most of them were conducted a number of years back. This study focused on providing the current survey on analysis of these factors. Specifically, the study analysed the following factors: source of power, penetration of mobile phones, subscription to networks, languages used and level of education, policy, government support, government administration and farming system. Mwanza District was used as a study area where descriptive research design was applied. Primary data were collected from farmers by using questionnaires while secondary data were collected from village reports and other research reports. The collected data were analysed by using Statistical Package for Social Science (SPSS). Findings show that in rural areas, there are unreliable source of power, higher penetrations of feature phones, high subscription to Vodacom network and high uses of Swahili language for communication, good government support and policy which favour farmer's development. Generally, we recommend that the existing sources of information like information systems and other applications should be integrated to form one stop centre where all information can be accessed.

Key words: Farmers, rural area, rural community, information access.

INTRODUCTION

Information access in rural communities of Tanzania is very important as it keeps its members aware of what

happened and what happening in the world. This importance can not be undermined since it helps farmers

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and others members of the rural community in decision making and output improvement.

According to Bhagachand (2012) and Odini (2014), timely access to information helps farmers to make right decisions about their farming activities. Scholars (Bhagachand, 2012; Odera, 2016) advocate that farmers who have access to reliable information have higher chance of improving and increasing their products than those who have no access to information.

Study by Ronald et al. (2014) and Mtega (2012) realised that, rural area natives like farmers are not accessing sufficient information which could help them in decision making and yield improvement. There are a number of studies which focused on analysis of factors which influence information accessibility in rural community. However there is a little recent survey on analysis of these factors.

Rural community areas, which are defined by Hart et al. (2012) and Matasane and Zaaiman (2016) as areas that are located outside the towns, are surrounded by many factors which in one way or another influence or hinder accessibility of information. These factors include availability of electricity, lack of extension officers, penetration of mobile phones, policy and government support to mention just a few.

The presence or absence of these factors may hinder or support accessibility of information. For example, higher penetration of smart phones in rural area implies that there is a higher accessibility of information since rural people can surf online and get more information. Also, the presence of electricity supports uses of radio, TV and computer since more information can be accessed (Mtega, 2012).

There is a large body of work on analysis of these factors, but most of these works were conducted a number of years back. For example, the study by Karimuribo et al. (2016) in Kilosa and Gairo districts of Morogoro found that out of 138 livestock keepers, 133 (96.4%) had feature phones while 10 (7.2%) possessed smart phones.

A study by Ngowi et al. (2016) in rural community of Sengerema found that farmers own radios than mobile phones. A study conducted by Msyani (2013) and Isis (2012) on accessibility of electricity found that only 18.4% of the country's population has access to electricity. Authors added that the rural area of Tanzania is virtually disconnected from the National Electrical Grid (NEG) as 95% of rural people are using firewood.

Low penetration of smart phones and lack of electricity in rural communities as reported by aformentioned studies imply that in rural communities, there are difficulties in accessing information. Since there is a little current literature on analysis of these factors, this study provides

the current analysis.

MATERIALS AND METHODS

Study area

The study was conducted in Mwanga District, one of the seven districts of Kilimanjaro Region in Tanzania. The district lies between latitude 3°25" and 3°55" South of the equator and between longitudes 37°25" and 37°58" East of the Greenwich. The district has a total of 19 rural wards and one township ward (Mji Mdogo). The district also has a total of 72 Villages divided into 273 sub-villages. This study focused in 12 wards which are Jipe, Kwakoa, Kivisini, Lang'ata, Kileo, Kirya, Lembeni, Mgagao, Msangeni, Kilomeni, Mji mdogo, and Shighatini. Other wards of Mwanga district which were excluded from the study are Ngujini, Mwaniko, Kifula, Kirongwé, Chomvu, Kighare, Kigonigoni and Toloha. The district and its wards were chosen due to its significant number of farmers, its accessibility, budget available and location of the researcher.

Research design, data sources and data collection

The study applied a descriptive research design which enabled the researcher to describe factors which surround farmers and influence information access in rural areas. Sources of secondary data were village reports and relevant research reports. Sources of primary data were farmers who live in rural areas and extension officers who provided the number of farmers for each ward. The targeted factors were those which fall under socio-economic, Information and communication technology (ICT) infrastructure, agriculture sector, technological factors, government support and policy. Survey and documentary review were used as methods for data collection. Data on government support, policy and farming systems were collected through reviewing village reports and other research documents. Questionnaires were used as tools for primary data collection. Questionnaire on farmers were sought to capture mentioned factors ready for analysis.

Sampling procedure, sample size and data analysis

A total of 382 respondents were involved in the study whereby each ward was represented by 32 respondents, everyone with an attribute of being a farmer and has been involved in livestock keeping. The formula proposed by Kothari (2004) was used to find the sample size. This formula was selected due to fact that Mwanga District has a finite population. According to the Tanzania Population and Housing Census of 2012, Mwanga district has a total number of 115,145 people in which 79,126 are farmers. The sample size for this study was computed by using the formula below and a total sample of 382 farmers were used as representatives for the study.

$$n = \frac{Z^2 \cdot q \cdot p \cdot N}{e^2 (N - 1) + Z^2 \cdot p \cdot q}$$

Where by n = sample size

N= size of population
 Z= is the score for confidence level 95% which is 1.96
 p = sample proportion
 e = Sampling error
 q= 1-p, where q=0.5

$$n = \frac{Z^2 \cdot q \cdot p \cdot N}{e^2 (N - 1) + Z^2 \cdot p \cdot q}$$

Since farmers of Mwanga are 79,126, when we substitute in the above formula we get

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5 \times 79,126}{(0.05)^2 (79,126 - 1) + (1.96)^2 \times 0.5 \times 0.5}$$

$$n = 382$$

Since the size of a sample is 382 respondents, then a maximum of 32 respondents for each of the 12 wards were selected as a representative sample. 32 respondents for each ward make a total of 384 respondents but only 382 questionnaire's responses were entered into Statistical Package for Social Science (SPSS) for analysis to determine descriptive statistics such as frequencies and percentages. We processed 382 questionnaires as responses received from 2 respondents were incomplete and meaningless.

RESULTS AND DISCUSSION

Penetration of mobile phones among farmers

The findings in Table 1 show that the penetration of feature phones in rural areas is greater than smart phones. It has been found that out of 382 respondents, 310 respondents (81.2%) own feature phones. Smart phones are owned by 72 respondents, equivalent to 18.8% of all respondents. This higher penetration of feature phone in rural area pose difficulties in information accessibility since rural community members can not use feature phones to surf online where more information can be available. Only 18.8% of all rural farmers have a chance to access extra information from internet.

Mobile network subscription among farmers

The findings in Table 2 show that most farmers are subscribed to Vodacom network than other networks. Vodacom has 168 (44%) subscribers out of 382 interviewed respondents while Tigo has 152 (39.8%) subscribers. Airtel and Halotel subscribed by 11.8 and 4.5% of all farmers respectively. Presence of many networks in which rural communities peoples are subscribed reduces the chance of information

Table 1. Penetration of mobile phones in rural areas.

Types of mobile phone	Frequency	Percentage
Smart phone	72	18.8
Feature phone	310	81.2
Total	382	100.0

Table 2. Subscription of farmers among different networks.

Mobile networks	Frequency	Percentage
Vodacom	168	44.0
Tigo	152	39.8
Airtel	45	11.8
Halotel	17	4.5
Total	382	100.0

accessibility since every customer can access information from network in which he/she subscribed. For example, if Halotel network provides information via Unstructured Supplementary Service Data (USSD) application, this means that those who are subscribed in other networks will not be able to access that information unless they subscribe to responsible networks.

Source of power for farmers

Farmers in rural areas are surrounded by the problem of source of power. Most farmers are living in houses which are not connected with electrical power. Findings show that, 186 (48.7%) out of 382 farmers had no electric power in their houses. Tanzania Electric Supply Company (TANESCO) had connected electricity to 32.7% of all interviewed farmers while 18.6% use solar energy as a source of power in their houses. The presence of electrical power in houses encourages uses of sources of information like computer, radio, television and mobile phones hence supports accessibility of information in general. Table 3 shows penetration of different source of power to farmers in rural areas (Table 3).

Levels of education of respondents

Primary education is the dominant level of education in most rural areas. More than half of all interviewed farmers had primary education. Findings show that out of

Table 3. Source of power to farmers.

Source of power	Frequency	Percentage
TANESCO	125	32.7
Solar	71	18.6
No power	186	48.7
Total	382	100.0

Table 4. Levels of education of respondents.

Levels of education of respondents	Frequency	Percentage
Primary education	220	57.6
Ordinary secondary education	108	28.3
Certificate	50	13.1
Advanced secondary education	4	1.0
Total	382	100.0

Table 5. Language used by farmers.

Languages used by farmers	Frequency	Percentage
English	30	7.9
Swahili	331	86.6
Both (English and Swahili)	15	3.9
Other language	6	1.6
Total	382	100.0

382 farmers, 220 farmers (57.6%) had only primary education. Farmers who had ordinary secondary education were 108 (28.3%) of all farmers. Certificate holders and those with advanced secondary education made a total percentage of 14.1% which are 13.1 and 1% respectively. There were no farmers who are degree holders and above. Primary education is the basic education level, but it is not sufficient to enable farmers to search and digest information in a wide view compared to degree holders. So, to some extent this level hinders accessibility of information. Table 4 represents summaries of education level of respondents.

Language of communication among farmers

Almost all farmers are able to use Swahili language for communication. Few farmers who are found in very remote area are using local language for communication. Table 5 shows languages which are used by farmers in communication. It had been found out that 86.6% of all

farmers are able to communicate by using Swahili language only. 3.9% uses both Swahili and English while 7.95% of all farmers are able to communicate by using English. Those who communicate by using local languages like Kipare and Kigweno make 1.6% of all farmers. High uses of Swahili language influence the flow and accessibility of information since farmers can clearly understand extension officers. The problem rises when they need extra information from internet where English language is dominant.

Policy, government support and administration

The government of Tanzania supports development and encourages investment in Agriculture especially in the Livestock Sector. One of the supports in livestock sector is that of 2006.

In this year, the government approved a National Livestock Policy (NLP) based on the premise that "the Livestock Industry has an important role to play in

building a strong national economy and in the process, reducing inequalities among Tanzanians by increasing their incomes and employment opportunities” (URT, 2006). The NLP also realizes that apart from contributing to gross domestic product (GDP), the livestock sector has a role to play in: providing employment to households, providing draught power, food security and fulfilling cultural roles. A policy which does not support agriculture may hold back initiatives to faster accessibility of information in rural areas.

Another government support and administration towards supporting livestock sector is that of 2010. In this year, the Ministry of Livestock Development and Fisheries formulated a Livestock Sector Development Strategy (LSDS) for operating the NLP of 2006. The LSDS is working as an operation tool for the NLP. It is the one which is responsible for spelling out the actionable interventions required to meet the livestock sector Vision, Mission and Objectives in short, medium and long term.

Also, the government designed Livestock Sector Development Programme (LSDP) to implement NLP of 2006 and LSDS of 2009 in the context of Kilimo kwanza, Rural Development Strategy (RDS), National Strategy for Growth and Reduction of Poverty (NSGRP), Comprehensive Africa Agriculture Development Programme (CAADP) and Tanzania Development Vision 2025 (URT, 2011). Since the existing policy, government support and government administration are in favour of agriculture development, then this environment influences the flow and accessibility of information.

Existing farming systems and extension officers

The study looked into the existing farming system in rural areas to see if it interfere with any information accessibility. The findings show that there are three main types of farming systems which operate in rural areas of Tanzania and it does not interfere with any information accessibility. These systems are arable farming, pastoral farming and mixed farming. Under arable farming, farmers are growing crops only. Farming systems like dairy farming, raising sheep for wool and raising beef cattle are falling under pastoral farming. Mixed farming systems practice both arable and pastoral systems (Descheemaeker et al., 2010). From 2014, the Government of Tanzania under the ministry of Livestock and Fisheries Development had managed to distribute two extension officers per ward. This was observed in Mwanza district where by each ward have two officers, one for livestock and the other for crops. However, comparing to the number of farmers and their locations, two extension officers are too few to serve the entire

ward. This is to say that, there is a problem of insufficient number of extension officers in rural areas of Tanzania. This hinders the rural community to access information since the number of extension officers is few compared to members of the rural community.

Conclusion

Information access in rural communities of Tanzania is very important as it keep its members aware of what happened and what happening in the world. This importance cannot be undermined since it helps farmers and others members in decision making and output improvement. But the rural areas of Tanzania are surrounded by many factors which in one way or another influence or hinder accessibility of information.

Examples of these factors are policy, socio-economic factors and ICT infrastructure to mention just a few. However, there is a little recent survey on the analysis of these factors. This study was focused on providing the current survey on analysis of factors which influence information access among rural communities in Tanzania. Specifically, the study analysed the following factors: source of power, penetration of mobile phones, subscription to different networks, languages used and level of education. Other factors were policy, government support, government administration and farming system. Mwanza District was used as a study area where descriptive research design was applied. Primary data were collected from farmers by using questionnaires while secondary data were collected from village reports and other relevant research reports. The collected data were analysed by using SPSS.

Findings show that in rural areas there are unreliable source of power, higher penetrations of feature phones, high subscription to Vodacom Network and high uses of Swahili Language for communication. Also, primary education is the highest level reached by many farmers. For the side of government, there is a government support and policy which favour farmer's development. The government had approved a good policy which recognizes and encourages livestock development. The dominant farming systems are pastoral, arable and mixed farming.

Based on the findings, it shows that still there is a challenge in information accessibility in rural areas. However, each challenge provides an alternative way for a way forward to improve its accessibility. For example, higher penetration of feature phones implies low accessibility of information since owner of feature phones can not browse on internet to get more information. But accessibility of information can be improved by

introducing many USSD applications or integrating it since its information can be easily accessed via feature phone.

RECOMMENDATION

Based on the findings obtained and discussion made, we recommend the following things for the better improvement of information accessibility in rural communities of Tanzania:

1. Since there is higher penetration of feature phones in rural areas of Tanzania, then those who want to improve accessibility of information in those areas through application of technologies should do so by introducing technology which is practicable in feature phones. This is to ensure that, the introduced technology helps more than 80% of all farmers as our findings show.
2. Subscription of many community members to Vodacom Network implies that these members can be reached easily via the same network. In case we want to enhance accessibility of information to these farmers via applications like USSD, its server should be hosted at the Vodacom Network to enable many farmers and other members to access information it disseminate.
3. Lack of electricity in rural areas of Tanzania hinders maximum utilization of sources of information like system applications, internets, radio and mobile phones especially smart phones which consume more power than feature phones. So more information should be directed via sources which do not consume or consume less power.

Generally, we recommend that the existing sources of information like information systems and other applications should be integrated to form one stop centre where all information can be accessed. This will enable members of rural areas who most of them are farmers to access information on time. The study on finding ways of integrating the existing sources of information to form one stop centre is open for future work.

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CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Full Length Research Paper

Factors contributing to continued dependence on family food and income among graduate farmers of School of Agriculture for Family Independence (SAFI)

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The main focus of this study was to investigate factors that contribute to continued dependence on family food and income among graduate farmers of School of Agriculture for Family Independence (SAFI) in Malawi. The study used two step sampling approach where purposive sampling was used in the first place to select SAFI graduates and secondly, systematic sampling was used to select 35 SAFI graduate farmer families for direct interviews using a semi structured questionnaire. Results of the study showed that factors responsible for reduced crop production were directly correlated to increased dependence of the graduate farmers on the institution. The findings highlighted that inputs from SAFI, primary education, increase in years after graduating from SAFI, and extension services from SAFI were the main factors responsible for increased dependence on family food and income among SAFI graduates. The study recommended that SAFI graduates be affiliated with government agriculture extension workers, and field workers of other available service providers (partners) in their communities to keep the farmers refreshed on modern methods of farming and monitor implementation of modern technologies. In addition, SAFI should introduce age limit and minimum entrance academic qualifications in order to train the right caliber of farmers who are likely to increase agricultural productivity and eliminate dependence on food and family income.

Key words: School of Agriculture for Family Independence (SAFI) graduates, dependence, crop production, primary education.

INTRODUCTION

In 2002, there was famine that hit different parts of Malawi and Traditional Authority, Chakhaza in Dowa district was not spared. Napoleon Dzombe and other partners such as Nu Skin Enterprises and Force for Good, an America corporation and charity responded with relief food to avert the situation. However, it was

observed that handouts would not be sustainable and soon they decided to establish Mtalimanja Community Based Organization (CBO). The organization was mostly teaching basic methods of farming as one way to help farmers produce their own food in sufficient quantities from their land. The initiative grew bigger such that in

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2007, School of Agriculture for Family Independence (SAFI) was born out of Mtalimanja Community Based Organization, this time with a mandate to provide formal and more thorough training to farmers not only from Dowa district but also other districts such as Lilongwe, Ntchisi, Kasungu, Mchinji and Mzimba. The SAFI and is focused on helping the people of Malawi learn better agricultural techniques to provide for themselves and their families. Malawi is one of the poorest countries in the world and one in three people in Malawi is threatened by hunger every day. During 2009, it was the first graduation ceremony, since then, SAFI has been training farmers in different innovative agricultural practices that help to attain livelihood security.

The subjects taught under this program include: nutrition, crop production, livestock production, irrigation, fisheries and horticulture and agri-business. In addition to making the farmers independent, the student farmers are trained as trainers of other farmers (lead farmers) when they return to their villages.

SAFI trains farmers for two years. Farmer families spend one year at SAFI, where both wife and husband attend classes and practice. Each family is allocated two acres of land, farm inputs such as fertilizers, seeds and basic farm tools to allow them practice what they learn in class. SAFI has employed well experienced graduates from Lilongwe University of Agriculture and Natural Resources (LUANAR) and Natural Resources College (NRC) who work as training officers for the farmers. In the second year, farmers go back to their homes where they replicate what they learnt and practiced at SAFI. Same amount of inputs are provided on loan and this time training officers visit them regularly throughout the second year to make sure they are following the recommended practices. At the end of second year and upon meeting graduation requirements, farmers graduate and at the beginning of third year, they are given the same inputs in a form of a grant. From this point on, farmers are weaned from the programme.

The School of Agriculture for Family Independence is the only school of its kind in the country. The selection criteria for farmers to come to SAFI stipulates that they should possess reasonable literacy and numeracy skills, they have to be currently active as smallholder farmers, energetic but hardly producing enough to feed their families from one harvest to another. From the baseline data that is collected at the beginning of each year by SAFI management, it has been observed that SAFI recruits farmers who produce an average of 5 bags (50 kg each) of maize, one 50 kg bag of soybean and 25 kg bag of groundnuts. What is surprising though is that when same farmers spend one year at SAFI, their productivity in all the crops increases tremendously (SAFI, 2012). When they go back to their villages, productivity tends to reduce in some cases (SAFI, 2014). It is against this background that this study was proposed.

The aim of the study was to investigate the factors that

contribute to continued dependence on family food and income among SAFI graduate.

METHODOLOGY

Purposive sampling was used to select 45 respondents among the 75 SAFI graduates. The study used primary data collected using a semi-structured questionnaire. Data was analyzed using Statistical Package for Social Science (SPSS) version 20 & Excel to generate percentages, frequencies, graphs and linear regression model outputs.

The approach used the crop production trends before and after graduation from the School of Agriculture and Family Independence to identify the influencing factors. The factors responsible for the trends in crop production were used to assess the continued dependence of the farmers on SAFI graduates. Drawing on the productivity of main crops planted by farmers, detailed analysis of the factors affecting production was done to depict associating factors towards the continued dependence by the SAFI graduates as crop production determines farmer's dependence. Specifically, linear regression model was used to identify factors that contribute to continued dependence on family food and income among SAFI graduates. The model was constructed as follows:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \mu$$

Where Y_i is the independent variable expressing total crop production that determines farmer's dependence; X_i are the factors determining dependence (crop production); $\beta_0 \dots \beta_7$ = production function parameters to be estimated; μ is the random error term.

Review of literature

Agriculture in Malawi

Malawi has a population of almost 17 million. The Human Development Index report, ranked Malawi on position 153 out of 169 countries surveyed (UNDP, 2010). Land-locked with no significant mineral resources, Malawi's principal asset has been the hard-working people, the relatively fertile land, extensive indigenous forests and the abundant of fisheries (Bunderson et al., 2002). Reflecting these endowments, agriculture has dominated the economy, contributing 40% of the GDP, 85% of the foreign exchange earnings and 85% of the labor force. Forests supply, 90% of the domestic and industrial energy requirements, while fisheries provide not less than 75% of the total animal protein (FAO, 2016).

Agriculture accounts for about 93% of the total export earnings, 80% of the total employment and 27% of the country's GDP (GoM/GAPNRM, 2006). Saka et al. (2006) added that the sector contributes 63.7% of total income for the rural poor, occupies about 56% of the land area (5.3 million out of 9.4 million hectares) and supplies at least 65% of the manufacturing sector's raw material requirements. It implies then that poverty reduction in Malawi can be achieved if more emphasis is put on improving agricultural productivity.

Phiri et al. (2012), Gossage (1997) and Orr et al. (1998) described agriculture as strongly dualistic in structure, consisting of smallholder farmers and the estate sub-sectors. These sectors are basically farm types in Malawi. Legally and constitutionally, the sectors have rules that regulate land tenure, type of crops grown and marketing arrangement. The estates are on private land under freehold or leasehold status, while smallholder farms are under customary land tenure rules and rights. Smallholder farmers contribute 80% of total agriculture production, while the estate

sector controls 90% of the agriculture export trade. Major food crops are maize, groundnuts, soybean, cassava, pulses, sorghum and rice. Principal exports include tobacco, tea sugar, coffee, groundnuts, cotton and macadamia nuts (Bunderson et al., 2002). Therefore, agriculture appears to be the most important sector of the economy if statistics above is anything to go by.

Small-scale farm families in agricultural productivity

Smallholder farming is claimed to contribute 80% of total agriculture production in Malawi (Masina, 2009). However, regardless of its contribution, their farming practices and productivity leaves a lot to be desired. According to Kaperemera (2001) as well as Chirwa et al. (2008), the smallholder sector is continually faced with declining farm productivity. Most households lack the resources and the support to integrate sound conservation and agronomic practices into their farming systems. The situation is compounded by increasing land shortages and farm fragmentation which forces many farmers to undertake continuous cropping in monocultures, often on marginal land FAO (2012). This has led to serious problems of water runoff and soil degradation. According to FAO (2012), the problems have resulted in loss of structure, moisture holding capacity, nutrients and organic matter in soils hence reduced productivity.

Due to the low productivity of the majority of small-scale farmers, they find themselves unable to provide enough food for their families. With average household size on 5.7 in Malawi, it is expected that each household has not less than 500 kg of food. However, this is not the case and most of the farming households run out of food before the next growing season and end up depending on government, well-wishers and piecework for food. Bunderson et al. (2002) reported that despite huge efforts to increase agricultural productivity, nearly 60% of smallholder households in Malawi still live below poverty line due to chronic farm input shortages. Poor land husbandry practices, poor access to financial resources and inputs, climate change and over reliance on rain fed agriculture are some of the prominent issues that have been identified as key contributors to the perpetual food shortages facing the majority of Malawi's households (GoM, 2006).

RESULTS

The study revealed that the average age of the husbands was 37 with the 25 and 71 years as minimum and maximum, respectively. On the other hand, the mean age for the wife was 32 with 23 and 68 as minimum and maximum ages, respectively. Household size among the sampled respondents had an average of 6 and 11 individuals as maximum per household and 3 individuals as minimum. The study also showed that the mean education levels for husbands and wives were junior secondary education (form 1-2) and primary education, respectively. With regards to landholding size and use, the study showed that the respondents had an average of 4.5 and 3.09 acres in relation to their land holding size and land in use respectively.

Results from the linear regression analysis showed that secondary education, year after graduation from SAFI, household size, total size of land in use, inputs from SAFI, and peer pressure had significant and positive effect on maize production (Table 2). Age of the household head, household size and extension services

from SAFI had positive significant effect on soya production among the participating farmers (Table 2).

DISCUSSION

The trend of maize yield increased significantly up to 60 (50 kg bags) during SAFI but increased at a decreasing rate thereafter as compared to the year before SAFI. This is because farmers tend to use inputs meant for an acre on a bigger piece of land, among other factors. However, production of all legumes such as ground nuts, soya bean and kidney beans is low at SAFI due to small land size allocated to legumes. The trend portrays decrease in maize production after leaving the school of agriculture thereby making farmers to remain food insecure which influences them to remain dependent on SAFI and other organization's initiatives.

Regarding specific factors responsible for continued dependence among the farmers, it was learnt that factors which gave farmers a disadvantage in production positively correlates with dependence of the farmers. The study indicates that factors negatively affecting production were reported to be the main drivers contributing to the continued dependence on family food and income among graduate farmers of School of Agriculture for Family Independence. The results in Table 1 indicates that age, primary education, secondary education, household size, inputs from SAFI, peer pressure, extension services and age had a significant effect. This contradicts what Bimpeh (2012) informed that farmer trainings have a positive effect on the production of many rural smallholders farmers. However, inputs from SAFI, primary education, increase in years after graduating from SAFI, and extension services from SAFI were the main factors responsible for increased dependence of SAFI graduates.

Dependence in relation to maize production

Regarding education, it was shown that attaining primary education by the household head reduces maize production by 201 kgs. This means that a farmer is less likely to adopt new and improved methods of farming that are essential for production to be increased. Baylin and Pahuang (2001) also reported that education level has a significant effect on adoption of agriculture technologies. This conforms to the findings of Abas (2016) who reported that, "Education levels have influence in managing farming activities; farmer with higher educational level can be able to make decisions at once if faced by several problems related to farming activities, thus making a farmer to increase self-reliance". In so doing, farmers with low education levels were reported to depend much on SAFI even after graduation hence primary education being a factor for continued dependence on SAFI. This is the case as the farmers

Table 1. Key descriptive statistics.

Variable	Mean	Minimum	Maximum
Husband's age	37	25	71
Wife's age	32	23	68
Husband's education	Form 1-2	Primary	Form 3-4
Wife's education	Primary	Primary	Form 3-4
Household size	6	3	11
Land holding size	4.5	1	20
Land in use	3.09	1	6

Source: This study.

Table 2. Factors affecting crop production that determines farmer dependence.

Factor	Maize production				Soya production			
	Coefficient	Std. Error	T	p-value	Coefficient	Std. Error	t	p-value
(Constant)	2200.382	4147.109	0.531	0.600	294.374	465.648	0.632	0.534
Age	-88.928	66.668	-1.334	0.194	-5.511	7.705	-0.715	0.048***
Primary education	-201.150	106.965	-1.105	0.279	-219.419	79.231	-2.009	0.058
Secondary education	914.150	326.965	2.705	0.028***	327.928	86.965	1.830	0.279
Years after graduating	424.099	91.941	-4.613	0.005***	14.405	80.304	-0.179	0.0859
Household size	259.598	102.670	2.805	0.043***	24.539	46.436	0.528	0.03***
Number of dependents	467.986	843.150	.555	0.584	6.786	101.064	0.067	0.947
Size of land	133.848	83.339	-1.249	0.805	-19.958	34.634	0.576	0.571
Total size of land in use	941.842	389.185	2.420	0.023***	81.564	53.569	1.523	0.144
Inputs from SAFI	1027.657	400.941	2.218	0.042***	116.178	95.216	1.22	0.949
Extension services from SAFI	442.971	319.877	1.540	0.593	277.155	95.216	2.910	0.004***
Peer pressure	850.757	400.242	2.07	0.031***	119.899	96.544	1.242	.226

***Significant at 5%. Source: This study.

with low education experienced decrease in maize production after leaving the school of agriculture, thereby remaining food insecure which makes them to remain dependent on SAFI and other organization's initiatives.

Household size had a positive and significant effect ($p < 0.05$), indicating that productivity increased with each addition to members of the household by 259 kg. This too is in agreement with the findings of Abas (2016) who affirmed that "the size of the famer's own family might become more important in determining the availability of family labor for farm work". Total land in use had also a positive and significant effect on maize production of the farmer. This entails that increase in total land in use by an acre increases maize production by 915 kg. Unlike size of land since having more land does not imply more production, it is the land being used and how it is being used that will increase production. The study noted that farmer graduates with small land size for cultivation were not able to produce enough for food and income security hence increased dependence on SAFI even after graduation.

Another positive and significant factor was inputs from

SAFI where it was indicated that a percentage increase in inputs might result into increase in total maize production of the farmers by 1027 kg. This therefore relays a great role inputs from SAFI play in increasing maize production of the farmer. However, the inputs received from SAFI gave the farmers a dependence syndrome and suffers after SAFI withdraws the inputs thereby reduction in production.

Peer pressure had a positive and significant effect on maize production for the SAFI graduates. Farmers learn from fellows on different agricultural practices that proved having significant effect on total production. In so doing, increase in peer pressure among the farmers, increases maize production by 850 kg. This reflects the importance of on campus training that SAFI provides to the farmers in improving self-reliant agriculture for small holder farmers. This entails that withdraw of inputs by SAFI 2 years after graduation places the farmers on disadvantages as overall production drops. The drop in crop production exposes the farmers to hunger problems, which forces them to depend on SAFI even after graduating.

Dependence in relation to soy bean production

Age is negative and significantly related to soya bean production such that an increase in age of the farmers leads to decline in production by 6 kg. Primary education also had a negative and significant effect on soya bean production. Holding other factors constant, attaining primary education by the farmer reduces soya production by 219 kg. Decrease in production increases farmers' vulnerability to hunger, thereby allocating the income from legumes into staple food than inputs for next growing season. The study has proved that such state forces farmers to continue depending on SAFI for inputs and extension services.

Household size had a positive and significant effect ($p < 0.05$) on soya bean production of the farmers. It was shown that soya bean production increased with each additional member of the household by 25 kg. This may be the case as the household member provides labour for production hence contributing to increase in soya bean production, as it is labour demanding.

Extension services from SAFI had also a positive and significant effect on soya bean production of the farmer. This means that a percentage increase in agricultural extension services from SAFI increases soya production by 277 kg. The results show that training on agricultural practices by the SAFI extension workers positively affected agricultural productivity of the farmers. This correlate with what Wei (1999) and Fane (1975) published that farmer training positively affects productivity by the farmer graduates. So, as SAFI reduces the extension contact with the graduates, productivity gets reduced which affect overall crop production, thereby remaining dependent on SAFI even after graduation.

CONCLUSION AND SUGGESTIONS

Production of food by farming families adequate for their year round consumption is the sure way of safeguarding food security and indecency from support structures. There is however a need to consider the other factors that indirectly contributes to the current productivity of graduate farmers from SAFI. The study reveals that the SAFI program needs to review its recruitment criteria to screen factors of individual's age, education level and size of family. A well selected group of student farmers can increase the adoption levels of production technologies leading to higher yields.

It is also recommended that the training program needs to include some courses that encourage behavioral change, as the study has shown that even with adequate inputs, farming families still are dependent on the school, suggesting a need for change in farmer's perspective.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

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Full Length Research Paper

An investigation of gender division of labour: The case of Delanta district, South Wollo zone, Ethiopia

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In the household and agricultural production, men and women are involved in different activities to ensure the availability of goods and services for family consumption and well-being. The main objective of this study is to address gender division of labour in Delanta district, South Wollo Zone, Ethiopia. It addressed the different assortment of activities that are carried out by women, and identified some drawbacks faced women. The study was conducted in six rural districts, and 300 households by taking 225 women and 75 men in their residents. The interviewees were selected using stratified random sampling technique picking up 50 households from each rural district. The data were analyzed through descriptive statistics. The results showed that women have primary role in gender division of labour in the study area. Women predominantly performed storage preparation (84%) and post harvest processing (81%), milk processing (82%), barn cleaning (61%) and care of new born animals (52%), cooking (86%), fetching (78%) and collecting fuel-wood (62%). They are also performed equally with men weeding (53%), harvesting and collecting crops to threshing field (52%), threshing ground preparation (80%) and keeping crops from wild life (37%). Despite their crucial roles in agricultural sectors, women have been marginalized for so long. They have limited access and control of agricultural products, extension services and information. This is due to social, cultural and work discrimination. This discrimination, in turn, has caused some women to lose self-confidence in decision-making power. Thus, to strengthen and develop women with economic, social and political affairs, federal and regional governments, and other concerned bodies should take all appropriate measures to ensure women equality with men, without any discrimination. Women should also participate at all stages of project planning, implementation and assessment.

Key words: Agriculture, Delanta district, gender, labour, rural women, women.

INTRODUCTION

At the various places in the household as well as the agricultural fields, women and men are engaged in different activities to secure family livelihoods while these

activities may be different; they have a social connectedness (Cerceanu, 2012).

In most societies, the relations between men and

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women are largely unequal and hierarchical, often resulting in unequal access for women and girls to social goods and services. These activities may be formal or informal. Poor people in rural areas face an acute lack of basic social and economic infrastructure such as health and educational facilities, and access to safe drinking water. Households who are headed by women are particularly vulnerable (Nahusenay and Tesfaye, 2015). Lack of empowerment negatively influences the technology and well-being of millions of girls and women all over the world women are much less likely than men to receive an education or health benefits, or to have a voice in decisions affecting their lives (Mondal, 2013).

Nowadays, a number of factors are responsible for the gender division of labour. Some of them described by biological variations (sex), others resulting from socially constructed norms and expectations (gender). Some are also gender-neutral and others are gender-biased. For example, child care, household care (cooking, cleaning, fetching wood and water, etc.) are activities ascribed to women that are gender-biased. An intricate and changing relationship of cooperation and exchange between men and women exists within the household (Chayal, 2013).

Women who produced about 60 to 80% of basic food stuffs in Africa, and more than half of all food in worldwide are produced by the smallholder of women farmers (Shafiwu et al., 2013), 70 to 80% of production in Sub-Saharan Africa (Boakye-Achampong et al., 2012). When women are economically and socially empowered, they could become a potent force for change. In rural areas of the developing world, women play a key role in running households and make major contributions to agricultural production. Nahusenay and Tesfaye (2015) and Ogato et al. (2009) reported that about 90% of food processing, water fetching, fuel wood preparing for household consumption and weeding, and over 80% of food storage and transportation from farm to village, and about 60% of harvesting and marketing of farm produce are worked by women.

Women engage in agriculture as farmers on their own lands, as unpaid workers on family farms and as paid or unpaid labourers on other farms and agricultural enterprises. The story of overworked women in the rural areas of the developing and underdeveloped countries of the world is very well known. Their wages are generally less because it is assumed that the efficiency of women's labour is poor compared to that of men (IFAD, 2011). However, the inequalities that exist between women and men make it difficult for women to fulfill their potential. One untapped source of agricultural growth to help meet these needs could lie in reducing the bias against women in agriculture. This is because increasing attention is now being paid to the gender dimension of poverty and development particularly in relation to the role of women in agricultural processes (Nahusenay and Tesfaye, 2015).

In this specific type of manual agricultural wage work

were extremely poor in absolute terms and relative to other rural women (DFID, 2014). Due to gender inequalities in access to formal employment and income, as well as a general lack of power and access to economic resources, women are more prone to poverty and insecurity (Cerceanu, 2012). Much of the wage labour in agriculture is female labour who are food producers working on joint family farms and tending their own land for household food production while only a small percentage is independent farmers. It is widely acknowledged that the majority of the rural poorest are women and girls. Where wages and working conditions have been found to be inadequate, and to discriminate against women (Shafiwu et al., 2013).

Women invest longer time than men to achieve the same level of living. They spend longer hours gathering fuel-wood and fetching water. As well as safety and health problems, lack of time is a major constraint in mobilizing women to contribute to livelihood diversification strategies (IFAD, 2014). Women rarely have access to the resources that would make their work more productive, and ease their heavy workload. Overall, the labour burden of rural women exceeds that of men, and includes a higher proportion of unpaid household responsibilities related to preparing food and collecting fuel and water (FAO, 2011).

Labour intensive and time-consuming activities further hinder women's ability to improve their income-earning potential. Ultimately, it is not just women who are held back, but also their families, their communities and local economies. There is evidence that, as women participate more in market work under pressure of poverty their domestic labour is not substantially reassigned to men (Abdelali-Martini, 2011).

The gender division of labour varies from one society and culture to another, and within each culture external circumstances influence the level of activity. Except in few most developed countries, women's efforts are not yet realized by society. Women's role in ensuring household food security remains largely unrecognized in policy and resource allocation, especially in developing countries. The voices and concerns of rural women are given very little attention at the national and global level (Boakye-Achampong et al., 2012). Although increasing female participation in the labour force has a positive impact on economic growth. One cannot fully comprehend rural development in Africa without the passionate and active participation of women.

The aforementioned moments are most of the challengers the Ethiopian women farmers face. They have constraints including lack of land for farming, limited access in communication between men and women and control of agricultural products, credit facilities, skill training, education, extension services and information, their contribution is not appreciated. In this sense, women are negatively influenced by traditional pattern, and the previous economic policies. Most of them lounge in the

margin of major development efforts and programs.

In rural areas of Ethiopia, women play the leading role in agricultural production, livestock rearing and cottage industries and remain busy from dawn to dusk to supply food to men in fields, fetch water, collect fuel wood, and manage livestock. Hitherto without the complementarities of women's work, such efforts and programs would barely work even though men own such assets and inputs as land, credit, seeds, livestock, technology and infrastructure.

As part of the Ethiopian women, the Delanta district rural women in South Wollo share the female subordination and the overall problems that are faced by the Ethiopian women. These problems were analyzed in this study from the viewpoint of a population- geographic analysis in conjunction with the necessary solutions. The dominance of men in various income generating activities affects highly the economic empowerment of women. The purpose of this study was therefore to evaluate the activities of rural women and their participation in agricultural production to fulfill the food security of their family. More specifically to answer the question's what is the role of women in agriculture and household activities in the study area?

Objectives of the study

The general objective of the study is to assess gender division of labour in agriculture and household activities as well as comprehend the major constraints to their empowerment. In line with this general objective, the following specific objectives were conducted by taking Delanta District of North Wollo as a case study. The specific objectives of the study are:

- (1) To investigate the gender division of labour in agriculture and household activities; and
- (2) To assess the main constraints faced by rural women involvements in agricultural works.

Research questions

- (1) What are the key roles of women in gender division of labour?
- (2) What are the main constraints of women's participation in gender division of labour?

MATERIALS AND METHODS

Description of the study area

Delanta district is located in South Wollo Zone the Amhara Regional State of Ethiopia which lies between 11°29' 29.82" to 11°41' 25.53" N and 39°02' 19.19" to 39°14' 05.04" E with an altitude ranging from 1500 to 3819 meter above sea level at the bottom of the valleys (Gosh Meda) and the top of the mountain

(Mekelet), respectively. It is situated about 499 km north of Addis Ababa and 98 km northwest of Dessie town in South Wollo Zone. The major landforms of the district comprise extensive plateaus, chains of hills with mountainous ridge, river-valleys and very deep gorges at the boundary. It is oval in shape with dendritic drainage pattern, steep ridges, and numerous convex hills at the plain area and gorges at the boundary.

The area is characterized by the trap series of tertiary periods, similar to much of the central Ethiopian highlands. It is covered by Oligocene rhyolite and very thick ignimbrite units encompassing predominantly of alkaline basalt with numerous inter-bedded flow of trachyte. The granite, gneisses and basalt rock types exist in the area the forming part of the basement complex and most of the soils are basaltic parent material. According to Nahusenay et al. (2014), the soils are predominantly Vertisols, and other types are Cambisols and Leptosols which are greatly influenced by topography with high surface runoff during the main rainy season.

According to WAOR (2013) report, the total area of the district is 98002 ha stretching from lowland to highland, much of it being in the mid-altitude ranges dominated by plateaus. Average land holding size is one hectare per household (0.75 ha for crop production and 0.25 ha for grazing). The land uses are both private and communal land holdings which can be identified through land use patterns. The largest proportion of the land is currently unutilized which accounts about 45%. Cultivated and grazing lands are the major land use types in the study area (Figure 1).

According to traditional agro-ecological classification of Ethiopia, the area falls in all the categories that basically correlate with elevation. These are *Kolla* (lowland), *Woina Dega* (midland), *Dega* (highland) and *Wurch* (very highland). The climate of the area is characterized by dry seasons (from October to February cold-dry and from March to June hot-dry) and wet season (from mid-June to September). The fifteen years mean annual rainfall of the study area is about 812 mm of which 75-80% is received in summer (*Kiremt*) and 25-20% in the spring (*Belg*) seasons. The mean annual minimum and maximum temperatures of the same period are 6.8 and 19.6°C, respectively. Peoples living on upper elevation their farming activities primarily depend on *Belg* rains, while those on middle and lower elevation rely on both the *Kiremt* and *Belg* rains. However, there is small, erratic and unreliable rainfall and the area is prone to sporadic droughts.

According to CSA (2015) projection's Delanta district is densely populated area with average family size of five persons per family. The rural population constituted 96.5% of which 51% are males and the remaining 49% being females. The district is divided in to 33 local districts which are stretched into different agro-ecological zones. The community of the district did not produce sufficient food for year-round consumption even in the normal climate conditions. This is due to severe land degradation, land scarcity, and erratic rainfall.

Data types, sources and sampling techniques

One of the motives of the survey was to investigate variation in the patterns of agricultural works, and coping mechanisms based on agro-ecological variations. To this end, six representative local districts (*Kebeles*-which is the smallest administrative unit in Ethiopia) were randomly selected based on the above stated variations, and to make the study manageable, 50 household was taken from each rural district using simple stratified random sampling techniques.

The cross-sectional data was conducted to assess handling, processing and utilization the agricultural production. The target populations were rural women and to know the attitudes of men towards women's job 25% of the total population were considered men. Fifty smallholder farmers were selected using random sampling techniques in each of the study sites. A total of 300 rural

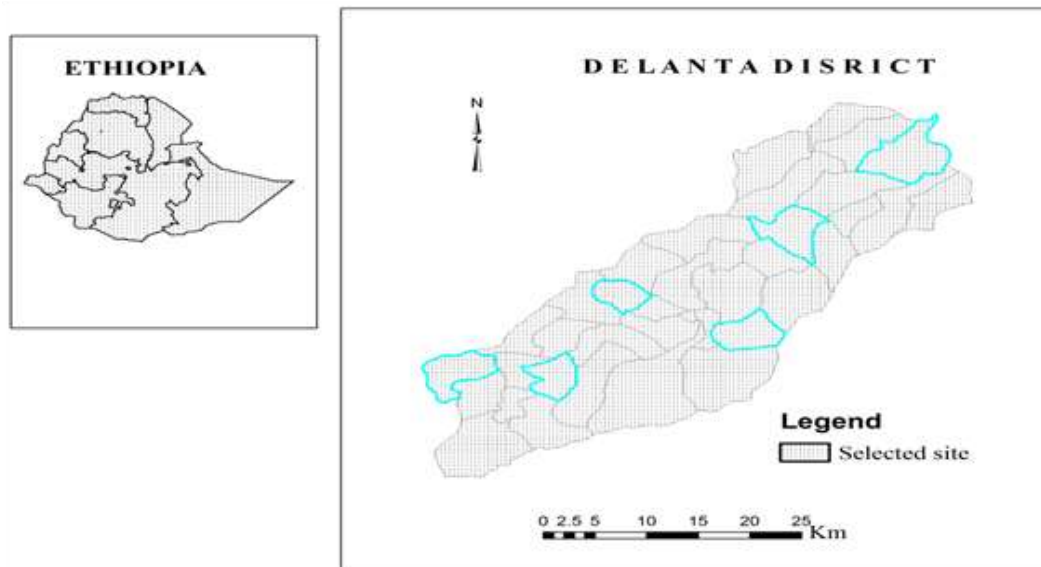


Figure 1. Location map of the study area.

households of which 75% of women were interviewed using structured and semi structured questionnaire.

Both the primary and secondary data were considered for this study. The primary data were conducted in household surveys which were administered through field observations, questionnaires, formal interviews and focal group discussion with rural women, men, women affair office and other concerned authorities. For this purpose, questionnaires were developed and provided to all key respondents. Most of the items were close-ended and some open-ended questions were also included due to accomplish qualitative information on the attitudes, beliefs and practices of the people. The secondary data from both published and unpublished documents of governmental and non-governmental organizations were dug out to supplement and strengthen the primary data. Historical, cultural, socio-economic backgrounds of the area were obtained by using secondary materials.

Methods of data analysis

The primary data was analyzed and presented by using both descriptive and inferential statistical techniques. The descriptive techniques include percentage, cumulative frequency, standard deviation, while the inferential statistical techniques used Chi-Square tests. The Chi-Square test was employed to see the association or homogeneity between the agro-ecological zones with reference to responses regarding agricultural works, and coping strategies used by peasants during famine (scarcity of food) and its impacts.

RESULTS AND DISCUSSION

Gender division of labour in field activities

In order to understand and analyze gender division of labour, that is the allocation of tasks between males and

females, can usefully be categorized into two groups, namely, production in the field and inside the household. The division of labour in the study area is traditional. This means that, some tasks are reserved for men and others for women. Children, depending on their sex, tend to follow their parents' occupations and learn from them. There is a clear gender, and age based division of labour in crop production, animal husbandry, and household tasks.

Women's involvement in crop production

Women and men often possess unique and valuable local knowledge. However, frequently there is a gender gap in terms of access to other kinds of knowledge, such as new technology of agricultural services. The flexibility or rigidity of the gender division of labour can be ascertained at the community or household levels through a combination of direct observation, reliance on informants and structured interviews with individuals. However, it is difficult to tell the exact time spent by women in agricultural activities. From the survey made in the study area, this study has come to understand that women spend more time in seed-bed preparation, harvesting of crops, weeding, transporting, and storage preparation.

As demonstrated in Table 1, men solely perform planting (89%), transport yields to home (86%), carrying farm tools (81%), ploughing farm in animals (76%), and field preparation for planting (69%). During this time women assist their husbands to cover the seed with soil, pull horses, and clear waste from the field. Some of the agricultural activities like threshing ground preparation

Table 1. Gender division of labour in crop production.

Activity	Women		Men		Both		Children	
	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Storage container preparation	252	84.0	25	8.5	8	2.5	15	5.0
Storing process /post harvest	243	81.0	22	8.0	29	9.5	6	2.0
Weeding unwanted plants	59	19.5	64	21.5	159	53.0	18	6.0
Collecting crops to field floor	51	17.0	70	23.5	152	50.5	27	9.0
Keeping crops from wild life	48	16.0	47	16.0	110	36.5	95	31.5
Cutting and gathering crops*	33	11.0	97	32.5	156	52.0	14	4.5
Field preparation for planting	32	10.5	206	68.5	36	12.5	26	8.5
Ploughing farm in animals	29	9.5	226	75.5	24	8.0	21	7.0
Carrying farm tools	21	7.0	243	81.0	21	7.0	15	5.0
Threshing ground preparation	15	5.0	29	9.5	238	79.5	18	6.0
Transport yields to home	12	4.0	258	86.0	12	4.0	18	6.0
Planting/sowing seeds	11	3.5	266	89.0	9	3.0	14	4.5

*Crop-cutting like wheat, barley, faba bean, linseeds, lentil, grass pea.

Table 2. The participation rate of women in crop production activities.

Types of activities		Dega		Woina Dega		Kolla		Total	
		Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Participated	Act	37	74	82	82	47	94	166	83
	Exp	41.5	-	83	-	41.5	-	-	-
Not participated	Act	13	26	18	18	3	6	34	17
	Exp	8.5	-	17	-	8.5	-	-	-
Total		50	100	100	100	50	100	200	100

Source: Based on field survey $\chi^2 = 7.23$; C.V = 5.99; $\alpha = 0.05$ and $df = 2$; NRP = Number of respondents.

(80%), weeding (53%), cutting and gathering crops (52%), and collecting and transporting crops to threshing fields (51%) are equally working by men and women this was also reported by Ashwill et al. (2011) in the Plurinational State of Bolivia and Abdelali-Martini (2011) in the Middle East and North Africa (Table 1).

In Delanta district, the expected and the most important occupation of the family members aged 10 years and above is farming. Employment outside agriculture is almost non-existent in the district. Agriculture is the key asset for subsistence farmers in the district. This is a fundamental question, why are there differences

of women's activities in agro-ecological zones? The reasons for the involvements of women differ in agro-ecological zones, and the nature of crops sown in the area. Some type of crops, namely *teff*, maize, sorghum, some pulses have never be sown in *Dega* areas but are commonly found in *Kolla* and *Woina Dega* areas (Table 2).

Table 3. Gender division of labour in livestock activities.

Activity	Women		Men		Both		Children	
	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Milk processing	247	82.3	0	0	0	0	53	17.7
Cleaning animal waste/barn cleaning	182	60.7	9	3	8	2.7	101	33.7
Care of new born animal	154	51.3	39	13	48	16	59	19.7
Milking cows	78	26	155	51.7	50	16.7	17	5.7
Animal feeding	38	12.7	159	53	47	15.7	56	18.7
Herding animals	20	6.7	47	15.7	21	7	212	70.7

Table 4. Gender division of labour in household activities.

Activity	Women		Men		Both		Children	
	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Food preparation/cooking	259	86.2	0	0.0	13	4.3	29	9.5
Washing dish and others	249	83.0	9	3.0	12	4.0	30	10.0
Cleaning household floor	247	82.3	0	0.0	0	0.0	53	17.7
Fetching water from pond/pipe	235	78.3	22	7.3	14	4.7	29	9.7
Fuel-wood preparation (collection)	187	62.3	42	13.7	23	7.7	49	16.3
Grinding grains in hand and to take the mill	139	46.3	19	6.3	96	32.0	46	15.3
Family care (animal herding)	109	36.2	44	14.5	129	42.8	20	6.5
Washing family clothes	94	31.3	37	12.3	155	51.7	14	4.7

Women's participation in livestock production

Policies can also influence the economic incentives and social norms that determine whether women work, the types of work they perform and whether it is considered an economic activity, the stock of human capital they accumulate and the levels of pay they receive.

In Delanta district, livestock activity takes place hand-in-hand with the crop production, and all family members participated. Livestock production is the main sources of income generation, as well as the pioneer of the wealth status in the district. As indicated in Table 3, women solely perform

milk processing (82.3%), barn cleaning (60.7%) and care of new born animals (51.3%), while men assist animal feeding (53%) and milking cow (51.7%). With the herding of livestock in the area, about 70.7% of the task was done by children, and this was also reported by Mihiret and Tadesse (2014) that the majority of household activities are performed by wives.

Gender division of labour in household activities

The sexual division of labour cannot be fully understood without knowing how women and men

within the household differ in their agricultural information and services.

Employment inside the house is almost all done by females in the District. The situation of women in general indicates that they carried out the heaviest burden of family life responsibility, which includes feeding, housing, clothing, and breadwinner sharing (Table 4). Adult females (women) perform food preparation/cooking (86.2%), washing dish (83%), fetching water (78.3%), preparing fuel-wood (62.3%) and grinding grains (46.3%), and this is also reported by Mihiret and Tadesse (2014) that the majority of household activities are performed by wives.

Table 5. Major social constraints against women’s involvement in decision-making power.

Types of constraints	Low		Moderate		High	
	NRM	Percentage (%)	NRM	Percentage (%)	NRM	Percentage (%)
Educational level -Illiterate	9	3.0	27	9.0	264	88.0
Poor access to farm information/women are less informed than men	50	16.7	104	34.7	146	48.7
Traditional habit/cultural	63	21.0	125	41.7	112	37.3
Women are only subordinate to male counterparts	38	12.7	89	29.7	173	57.7
Low self confidence of women in making farm decisions	15	5.0	57	19.0	228	76.0
Lack of knowledge about farming	42	14.0	82	27.3	176	58.7

Source: Based on field survey; NRP = Number of respondents.

With all these activities; children, particularly female, assist their mothers, while the male mostly herd animals, bird scared and crops protect from wild life. They are doing all these things with a backward technology where implements and tools are the most primitive. In most societies, reproductive tasks or tasks related to child bearing and care and maintenance of the household activities (cooking, fetching water and collecting firewood) are assigned to women. Moreover, women also manage community resources while men participate in formal community politics.

In consent with the gender-responsive labour activities observed in this study, the studies of Razavi and Staab (2010), Dawit (2012) and UN-Women (2014) showed that every economy is dependent on the unpaid care economy, comprising cooking, cleaning, elder care, childcare and community-based volunteering. Unpaid work is heavily feminized, and the burden of unpaid work may increase or decrease as a result of ostensibly sustainable interventions.

Inhibition women's participation in development endeavors

According to this study, a number of social and

cultural factors determine the extent of women’s involvement in various activities which is different from that of the men. For instance, women are excluded from deciding what crops to plant; purchase and sale of livestock, farm inputs, and land plots (Table 5). When these issues required decisions, these decisions are done by men, and in some rare cases shared by both. In the study area, the traditional sexual division of labour confined women to the domestic labour, including the entire range of food preparation, fetching water, collecting fuel-wood and caring for the family.

At best, this means their potential to contribute to household and community responses is not fulfilled and, at worst, this can result in women’s markedly greater vulnerability to extreme weather events. For example, it is often women who remain behind to run smallholdings when there is poor harvesting of crops and fishes failures resulting in out-migration of men to seek employment in cities. All these are exclusively performed by women. They carry out heavier workload, and perform more time consuming tasks on field and in the household.

Women have extra-load than men because they participate in all activities (agricultural and domestic works). The division of labour in the

study area is quite traditional. This is due to the socioeconomic and cultural constraints against women’s involvement in decision-making power. Certain jobs are reserved for men and others for women. The results of the present study regarding major social constraints against women’s involvement in decision-making power of the respondents given in Table 5 show that most of the respondents were illiterate (88%), low self confidence of women in making farm decisions (76%), women lack of knowledge about farming (58.7%) and 57.7% of women are only subordinate to male counterparts as well as poor access of farm information (48.9%). In consent with the low educational level of rural women a case study was observed in Nankana Sahib, Punjab district by Nazir et al. (2013).

The other constraints which inhibit women's participation in development endeavors are heavy domestic workload, low time spent away from home, less freedom of movement than men and low educational status. If women are given more rights, taboos are broken, cultural attitudes towards them change, women’s labour contribution could be appreciated.

Similarly, study was conducted by Mondal (2013) who revealed that women farmers are overwhelmingly left out of many forms of

communication channels that are critical to their ability to adapt to a rapidly changing climate. This is due to many factors linked to social norms and work burdens that result in women missing out on key information and education. This could be one way by which we can eradicate poverty, enhance food security and improve livelihood. Evidently, development, food security and poverty alleviation will not be truly achieved without rapid agricultural growth. Increasing of agricultural productivity is central to growth, income distribution, improved food security and alleviation of poverty in rural Africa (FAO, 2010).

In all of these, the rural woman plays a pivotal role, and they are crucial to the overall success of efforts directed at agricultural development in rural areas.

Conclusion

The contribution of women to agricultural and food production is highly significant but it is impossible to verify empirically the share produced by women in the study area. Women's participation in rural labour markets varies considerably, but invariably women are grossly unpaid. They are often given seasonal and part-time work, and this study clearly shows that they are also paid less for the same work that men perform. As noted earlier, women play a significant role in the agricultural labour force and in household activities, although to a varying degree. Women make up in any agricultural labour force over 50% in the study area. As a result, their contribution to agricultural output is undoubtedly extremely important, although it is difficult to quantify with any accuracy. Rural women often manage complex households, and pursue multiple livelihood strategies with tremendous fortitude. Their activities typically include producing agricultural crops, tending animals, processing and preparing food, collecting fuel and water, engaging in trade and marketing, caring for family members and maintaining their homes.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Full Length Research Paper

The role of rural land registration and certification program for land tenure security in Hulet Eju Enese District, Amhara National Regional State, Northwest Ethiopia

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Land tenure security is an important concept that helps to improve the productivity of a specified land. Whether the land is privately or publically owned, countries design various strategies to assure land tenure security. As a country, Ethiopia implement rural land registration and certification program in different regions. Therefore, the general objective of this article was to investigate the role of rural land registration and certification program for land tenure security. Assessing farmer's perception on the importance of land tenure security and identifying the role of the program for land tenure security were the specific objectives of the study. Questionnaire and interviews were used as the main data collection methods. Stratified, random and purposive sampling methods were used to select sub districts, farmer households and key informants, respectively. The data were analyzed by narration and descriptive statistical methods. As the result, shows even if most of the farmers were aware about the role of the program and the program plays positive roles for land tenure security, creating awareness about the main role of the program and land tenure security will still be vital.

Key words: Land registration, land certification, book of land possession, land tenure security.

INTRODUCTION

Land is one of the most important assets of the people throughout the world especially for the rural people whose life basically relies on agriculture (U.S. Agency for International Development (USAID), 2007; Holden and Bezu, 2016). In Africa, it represents one of the most

important resources on which the livelihoods of the poor are critically dependent on it. Given that, food security and poverty reduction cannot be achieved unless issues of access to land, security of land tenure and the capacity to use land productively and in a sustainable manner are

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addressed (Nazneen et al., 2005; Gebru and Holden, 2012).

Although agricultural activities are affected by various factors (climatic conditions, markets, infrastructure, physical conditions, etc.), insecure land tenure and unequal access to land have the most profound effect on the livelihoods of smallholders in Ethiopia (Economic Commission for Africa (ECA), 2004). The problem impedes agricultural growth, aggravates poverty, vulnerability and contributes to social tensions as population rises and it imposes greater burdens on the limited land resources. Therefore, appropriate land policies or programs are crucial to put the communities on a steady course of sustainable development. The basic policy issue to improve the development or productivity of land is tenure security; the degree of confidence detained by the farmers that, they will not be illegally deprived from their land rights and economic benefits gained from it (Nazneen et al., 2005).

Land tenure security is a vital issue to provide incentives to invest on land and boost agricultural productivity (World Bank, 2007; Holden and Otsuka, 2014). It also encourages functional land markets specifically land rental market (Ege, 2017), because tenure security protects individuals against expropriation by the rentee, as well as by the state (Dessalegn, 2004). Contrary, without important policies that solve land tenure insecurity; the situation may lead to less incentive to land related investments, high soil erosion and land degradation due to low motivation to land related investments, and high expropriations of the poor, women and old age groups by different agents. In the past, the Ethiopian landlords control the agricultural land and majority of the people are insecure about the land they use.

As Action Aid Ethiopia (AAE, 2006) stated, lack of adequate access to and control over land are among the major causes of rural poverty and food insecurity in Ethiopia. During the Imperial period tenure insecurity, landlessness, diminution of farm holdings, and lack of proper land administration systems are the persistent problems of rural land tenure system; because, during this period, land tenure was based on a feudal system where land was held by absentee landlords and the church (Dessalegn, 2008; Ethiopian Civil Society Network on Climate Change (ECSNCC), 2011). While, the repeated land redistributions under the Derg regime also create tenure insecurity among the peasants of the state; by fear of losing their land through new land redistribution, after the fall of this regime, their fear also continue especially in Amhara region, following land redistribution conducted in 1996/1997 (Samuel, 2006).

In the late 20th century, the present Ethiopian government admitted that, land tenure insecurity in the country affects agricultural productivity; hence, in the federal proclamation (Proc No.89/1997), the four main regions of the country (Tigray, Amhara, Oromiya and

Southern Nations Nationalities and People [SNNPR]) have issued their region's specific land administration and use proclamation and commenced with rural land registration and certification program. Then, Tigray region started the implementation of the program in 1998, while Amhara in 2003 and Oromiya and SNNPR a year later (Solomon, 2006; Holden and Gebru, 2016).

In Amhara region, the program was started to implement in two pilot districts; Gozamn and Dessie Zuria district. Even if the regional government progress report indicated that the program in the pilot districts achieved its target significantly and decided to implement it in all districts of the region since 2004 in two phases; registration and certification and cadastral survey (Berhanu and Fayera, 2005). Different researchers (Berhanu and Fayera, 2005; Dessalegn, 2008; Birhanu and Mamo, 2010) argue that the program could not make any significance improvement on the tenure security of the landholders. Contrary, some researchers (Deininger et al., 2011; Abate et al., 2012) agree the intervention play positive role in improving tenure security and agricultural development. Hence, these situations indicated further investigation was needed in different areas of the region in particular and the country in general. Because, the program is still in the implementation stage and in each phase there will be a change that is open for new investigation.

Study area

Hulet Eju Enese district is one among 166 districts of Amhara National Regional State. This is found in Misrak Gojjam administrative zone. It has 42 administrative sub districts, 40 rural and 2 urban. The district is located at 10° 40" N to 11° 10" N and 37° 46" 30' E to 38° 9" E. Map of the study area is as shown in Figure 1.

METHODOLOGY

The study has been carried out in three levels, namely, district, sub district and land holder level. Based on agro-ecological zones, the study area was stratified as Dega, Wina Dega and Kola, which includes 12, 20 and 8 sub districts, respectively. In this article, questionnaire and interviews were used as the main data collection methods. Simple random sampling were used to select sub districts from each agro climatic region and 1, 2 and 1 sub districts were selected from Dega, Wina Dega and Kola agro ecological zones, respectively. This sub districts are namely Chak, Atsede Birhan, Hizbe Selam and Gedam Abo.

Both primary and secondary data sources were used to collect the necessary data. The key information sources are sub district land administration experts and district environmental protection land administration office experts. The questionnaire was distributed to the sample households those selected based on Table 1.

The qualitative data were analyzed by using narration, whereas the quantitative data collected by questionnaire were analyzed by using descriptive statistical methods such as percentage and frequency.

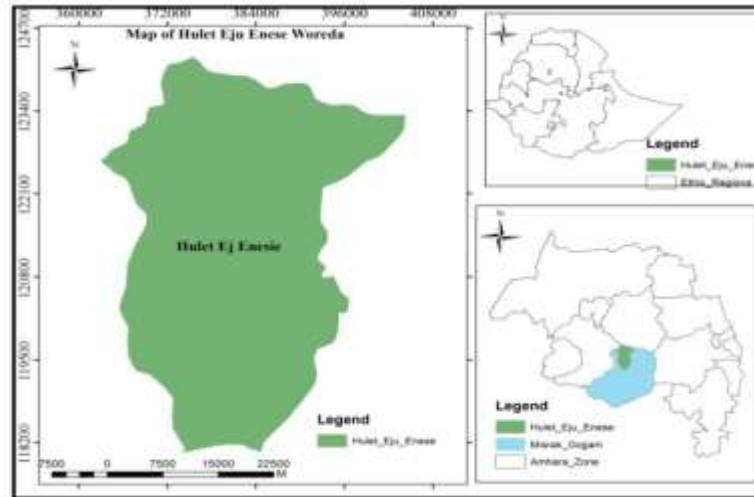


Figure 1. Map of the study area (Constructed by Author, 2015).

Table 1. Sample households.

S/N	Name of sub districts	No. of HHs	No. of sampled HHs
1	Chak	280	28
2	Atsede Birhan	194	20
3	Hizbe Selam	470	47
4	Gedam Abo	331	33
-	Total	1275	128

Table 2. Basic socio-economic characteristics of sample households (Survey data, 2015).

S/N	Socio-economic characteristics	Atsede Birhan	Hizbe Selam	Gedam Abo	Chak
1	Percentage of female headed households	26.7	9.5	14.3	17.4
2	Average age of the household head	44.6	46.2	45.7	40
3	Average farm size	0.95	1.33	1.1	1.18
4	Average number of plots	2.9	3.48	3.5	3.75
5	Average household size	4.8	5.55	5.36	5.4

RESULTS AND DISCUSSION

General characteristics of the sampled households

In all sampled sub districts, female headed households were involved in the research. From this, in Atsede Birhan, 26.7% of household heads were females and this was the highest percentage from the rest of the three sub districts. Whereas, the smallest percentage were recorded in Hizbe Selam sub district and it covers 9.5%. In Chak and Gedam Abo sub district also female headed households of 17.4 and 14.3%, respectively were included as respondents of this research by the random

selection method. The remaining percent of respondents in each sub districts were male in their sex characteristics (Table 2).

The average age of household heads are shown in Table 3 and there was no great variation in the mean age of the household heads in the four sub districts. The smallest mean age was registered in Chak sub districts and it was 40 years and the oldest mean age was in Hizbe Selam sub district as 46.2 year. In Atsede Birhan and Gedam Abo sub districts, the average age of the household heads were 44.6 and 45.7, respectively.

Table 3 shows the minimum, maximum and mean land sizes hold by the sample households in the four sub

Table 3. Land Holding size and Number of plots (Survey data, 2015).

Characteristics	Sub Kebele	Minimum	Maximum	Mean	Std. deviation
Land size	Atsede Birhan	0.5	2.2	1	0.5606
	Hizbe Selam	0.25	3	1.3	0.6572
	Gedam Abo	0.5	2.25	1.1	0.40377
	Chak	0.5	2.5	1.2	0.5612
Number of plots	Atsede Birhan	2	5	2.93	1.1
	Hizbe Selam	1	6	3.48	1.018
	Gedam Abo	2	6	3.54	1.105
	Chak	2	6	3.39	0.988

districts. Hizbe Selam sub district was the first in minimum, maximum and largest mean land holding size by 0.25, 3 and 1.33 ha, respectively. Whereas, the minimum land holding size was the same in the remaining sampled sub districts which was 0.5 ha of land. The smallest mean land holding size was in Atsede Birhan sub district which was followed by Gedam Abo. Generally, there was no great variation in the mean land holding size between the households of the four sub districts.

Farmers perception on rural land registration and certification program

Creating awareness on farmers about the role of rural land registration and certification program is one of the first necessary tasks before embarking on the implementation of the program (Marquardt, 2006). Because, the program is only effective, if the beneficiaries know the role of the program very well.

As one of HEEW environmental protection, land administration and use office expert stated:

“Creating awareness is the first process conducted in the district before the start-up of the implementation of the program”.

The investigation of the perception of farmers on the role of rural land registration and certification program (RLRCP) is one of the specific objectives of this article. Before identifying the role of the program for land tenure security, it is necessary to investigate farmer's perception on the role of the program. As perception is difficult to measure, it indicated qualitatively how the farmers understood the roles of rural land registration and certification program, how they feel about their land after they got the book?

During the interviews, farmers describe their feelings when the implementation of the program was started in their specific districts. A farmer from Chak sub districts replied that:

“Even if the district experts described some concepts about the role of the program; when registration of individual plots of land started, most of us assume, the government need to conduct new land redistribution soon and most of us fear losing of lands, however after we get book of rural land possession with the first stage of registration, most of us understood the role of the program and it increases our land tenure security”.

This is the same with Marquardt (2006) generalization that is when a government introduces a new policy farmers may fear and the level of confidence is increased through time.

A farmer from Gedam Abo sub district also replied that, after the book was provided.

“We get a witness that indicates our land use rights and after that, the family fear of losing the lands by redistribution or other means without proper compensation was minimized”.

Most of the farmers who participated in the interview process replied that, “book of rural land possession” protects their land not to be evicted arbitrarily by different agents. Due to the book, now farmers believe their land is the only asset of their family and they practice different methods to conserve and improve the fertility of soil and increase their agricultural outputs. Now, if their land is taken by the government for development projects or grants to investor's they believed that, they may get appropriate compensation for the land they lose. However, perception of some farmers is contradicted with the explanations given earlier and they believe that, as land is property of the state, the government may take the land when it needs and simply the book do not protect eviction by the state and appropriate compensation was not provided to the farmers. A respondent from Atsede Birhan sub district stated that:

“The book couldn't enhance my land tenure security rights and even if I assume proper compensation is provided by the government when land is used for

Table 4. Farmers Perception on RLRCP (Survey data, 2015).

Assessment tools	Sub districts	Atsede Birhan		Hizbe Selam		Gedam Abo		Chak	
	Responses	F	%	F	%	F	%	F	%
Do you know the role of RLRCP?	Yes	14	93.3	32	76.2	24	85.7	20	87.0
	No	1	6.7	10	23.8	4	14.3	3	13.0

development projects at the first time of the implementation of the program, the lower officials biased the implementation of the process and I am one of the farmers who don't receive any compensation for the land I loses due to the construction of the new road in the sub district".

Understanding of farmers on the roles of RLRCP is a good situation to investigate the perceptions of farmers on the role of the intervention. Table 4 shows 93.3, 76.2, 85.7 and 87% of the respondents in Atsede Birhan, Hizbe Selam, Gedam Abo and Chak sub districts, respectively knew the role of the program. From the total farmer respondents of the research, more than 83.3% knew the program. Therefore, it is possible to say presently, most of Hulet Eju Enese district farmer households knew the main role of rural land registration and certification program and it is vital to achieve the final goal of the intervention.

However, their awareness varies from farmers to farmers and it needs a lot of tasks. As, the head of the district environmental protection, land administration and use office described that, there are various factors that creates difference in the awareness of farmers on the role of the program. Some of these are willingness of farmers to participate in different meetings, experience and understanding of sub district land administration experts, educational status of the household heads, etc.

The role of RLRCP for land tenure security

The primary objective of the program is to be a guarantee for the land tenure security of farmers and if the program achieved its primary objective, it is important for the increment of agricultural outputs. The district environmental protection, land administration and use office expert stated that, the book of rural land possession is the only legal document that indicates the real user of land and most of the farmers during the interview process also replied that, their land is protected and secured from arbitrary evictions due to the book that was provided by the program. They believed that, due to the program, farmers have secured for their perpetual use rights and they are free from unreasonable interference from the outsiders. As a result, powerless and women groups of farmers rent and sell their land for a fixed period without any fear and also people start short

to long term investment to improve the productivity of their land.

Absence of land tenure security is mostly related with losing of land due to different reasons. Land redistribution is the main reason of losing land in the past governments of Ethiopia (Dessalegn, 2004). In Amhara region, land redistribution was held in 1996/1997 and farmers who are in position in the previous government lose their land. According to some farmers the redistribution was surrounded by injustice in their district and the loser's need to see redistribution in the near future for their children. Whereas, farmers those who are in position during the time of the previous land redistribution fears losing of land by future redistribution, and they do not need to see land redistribution in the near future. The present Amhara region land proclamation underlined redistribution will not be implemented in the region. A farmer from Atsede Birhan sub district responded that: "*it is one guarantee that protects us not to fear future land redistribution*". But, absence of specified time for the land holding right creates fear on the farmers who do not need to see future land redistribution. To avoid this fear, government should inform farmers about the role of rural land registration and certification program.

As shown in Table 5, the survey result indicates 92.9% of Hizbe Selam and Gedam Abo sub district respondents replied that, the program plays a positive role in protecting their land tenure security and 91.3% of farmer respondents in Chak and 73.3% from Atsede Birhan sub districts also agree with this idea. The remaining respondents of each sub districts responded that, the program does not play a role on their land tenure security rights.

From the total, more than 89% of respondents replied that, the program plays a positive role for their land tenure security rights. As Assefa (2010) and Deininger et al. (2008) stated that, in Ethiopia rural land registration and certification program play a positive role for farmers land tenure security. This conclusion is proven truly by this article in the farmers of Hulet Eju Enese district.

The other evidence that helps to see the role of the program for land tenure security is asking the respondents whether they fear arbitrary eviction or not, more than 94% of the total respondents do not fear arbitrary eviction on their land.

In relation to arbitrary eviction, sub district land administration experts replied that, some farmers fear arbitrary eviction by memorizing the past experiences

Table 5. The role of rural land registration and certification program for land tenure security (Survey data, 2015).

Assessment tools	Responses	Atsede Birhan		Hizbe Selam		Gedam Abo		Chak	
		F	%	F	%	F	%	F	%
Is the program increases your land tenure security?	Yes	11	73.3	39	92.9	26	92.9	21	91.3
	No	4	26.7	3	7.1	2	7.1	2	8.7
Do you fear losing of land due to arbitrary eviction?	Yes	2	13.3	3	7.1	-	-	1	4.3
	No	13	86.7	39	92.9	28	100	22	95.7

and most of these farmers are female headed, poor and old age that are unable to plough their land. These groups of farmers use their land by share cropping or by selling for a fixed period of time and this way of using land is mostly aggravated to arbitrary eviction in the past by different bodies.

However, as the sub district land administration experts explained that:

“The main reason these groups of the society fear arbitrary eviction are lack of awareness in relation to the role of the program. Most of these farmers rent or sell their land within a traditional agreement not to paying the rent agreement registration fee. However, if farmers conducted their rent or fixed time sell agreement in the sub district land administration office, this agreement have legal guarantee and they will no fear of arbitrary eviction”.

The researcher also asked the respondents about the importance of secure land tenure rights. Farmer respondents at the time of interview stated that, land tenure security provides different positive roles for them. A farmer from Gedam Abo sub district stated that:

“after we get the book of rural land possession, most farmers believe that, their land use right is secured and their family members protect the fertility of their land by practicing short to long term investments to increase their output”.

A women from the interviewee also replied that,

the book is important to have confidence on my land holding rights; I always sell my land for a fixed period to a farmer who is able to plough it and in most of the past years one farmer purchase my land for one or two year agreement and for this year the farmer told me the money he will pay for my land. But, I refused the agreement due to its cheapness and the farmer didn't accept it. At that time I go to the sub districts land administration office and by using my book I made an agreement to another farmer who paid better for a year.

Table 6 clearly shows farmer's know how on the

importance of land tenure security in motivating them to land related investments, reducing land related disputes, to get proper compensation if the land is taken by the government or grants to investors, promoting gender equality and allowing equity on tax payment. For the listed concepts, farmers of Atsede Birhan, Hizbe Selam and Chak sub districts knew and implement the importance of land tenure security and most of them replied “strongly agree”. However, most of Gedam Abo sub districts respondents replied “agree” on the importance of land tenure security in motivating users to land related investments; allowing equity in tax payment, getting proper compensation and reducing land related disputes.

Most of the respondents in all sub districts replied “strongly agree” on the importance of land tenure security to promote gender equality. This indicates that, even if there are a lot of weaknesses in the implementation of the program to ensure tenure security of the users, farmer households understood the importance of land tenure security and they become secure when they are compared to before the implementation of rural land registration and certification program. Deininger et al. (2008) also prove the importance of the program for land tenure security by using difference and indifference approach. The authors conclude that, households in the treated villages have higher levels of tenure security. This is compatible with the results of this research in relation to the role of the program for land tenure security and its important.

The experts of both the district and sub districts land administration offices also replied that, land tenure security has its own importance for the productivity of agriculture. Some of these includes, motivating farmers to build and repair new and old soil structures, to increase the time farmers spent for investment than before, to protect the expropriation of powerless, old age groups of farmers by the powerful groups and to allow women equal land rights with the men.

Before the implementation of the program land is considered as the property of men and when divorce happened between the spouses, women do not get equal land with the men in size or in fertility. However, after the program was put into effect, women had equal rights with men; and when they made divorce, they have a right to

Table 6. Importance of land tenure security (Survey data, 2015).

S/N	Assessment tools	Responses	Atsede Birhan		Hizbe Selam		Gedam Abo		Chak	
			F	%	F	%	F	%	F	%
1	Motivate farmers to land related Investments	Strongly disagree	1	6.7	1	2.4	-	-	3	13
		Disagree	1	6.7	4	9.5	2	7.1	-	-
		Neutral	-	-	-	-	-	-	-	-
		Agree	1	6.7	11	26.2	14	50	-	-
		Strongly agree	12	80	26	61.9	12	42.9	20	87
2	Reduce land related Disputes	Strongly disagree	2	13.3	1	2.4	1	3.6	2	8.7
		Disagree	1	6.7	4	9.5	3	10.7	1	4.3
		Neutral	-	-	-	-	1	3.6	2	8.7
		Agree	3	20	10	23.8	12	42.9	1	4.3
		Strongly agree	9	60	27	64.3	11	39.3	17	73.9
3	To get proper compensation when land losing happened	Strongly disagree	-	-	1	2.4	-	-	2	8.7
		Disagree	3	20	5	11.9	3	10.7	2	8.7
		Neutral	1	6.7	-	-	3	10.7	-	-
		Agree	-	-	9	21.4	12	42.9	3	13
		Strongly agree	11	73.3	27	64.3	10	35.7	16	69.6
4	Promote gender Equality	Strongly disagree	1	6.7	1	2.4	-	-	3	13
		Disagree	-	-	1	2.4	-	-	-	-
		Neutral	-	-	1	2.4	-	-	-	-
		Agree	3	20	9	21.4	12	42.9	-	-
		Strongly agree	11	73.3	30	71.4	16	57.1	20	87
5	Allow equity in tax payment	Strongly disagree	5	33.3	3	7.1	1	3.6	3	13
		Disagree	9	60	4	9.5	3	10.5	-	-
		Neutral	1	6.7	4	9.5	7	25	2	8.7
		Agree	-	-	8	19	10	35.7	-	-
		Strongly agree	-	-	23	54.8	7	25	18	78.3

get equal land with their husbands. Because, the land size and its relative fertility were registered on the user's book.

Conclusion

Rural land registration and certification program were designed and implemented to enhance the land tenure security of farmers. More than 91% of the respondents replied that, the program increases their security right over their holdings. Their land is secure by the book of rural land possession and they do not fear any arbitrary eviction or losing of land by force without appropriate compensation. But, some farmers replied that, farmers who have more land in relation to others who fear future land redistribution and lose their land. Because of this, some of them transfer their land to their daughters and sons whose age is above 18 years and they also

received the book by their name or the husband and wife registered their land individually by dividing their land into two. Fear of future land redistribution is still a factor that affects the land tenure security of farmers, but it reduces in extent that has been before.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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