

Research Article

Institutional and Technical Challenges of Agricultural Extension in Addressing the Needs of Smallholders in North Gondar Zone, Ethiopia

Genanew Agitew Brhanu

Department of Rural Development and Agricultural Extension, College of Agriculture and Rural Transformation, University of Gondar, Ethiopia

genaon@gmail.com*

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Abstract

Agricultural extension service is one of institutional support services systems, which is expected to promote sustainable livelihoods of the smallholder farmers and transform the sector into modern and production system. With objective to assess the challenges of the agricultural extension system in addressing the needs of the smallholders, the study used cross sectional survey using quantitative and qualitative techniques. Data were generated from both primary and secondary sources using household survey from randomly taken households, focus group discussions, key informant interview, observation and review of relevant documents and empirical works. The results of the study show that despite structurally decentralized system of public agricultural extension system, it has been challenged by institutional and technical pitfalls. Institutionally, the farmers training centers have many bottlenecks. The mismatch between the needs of smallholders in crop and livestock production and available agricultural technologies and extension advisory and technical supports has been identified as technological predicaments of the system. The study has also revealed that inefficient technical demonstration and communication skills of extension agents, as a result of institutional, geographical and absence of system based reward and incentives to be among the challenging issues of the public agricultural extension in the study area. The results of the study suggests public agricultural extension service provision to be demand driven with full participation concerned stakeholders and led by technically equipped expertise.

Keywords: Agricultural extension service, smallholder farmers, household survey, agricultural technologies.

Introduction

Agriculture is the mainstay of the Ethiopian economy and underpins its development process under different contexts now and had before. It is a sector with a great potential for stimulating growth and employment and eradicating poverty (UNDP, 2013). Rural development and attaining household food security in development countries are responses of public agricultural extension (Rivera and Qamar, 2003). However, in many developing countries including Ethiopia, the strong association between the rural development and reduction of poverty has not attracted attention of policy makers, planners and implementer of the agricultural extension system. Anticipated outcomes of agricultural extension delivery have not met and the improvements in the lives of agrarian society have yet been in its immovable position and remained unanswered question of rural development. This is mainly due to the fact that public agricultural extension service, which is the only way in Ethiopia (Spielman *et al.*, 2011), has been challenged by different factors including institutional, technical, and geographical challenges in many cases.

Agricultural extension services is one of institutional support services (Berhanu *et al.*, 2006), which plays significant role in transformation of the sector from subsistent to market oriented. Ethiopia as a country anticipated to eradicate poverty and enhance the livelihoods of the society, undertaken different policy and strategic and implementation measures under Agricultural Lead Industrialization (ADLI) framework. Since commencement of ADLI as a pillar of development policy, various initiatives have been carried out to disseminate agricultural technology packages to farmers, which included fertilizer, improved seeds, credit, and the provision of extension services (MoFED, 2002). A variety of strategies and approaches have been implemented in the country for successful dissemination of agricultural technologies that can improve production and productivity of the country. One of the major programs in the rural development in general and the Ethiopian agriculture in particular is agricultural extension packages that support promotion of modern agricultural technologies and intensifies agricultural

*Corresponding author

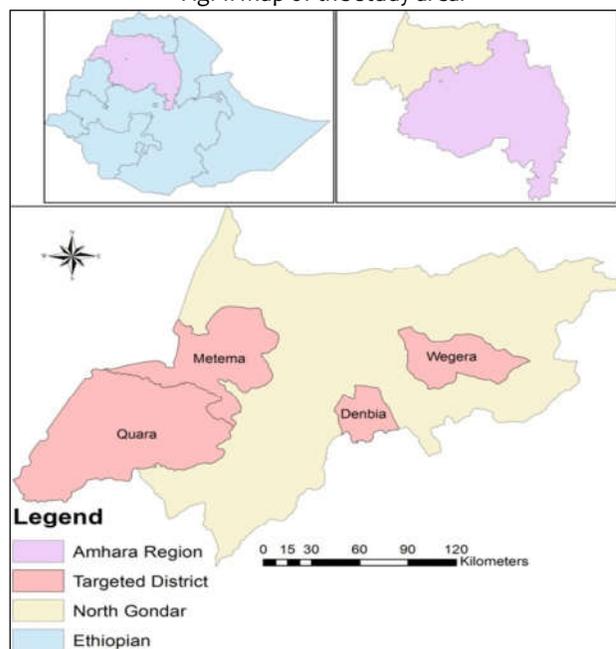
growth (Gezahegn *et al.*, 2006) and it is also expected to boost production and productivity of smallholders. Studies indicated that agricultural extension is the first ranked among various service demands for the rural farmers especially for those of the poor and disadvantaged groups (Kwapong, 2012). However, the agricultural extension system in the country is still characterized by low level of agricultural service delivery practice that couldn't move the existing traditional agriculture into modern, imbedded by acute challenges due to the problems of accessibility and considered to be one of bottlenecks of agricultural development (Tewodaj *et al.*, 2009; OECD, 2010; ANRS BOA, 2015). Despite anticipated contributions of agricultural extension services for livelihood improvements of the vast majorities and development of the sector, the system has limited capacity in meeting the demands of the smallholders as it has been demonstrated by having a wider gap between demand and supply of technologies. Therefore, this study is intended to underpin about institutional and technological challenges of agricultural extension services in meeting the needs of smallholder farmers.

Materials and methods

Description of the study area: The study was conducted in the North Gondar Administration Zone of Amhara Regional State, located in Northwestern side of Ethiopia (Fig. 1). It is bordered on the south by Lake Tana, West Gojjam, AgewAwi and the Benishangul-Gumuz Region, on the west by Sudan, on the north by the Tigray Region, on the east by Wag Hemra and on the southeast by south Gondar Zone of Amhara Regional State. The area has diverse agro-ecology ranging from the peak of the country which is 4,543lm a.s.l (RasDejen) to 500m a.s.l of Alitash National Park. As the case in many parts of the country, agriculture is dominant means of livelihoods encompassing 534,305 farm households. North Gondar is also the largest zone in Amhara Regional State in terms of population, area coverage and diversity of agricultural production.

Sampling and data collection methods: Cross-sectional survey involving quantitative and qualitative aspects was the design of research and data were gathered from both primary and secondary sources. The farmers, who are the beneficiaries and main actors of agricultural extension; development agents (the extension service provider), different institutions, which are involved as direct and indirect actors of agricultural extension service delivery and technical experts at different levels were main participants of the study. Multi-stage sampling technique was employed to catch representative areas and sample respondents. First, North Gondar Zone was purposively selected taking its representation of different agro-ecology and relatively larger share of the area in the region.

Fig. 1. Map of the study area.



Among 23 districts (*Woredas*), four districts namely, Wogera from highland (*Dega*), Demibia from midland (*WoinaDega*) and Metma and Quara from lowland (*Kolla*) areas were selected using purposive sampling techniques. From each district, 3-4 *kebeles* were selected using representations in terms of access to agricultural extension services. The distance from district center and availability of road and facilities were also considered as criteria of selection. Then household respondents were selected from each *Kebele* using simple random sampling technique and 120 household respondents were drawn from the four districts. Data were collected using different techniques and tools. Household survey using structured and semi-structured questionnaire; focus group discussion with farmers, agricultural extension stakeholders and extension experts and observation of farming systems, settlement pattern, available infrastructure including communication technologies and farmers training centers were important data collection techniques of the study. Data from secondary sources such as government reports, working documents and available literature were explored to consolidate the primary data.

Methods of data analysis: Data gathered from different sources, were organized and analyzed using quantitative and qualitative techniques. The quantitative data were analyzed mainly using different descriptive statistics. To see relationship between different categorical variables, Chi-square test was also used. The data obtained using focus group discussion, key informant interview and case studies were analyzed using qualitative techniques of analysis.

Results and discussion

Institutional aspects of the agricultural extension: There are different options through which agricultural extension is facilitated and managed (Rivera and Kamar, 2003). In terms of service delivery and funding, the only responsible body in Ethiopia in general and study area in particular is government by channeling through ministry of agriculture. Structural decentralization of agricultural extension from regional level to lowest administrative structure known as *Kebele*, in most cases with required personnel in the fields of crop production, animal production and natural resource management and in some potential areas with expert in irrigation is found to be important step-forward observed in institutional arrangements. Although, such structural arrangements exist, the knowledge and agricultural technologies transfer have been attempted through top-down command and recommendations, whereas demand driven and participatory planning and implementation are neglected, technologies are misused and not in line with diverse production systems and needs. Top-down recommendation of agricultural technologies and knowledge transfer systems has resulted in poor feedback-as extension agents and farmers don not have strong and regular connection with the sources of technologies and clients. The data obtained from household survey show that 73.3% of farm households are willing to provide feedback about the agricultural technologies they are using, but constrained by the distance of the service provision centers and weak interaction with extension experts. The functionality and roles of Farmers Training Centers (FTCs), as a center of agricultural extension service provision, is also challenged by resources and management problems.

Famers Training Centers (FTCs): Streamlining public extension service has been identified as one of the critical interventions that will drive technology adoption and use by smallholder farmers (UNDP, 2013). To this effect, decentralized institutional arrangements and facilities play pivotal roles and serve as a bridge to transfer knowledge and technologies to the farmers. Public agricultural extension services have implemented through institutionalized systems. In this regard, FTCs which have established with aim to transform the extension service delivery from sole technology transfers models to human resource and social capital development approach (MoARD, 2009) have indispensable role in agricultural knowledge and information system for better production and productivity and also expected to contribute for rural development and tackling the problems of household food security. According to (Berhanu et al., 2006), FTCs are also expected to serve as hubs for the transfer of improved technologies and knowledge, skill development, and the provision of other institutional support services (Fig. 2a & b).

Fig. 2. FTC from Quara district, without demonstration site. July, 2016.



There are about 528 FTCs in North Gondar Zone, of which 256 (48.5%) are found to be non-functional. However, despite manifold problems, FTCs are expected to serve as knowledge and technology transfer institutes for farmers. In connection with the problems of the FTCs, the study conducted by (Tesfaye *et al.*, 2010), show that making FTCs functional, responsive and dynamic remains the challenge. Moreover, data generated from observation and focus group discussion with farmers and extension service providers, support these realities, indicating that FTCs in the areas studied have suffered from human resources shortage, absence of demonstration sites, absences of the materials and improper positioning to reach the needy smallholder farmers, who have starved of right and timely information and demand derived and affordable agricultural technologies. The study has questioned whether farm households are satisfied with services provided by nearby FTCs. Consequently, data generated from household survey revealed that 32.5% of households are dissatisfied with the existences and service provided using FTCs.

The Chi-square (X^2) test at 95% of confidence interval indicated that there is no statistically significant difference observed between male and female headed households in terms of satisfaction from farmers training center. The study also shows from randomly selected households in North Gondar Zone, 26.7% do not have access to nearby farmer training centers. Most of FTCs in highland and midlands and some in lowlands do not have demonstration sites both for crops and livestock production (for instance, 10% in Quara, 62.5% in Dembia districts and 15% in Metema). The implication is that western lowlands of the study area, where there is abandon land, more FTCs tends to have demonstration sites, whereas the highland and midland areas most of FTCs do not have demonstration site. The training centers in the study areas lack not only demonstration sites but also required material including training materials and tools, guidelines, radio, television, chairs and the like. The FTCs lack also required personnel and budget. On the other hand, they are not owned and managed by responsible body. Very small budget support for some centers (up to 20,000.00 birr per FTC per year) is also tagged to be used only for purchase of fertilizer than knowledge and technology transfer activities. In terms of infrastructure and facilities, most of FTCs in the study areas are found to be mainly focusing on crop production than livestock. Land allocation and constructions in many cases did not consider the livestock management and animal health extension services.

Technical and communication skills of agricultural extension agents: Effectiveness, efficiency and quality of agricultural extension service provision are partly a function of the competency of professionals in terms of the required

knowledge, skills and attitudes. Technical and communication skills are paramount important for promotion and dissemination of the technologies. Farmers require practical demonstration to adopt agricultural technologies than mere information about certain technology. The data obtained from focus group discussions with farmers indicated that technologies, which have been demonstrated practically, are trusted and practiced. However, the current technology introduction and dissemination strategies are simply based on theoretical judgments than their practical impacts. Thought, there are institutional and resources related problems, low adoption of agricultural technologies in north Gondar is partly due the technical inefficiency of development agents. The data obtained from qualitative source indicated that development agents are not technically equipped to demonstrate the new technologies and also unable to create sustained interaction with clients. Based on the services given to farmers, the performance of development agents (extension workers) was evaluated. According to 39.2% of the sample respondent farmers in study area, development agents are reported to be qualified in terms of giving the needed services to their clients and 12.5% of farm households claimed that they have poorly qualified to provide agricultural extension and advisory and technical supports.

Weak interaction of farmers and service providers could be explained from technological, infrastructural and cultural points of views as they significantly affect communication. Imbalanced extension worker to farm households ratio (1: 581), absence of continuous technical updates for newly introduced agricultural technologies, frequent turnover of extension workers, which emanated from absences of rewarding incentives and as they seek to promote the local political leaders. In addition to these, geographical barriers have contributed more to inefficiency of extension workers as they are unable to reach scarcely settled farming community.

Conclusion

Agricultural extension services as institutionalized public activity in North Gondar Zone of Amhara Region has good base to start up for effective and publically demanded technology dissemination and diffusion. Structurally, it has been decentralized to the levels of the lowest attainable public administration stricture known as *Kebeles*. Identification of public agricultural extension services provision focus areas including the most dominant components of agricultural production (crop and livestock); natural resources conservation and irrigation technologies have been well stipulated. These identified pressing issues of public agricultural interventions have important role in uplifting the production and productivity and sustainability



of agriculture, which can help to meet the increasing demand of growing population. Structural skeleton of public agricultural extension service provision alone has nothing to do with in the process of assisting smallholder farmers through technical advisory services and practical demonstrations, which lead to positive impact on productivity and livelihoods of needy people (smallholder farmers), unless they have been fulfilled with required personnel and extension agents having required qualification. The services center, such as FTCs are expected to be in representative areas to the majority of beneficiaries and in way to fill problems of agriculture and environmental issues, but they lack to be so. The existing FTCs, which are meant to serve as center of innovation, have different pitfalls affecting their proper functioning in the process of the technology dissemination, generation and transfer of the applicable information, knowledge and skills to famers.

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References

1. Amhara National Regional State Bureau of Agriculture. 2015. Annual Report. Bahir Dar, Ethiopia.
2. Berhanu, G., Hoesktra, D. and Azage, T. 2006. Commercialization of Ethiopian Agriculture: Extension Service from Input Supplier to Knowledge Broker and Facilitator. IPMS Ethiopia, Working Paper 1.
3. Gezahegn, A., Mekonnen, B. and Samia, Z. 2006. Productivity and Efficiency of Agricultural Extension Package in Ethiopia. The Ethiopian Development Research Institute, Addis Abeba, Ethiopia.
4. Kwapong, N. 2012. Making Rural Service Work for the Poor: The roles of Uganda's Service Reform in Marketing and Agriculture Extension, Dissertation, Makerere University, Bernard Bashaasha.
5. Organization for Economic Cooperation and Development. 2010. Rural Policy Reviews: Strategies to Improve Rural Service Delivery. Retrieved from www.oecd.org/publishing/corrigenda.
6. Rivera, W. and Qamar, K.M. 2003. Agricultural Extension, Rural Development and Food Security Challenges. Foods and Agricultural Organization of United Nations.
7. Ministry of Agriculture and Rural Development. 2009. Development Agents and Farmers Training Data at National Level. Addis Ababa Ethiopia.
8. Ministry of Finance and Economic Development. 2009. Agricultural Technical Vocational Education and Training Program Course Catalog. Addis Ababa: Agriculture Extension Department.
9. Ministry of Finance and Economic Development .2002. Ethiopia: Sustainable Development and Poverty Reduction Program, Addis Ababa, Ethiopia.
10. Spielman, D.J., Dawit, K. and Dawit, A. 2011. Seed, Fertilizer, and Agricultural Extension in Ethiopia. Development Strategy and Governance Division, International Food Policy Research Institute – Ethiopia Strategy Support Program II, Working Paper
11. Tewodaj, M., Cohen, M.J., Birner, R., Mamusha, L., Randriamamonjy, J., Fanaye, T. and Zelekawork, P. 2009. Agricultural Extension in Ethiopia through a Gender and Governance Lens. Ethiopia Strategy Support Program 2 (ESSP2) Discussion Paper No. ESSP2 007 October 2009.
12. United Nations Framework Conventions for Climate Change. 2007. Climate Change Impacts, Vulnerability and Adaptation in Developing Counties. Climate Change Secretariat, German.
13. United Nations Development Program. 2013. Promoting ICT based agricultural knowledge management to increase production and productivity of smallholder farmers in Ethiopia. UNDP Ethiopia, No. 1/2013.

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