

Commercialization of Ethiopian agriculture: extension service from input supplier to knowledge broker and facilitator



Commercialization of Ethiopian agriculture: Extension service from input supplier to knowledge broker and facilitator

Berhanu Gebremedhin,¹ D. Hoekstra and Azage Tegegne

1. Berhanu Gebremedhin is corresponding author, e-mail: b.gbremedhin@cgiar.org

IPMS (Improving Productivity and Market Success) of Ethiopian farmers project, ILRI (International Livestock Research Institute), P.O. Box 30709, Nairobi, Kenya

Authors' affiliations

Berhanu Gebremedhin, Improving Productivity and Market Success (IPMS) of Ethiopian Farmers project, ILRI (International Livestock Research Institute), Addis Ababa, Ethiopia

D Hoekstra, IPMS Ethiopian Farmers project, ILRI, Addis Ababa, Ethiopia

Azage Tegegne, IPMS Ethiopian Farmers project, ILRI, Addis Ababa, Ethiopia

© 2006 ILRI (International Livestock Research Institute)

All rights reserved. Parts of this publication may be reproduced for non-commercial use provided that such reproduction shall be subject to acknowledgement of ILRI as holder of copyright.

ISBN 92-9146-184-9

Correct citation: Berhanu Gebremedhin, Hoekstra D and Azage Tegegne. 2006. *Commercialization of Ethiopian agriculture: Extension service from input supplier to knowledge broker and facilitator*. IPMS (Improving Productivity and Market Success) of Ethiopian Farmers Project Working Paper 1. ILRI (International Livestock Research Institute), Nairobi, Kenya. 36 pp.

Table of Contents

List of Tables	iv
Abstract	1
1 Introduction	3
2 Extension service from where to where? Lessons from global experiences	5
3 Overview of the extension service development in Ethiopia	9
4 Current extension service in Ethiopia	15
4.1 Organization of the public extension system	15
4.2 Extension approach and delivery	18
4.3 Relevance of the extension service to the transformation of the subsistence agriculture into market orientation	19
4.4 Problems with the current extension service	21
5 Emerging government extension strategy	25
6 Conclusion and recommendation	27
References	30
Annex 1 Number of staff of <i>woreda</i> offices of agriculture of four PLWs in Oromiya and SNNPR regions by level of education and field of training, excluding personnel located at PA level (2004/05)	31
Annex 2 Number of staff of <i>woreda</i> offices of agriculture of four PLWs in Tigray and Amhara regions by level of education and field of training, excluding personnel at PA level (2004/05)	32

List of Tables

Table 1. Teams in the structure of <i>woreda</i> offices of agriculture (2004/05)	16
Table 2. Number of <i>woreda</i> level staff of the Office of Agriculture by level of training by PLW (2004/05)	22
Table 3. Development agent to farmer ratio at the eight PLWs (2004/05)	22

Abstract

Transforming Ethiopian agriculture from its current subsistence orientation into market orientated production system forms the basis of the agricultural development strategy of the Government of Ethiopia (GoE). The agricultural extension service is one of the institutional support services that has a central role to play in the transformation process. This paper makes use of literature review and information collected using Participatory Rapid Appraisal (PRA) techniques in eight *woredas* of four Regional States of Oromiya, Amhara, Tigray and Southern Nations, Nationalities and Peoples Region (SNNPR) in Ethiopia to assess the extension service development, and analyse the approaches and processes used by the current extension system. The paper also identifies some of the major bottlenecks in the extension system and suggests recommendations for a more market oriented support service. We find that the extension service is in the process of transition, with emphasis being shifted to the use of the newly established Farmers Training Centres (FTCs). The FTCs are expected to serve as hubs for the transfer of improved technologies and knowledge, skill development, and the provision of other institutional support services. We also find that agricultural extension service is provided almost exclusively by the government through the *woreda* (district) Offices of Agriculture and Rural Development (OoARD). Although the country is following market oriented agricultural development strategy, we find that the extension service that has been organized for achieving food security objectives has not yet been adapted (both in capacity and organizational structure) to provide extension service required for transforming subsistence agriculture to market oriented agriculture. Major problems of the extension system include top-down and non-participatory approach, primarily supply driven, low capacity of experts and development agents, low morale and high turnover of extension staff, and shortage of operational budget and facilities. It is recommended that steps be taken to adapt the extension service to fit into the market oriented development strategy. It is also recommended that support is provided to the extension services to develop pluralistic and interactive operational models geared towards market oriented agricultural development including involvement of the private sector extension through co-operatives and large-scale commercial production and marketing companies. The creation of agricultural innovation teams both at the federal and regional levels will help develop innovative approaches and capacities at the district level, thus contributing to the alleviation of the top-down nature of the extension service. Furthermore, it is recommended that the Agricultural Technical and Vocational Education and Training (ATVET) colleges be involved in the learning process and continuously include lessons learned in their curricula.

1 Introduction

The development of the Ethiopian economy heavily depends upon the speed with which agricultural growth is achieved. The rate of agricultural growth in Ethiopia in turn depends on the speed with which the current subsistence oriented production system is transformed into a market orientated production system. Among the many institutional support services that need to catalyse/support the transformation process, the agricultural extension service plays a critical role, since it contributes to the development of the skill and knowledge of farmers to adopt new and improved technologies (seed varieties and animal breeds, implements, chemicals and practices), and the approaches and processes with which the skill development and access to information are realized.

Extension service has meant different things to different people. Moris (1991) defined extension as the mechanism for information and technology delivery to farmers. This conceptualization of the extension service has been the basis for the transfer of technology (TOT) extension model. A more comprehensive definition of extension service is given by the World Bank as a 'process that helps farmers become aware of improved technologies and adopt them in order to improve their efficiency, income and welfare' (Purcell and Anderson 1997, 55). In this paper we take even a broader definition of extension service to include facilitation of linkages of farmers with other institutional support services such as input supply, credit and agricultural produce marketing. Hence, extension service is defined in this paper as **a service of information, knowledge and skill development to enhance adoption of improved agricultural technologies and facilitation of linkages with other institutional support services (input supply, output marketing and credit).**

Extension services in Ethiopia until about 2002 were focused on increasing production and productivity in view of achieving food security (Mathewos and Chandargi 2005). However, it had become apparent around 1996 that without integrating farmers into the market, sustained growth in the agriculture sector would not be realized. Perhaps as a result, the government policy on agricultural development has recently started to emphasize the transformation of subsistence agriculture into market orientation as a basis for long-term development of the agricultural sector. Such policy emphasis on market orientation has led to the recent establishment of a State Ministry of Agricultural Marketing within the Ministry of Agriculture and Rural Development (MoARD). Within this State Ministry, specific emphasis is given to the role of co-operatives for the supply of credit and input/output marketing services. The extension service will have to make proper linkages with the co-operatives.

The government emphasis on commercialization of the agricultural sector has implications for the organization, staffing and operation of the agricultural extension service. The role of extension is more critical for commercial oriented farmers than for subsistence farmers. When farmers produce primarily for the market (both domestic and export markets), quality and standard of the produce become much more important than during subsistence production, since competitiveness depends partly on quality of produce. Changing market conditions and consumer preferences require rapid adjustments in production technologies, and timely and effective transmission of market information. Post harvest handling and technologies play critical role in market oriented production. Meeting quality of produce depends heavily on the use of the right technologies and methods of production. Important in this respect is also the role the extension services have to play in linking the different public and private stakeholders involved in input–output marketing and credit supply.

Considering these challenges this paper looks at evolution of the extension institutions globally and in Ethiopia, and how effective these institutions have been in meeting their mandate in the past. It then reviews the present system (strengths and weaknesses) and the newly developed extension strategy for Ethiopia. It concludes with suggestions for improving the extension services in order to fit into its new role in the context of market oriented transformation of the Ethiopian agriculture.

This paper makes use of literature review and information collected using Participatory Rapid Appraisal (PRA) techniques in eight *woredas* of four Regional States of Oromiya, Amhara, Tigray and SNNPR in 2004/05. The *woredas* have been identified as Pilot Learning *Woredas* (PLWs) for the research and development activities being undertaken by the Improving Productivity and Market Success (IPMS) of Ethiopian Farmers project. The paper also reviews the new government initiatives aimed at improving the capacity and capability of the extension service, in particular the ATVET and FTC initiatives.

The next section of the paper presents the lessons from the development of the extension service globally. Section 3 presents the historical development of the extension service in Ethiopia. Section 4 deals with the analysis of the contemporary extension service in Ethiopia while section 5 presents the emerging government strategy for agricultural extension. Section 6 concludes the paper and presents suggestion for improvement of the extension service in Ethiopia.

2 Extension service from where to where? Lessons from global experiences

The effectiveness of extension service can be evaluated based on the relationship between extension activities and changes in (1) farmers awareness' and knowledge of technologies, the skills with which they can use the technologies, and the extent of adoption of those technologies, (2) farmers' access to information on complementary institutional support services such as markets, credit and input supply, and (3) farm productivity and efficiency. The efficiency of the extension service is measured by the level of cost with which these services are provided to farmers.

Globally, agricultural extension service indicates a number of generic problems confronting the extension service including problems related to coverage; complexities involved in the service; effect of wider agricultural development policy environment for success; the critical role of other institutional support services such as input supply, credit and agricultural marketing; lack of political support and commitment; inadequate public funding; and insufficient appropriate and relevant technologies.

Although it was estimated that about 0.8 million extension workers serve about 1.2 billion clientele globally (Swanson et al. 1990), many public agricultural extension services are serving only about 10% of the potential beneficiaries (Anandajayasekeram et al. 2005). Although the role of women in agricultural production and marketing has been well recognized, there is gender bias in the service, whereby the majority of the beneficiaries are male. The complexity of the extension service arises from the need to deal with the diverse sources of agricultural information for farmers, advising multiple stakeholders and partners in the agricultural development effort, and the range of extension mandate.

The effectiveness and efficiency of extension service is contingent upon the overall policy environment for agricultural development. Availability of credit and input supply services, and availability of stock of appropriate technologies can be limiting factors for agricultural development. Lack of political commitment, partly arising from urban bias and poor understanding of the role of rural development in the overall economic development effort of a country, has been another common problem confronting the extension service in many developing countries. In this regard, Purcell and Anderson (1997) posit that implementation of about half of the World Bank assisted extension projects was seriously affected by lack of commitment by senior government officials.

Another generic problem confronting the extension service is inadequate public funding. The problem is especially acute with regard to operational budget. Operating costs are

usually liable to budget cuts. Shortages of operating costs seriously affect the effectiveness of the extension service (Axinn 1988). In many developing countries, lack and shortage of relevant and appropriate technologies to improve productivity is a major constraint confronting the extension service, a problem which is more serious in rainfed, resource poor environments (Axinn 1988; Purcell and Anderson 1997). Part of the reason for the lack and shortage of appropriate technologies is the weak linkage between research, extension and farmers.

To alleviate the aforementioned generic problems of extension, a range of institutional arrangements have been tried, including improvements in extension management, decentralization, and commodity-focused approach, fee-for-service public provision, institutional pluralism, empowerment and participatory approaches, privatization, service contracting, and inter-connecting rural people and use of appropriate media (Anandajayasekaram et al. 2005). Decentralization can facilitate flexibility and adaptability of the extension service to local environment and the needs of intended beneficiaries, although it can also increase local political interference on technical matters.

The commodity-specific and privatized extension service approaches may work well in monoculture and commercial or export oriented crop and livestock production. In situations where numerous smallholders grow a variety of crops often both for subsistence and for sale, these approaches are likely to leave the majority of producers out, suggesting the need for a pluralistic extension system that also addresses the extension service needs and requirements of the smallholders. The fee-for-service approach, primarily aimed as cost recovery strategy, is expected to improve the financial sustainability of the extension service. Costs can be covered by both farmers and the public sector. Appropriate targeting of farmers, which is not an easy task in most cases, is required to make this approach effective.

Most extension services in developing countries are described as pluralistic (Eicher 2004). The objective of pluralistic extension system is to have a co-ordinated system of complementary extension services that would reach and respond to the diverse requirements of farming systems and the different needs of farmer groups (World Bank 1977). As such, pluralistic extension system is characterized by the co-existence of the different extension models and approaches described in this paper. Pluralistic institutional arrangement of extension service is also considered as a step towards privatization of the service. For institutional pluralism to work, it is important for the central government to accept reduced direct control over program or staffing. If effective, institutional pluralism can solve problems of coverage, fiscal sustainability, accountability and interaction with knowledge and technology generation.

Participatory approaches can play positive roles in alleviating most of the generic problems, including the development of farmers who could perform several extension agent roles in a cost effective manner. Contracting extension services can take the form of a private sector contracting in public sector extension staff (contracting in), or public funds used to contract private service providers (contracting out) (Rivera and Zijp 2002). In the latter case, the role of the public sector changes from service provider to regulator or quality controller and overseer of the service provider. With the advancement in the Information and Communication Technology (ICT), its applicability to extension service has recently attracted interest. Recent experiences in the application of ICT in extension services in countries like India are examples of the emerging use of the technology to reach rural communities.

The extension service experience globally has also led to the identification of the key success factors (Thropp 1996, as cited in Anandajayasekeram 2005), including participation and empowerment of farmers and communities, linkages between groups and institutions, innovative learning and communication, and supportive policy environment and political commitment. A common feature of the most successful extension services has been farmers taking the lead or sharing control in all parts of the effort. Close collaboration between research institutions, extension agencies, non-governmental organizations (NGOs), the private sector and farmers has also been an important factor of successful extension service delivery. Moreover, mutual learning process and exchange of information between farmers, experts and scientists facilitates improved problem identification and technology development. Government commitment at all levels helps bring about change more quickly.

To counteract the effects of the enduring (generic) problems and enhance the contributions of the success factors, the agricultural extension service globally is undergoing a number of changes. According to Van den ban and Hawkins (1996), an extension system should encompass five goals:

- (1) transferring knowledge from researchers to farmers
- (2) advising farmers in their decision making
- (3) educating farmers to be able to make similar decisions in the future
- (4) enabling farmers to clarify their own goals and possibilities
- (5) stimulating desirable agricultural development.

Extension service needs to aim at both technology adoption and human resource development. Most of the focus of extension to date has been on technology adoption (Roling 1988). Human resource development deals with the rural people themselves and their social systems, and aims at developing leadership capacity, institutions and mobilization and organization of farmers.

In an attempt to reform the extension system, three strategies have often been implemented (Rivera et al. 2001). These are:

- (1) decentralizing the burden of extension expenditures such as direct charging of extension services, provision of coupons or vouchers
- (2) decentralizing the responsibility of the central government for extension and
- (3) decentralizing the management of programs through farmers participatory involvement in decision making leading to farmers taking responsibility for extension programs.

3 Overview of the extension service development in Ethiopia

Agricultural extension service in Ethiopia is said to have started in 1953 with the establishment of the then Imperial Ethiopian College of Agriculture and Mechanical Arts (IECAMA), currently known as Alemaya University. IECAMA was established following the concept of the land grant system of the United States of America (USA) and was mandated to have three responsibilities: teaching, research and extension. The extension mandate of the college included transferring local research outputs and technologies to farmers, and importing technologies and improved practices from abroad and introducing them to farmers (Ibrahim 2004). The college was using graduates of the then Jimma and Ambo agricultural high schools as development agents (DAs), and was concentrating its efforts around the areas where it had agricultural experimental stations. The college started with only 2 extension agents; this number later increased to 132 agents operating in 77 extension posts.

The extension service of the college undertook demonstrations, regular visits of individual farmer's fields and the organization of youth clubs. The youth clubs were used as entry (focal) points to disseminate technologies to the larger farm communities. Moreover, the extension service of the college focused on improved poultry production, horticulture, tree seedling production and distribution, improved wheat varieties, and apiculture. The coverage of the extension service of the college was minuscule compared to the needs of the country due to severe shortage of manpower and limitations in new/improved technologies. The lack of complementary institutional support services such as input supply and credit services was another major constraint of the extension service provided by the college. The fact that the extension service focused on training and knowledge transfer, with the responsibilities for input supply and rural credit being assigned to other bodies signifies the importance of treating the extension service only as a source of training and information. However, institutions to supply inputs and credit to farmers are necessary compliments to the extension service, and their absence had a negative effect on the effectiveness of the extension service.

In 1963, the mandate to provide agricultural extension was moved to the then Ministry of Agriculture (MoA), structured as a department at the national level and extension personnel assigned at provincial levels. However, the extension service was not very active until 1968, even compared with the extension activities of the college (Ibrahim 2004). The Third Five Year Development Plan (1971–74) had aimed to modernize the Ethiopian agriculture through a comprehensive package approach to be initially implemented in selected pilot areas and eventually to be scaled up to cover about

90% of the farming community within 15–20 years time. The comprehensive package programs were mainly financed by donor funding.

The first comprehensive package extension program was the Chillalo Agricultural Development Unit (CADU), which later became Arsi Rural Development Unit (ARDU), started in 1967 with financing from the Swedish International Development Agency (SIDA). It must be emphasized that the program was not just an agricultural extension program, but one that was aimed at bringing about an overall socio-economic development in the pilot area, and designed to draw lessons for scaling out to other parts of the country and scaling up to higher administrative bodies. The package components included crop and livestock production, credit and marketing services, research and training, rural infrastructure development (roads, water etc.), input supply (seeds and fertilizer), and home economics. The program used demonstration plots managed by development agents and used to train farmers organized through various field days. The program also used model farmers.

Following CADU, other projects with very similar approaches were also initiated with financial assistance from different donors. These included Wolayita Agricultural Development Unit (WADU), 1970; Ada'a *Woreda* Development Project (ADDP), 1972; Tach Adiyabo and Hadeki Agricultural Development Unit (TAHADU); Southern Region Agricultural Development Project (SORADEP); and Humera Agricultural Development (HAD). Since all of these programs and projects were operational in only small areas, the vast majority of the country was out of their reach. Evaluation of the comprehensive package approach led to the conclusion that the approach did not benefit smallholders, and was too expensive to scale out and up both financially and in terms of manpower requirements.

The first nationwide extension program, the Minimum Package Project I (MPP-I), was designed for the period 1971–1979 with financial assistance from SIDA. The objective of the MPP-I was to provide smallholders with extension and input supply services. As an implementing structure, the then MoA established a department known as Extension and Project Implementation Department (EPID). The MPP-I used similar extension approaches as the comprehensive package approach, which was using demonstration plots and model farmers.

The MPP-I established minimum package areas within 10 km radius of the all-weather roads, and within 50–75 km distance designed to serve about 10 thousand households each. Each minimum package area used five extension agents, about five input supply workers, and one extension supervisor. The project managed to establish 55 minimum package areas with 346 development centres in 280 *woredas* out of the total of 580

woredas in the country by then. The major drawbacks of the MMP-I included minimal attention given to the livestock sector, not benefiting smallholders, and not being able to reach the vast majority of the farmers.

The Derg regime, which toppled the Imperial regime in 1974, continued with the MMP-I for four years, although the implementation of the project was constrained by political instability and changes in the government structure. In 1980, the Minimum Package Project II (MPP-II) was developed with funding from The World Bank, International Fund for Agricultural Development (IFAD) and SIDA. The MPP-II aimed to improve crop and livestock productivity, increase the production of agricultural raw materials for domestic use and for export, enhance soil and water conservation activities, establish various farmer organizations, and construct rural roads, grain stores and agricultural offices.

A significant change from the MPP-I was the dissolution of EPID. Extension service responsibility was given to the commodity based specialized departments in the Ministry, viz. crop production and protection, livestock production, forestry development, soil and water conservation and co-operatives promotion departments. Regions also adopted similar structure and *woredas* became the lowest structures where extension personnel were located. The development centres that were established under MPP-I were closed and extension personnel were re-assigned to the *woreda* level. The MPP-II also failed to achieve its objectives due to shortage of extension personnel, and burdening extension agents with activities such as tax collection and organization of co-operatives.

MPP-II phased out in 1985 and was replaced by a new program called Peasant Agricultural Development Program (PADEP), still with foreign funding. PADEP classified the country into eight development zones: Northwestern Ethiopia, Western Ethiopia, Southern Ethiopia, Southeastern Ethiopia, Eastern and Southeastern Ethiopia, Central Ethiopia, Northeastern Ethiopia and Tigray. However, only the programs for Northwestern Ethiopia, Eastern and Southeastern Ethiopia and Central Ethiopia secured funding and were implemented. Hence, PADEP focused on the high potential areas of the country. The donors that funded these programs included International Development Assistance (IDA) (for Northwestern Ethiopia), IFAD, IDA and Organization for Petroleum Exporting Countries (OPEC) (for Eastern and Southeastern Ethiopia), and European Economic Commission (EEC) (for Central Ethiopia). PADEP used the Training and Visit (T&V) extension approach, which was pilot-tested in six *woredas* three years prior to its implementation. The PADEP witnessed the formation of the research extension liaison committees in 1986, the first of its kind in the country by then. Because of the ideological basis of the Marxist military regime, most of the extension services and input supply went to the producer's co-operatives, and smallholders were again left out of the development process (Ibrahim 2004).

The PADEP program continued for four more years under the Ethiopian Peoples Revolutionary Democratic Front (EPRDF) regime which overthrew the Derg in 1991. The PADEP was then replaced by a new extension program called Participatory Demonstration and Training Extension System (PADETS) in 1995. PADETS became the first extension program to be developed without foreign assistance and fully funded by the government budget (Ibrahim 2004). PADETS aimed at increasing productivity and production of smallholders, empowering farmers to be active participants in the development process, increasing food self-sufficiency, increasing the supply of raw materials for domestic use and export, enhancing the rehabilitation and conservation of natural resource base, and encouraging farmer organizations. PADETS classified the country into three development zones: moisture reliable areas, moisture stress areas and pastoral systems. In accordance with this classification, three extension teams were organized at the MoA, one for each development zone.

An interesting feature of PADETS is the fact that it was based on pilot extension program of the SG-2000. The Sasakawa Africa Association and Global 2000 of the Carter Center initiated a pilot extension service program in 1993 which lasted for two years and was implemented by SG-2000 and the Ministry extension staff. During this time, available agricultural technologies were assessed and technology packages for maize, wheat, sorghum and *tef* were developed and tested in Oromiya; Southern Nations, Nationalities and Peoples Region (SNNPR); Tigray and Amhara Regions. In 1993, 160 farmers were involved in the demonstration of maize and wheat packages, while this number grew to 1600 farmers in 1994 and included additional demonstrations for sorghum and *tef*. The remarkable yield increases demonstrated under the SG-2000 pilot extension program convinced the government to adopt it as a national extension intervention program in 1995.

PADETS involved the use of Extension Management and Training Plots (EMTP), usually half hectare on-farm demonstration plots which were managed by farmers and used to train farmers and extension workers on appropriate agronomic and farm management practices (Alemu and Demese 2005). PADETS also follows package approach for agricultural development that incorporates information on agricultural technology, provision of inputs and credit, and communication methods (Ibrahim 2004; Alemu and Demese 2005). The program initially started in seven regions with technology packages for wheat, maize, sorghum and *tef* in high rainfall areas. Later, the program expanded its area coverage and number of technology packages, and included technology packages for crop production for moisture stress areas, livestock, high value crops, post harvest technology, and agro-forestry, among others. The number of participants increased from 32 thousand in 1995 to about 4.2 million in 2002 (Ibrahim 2004). In line with the

remarkable increase in the participants in the PADETS program, the number of extension agents also increased from 2500 in 1995 to about 15 thousand in 2002. The development agent:farmer ratio increased from 1:5000 to 1:800 (Ibrahim 2004).

Apparently as an extension of the PADETS program, the current extension services revolves around providing farm households a choice from a menu of technology packages centred around a principal component such as water harvesting, dairy, apiculture, horticultural production etc. In the dry land areas, water development (water harvesting, ground well development or small-scale irrigation development) constitutes the core component of the packages. However, the menu driven household package approach to agricultural extension is more popular in Tigray and Amhara, and less in Oromiya and SNNPR.¹

In addition to the public extension, NGOs have also been involved in providing extension services to farmers, mostly in more drought prone and food insecure areas. Some of the extension services provided by the NGOs use innovative extension approaches. SOS Sahel, Farm Africa, and Save the Children are few examples (Ashworth 2005). Several participatory approaches under different names have been used, including Participatory Action Planning and Implementation (PAPI), Participatory Land Use Planning and Implementation (PLUPI), and Farmer Field Schools (FFS) (Ashworth 2005). However, many of these programs suffer from the fact that even though they use *woreda* level government staff, they are not well integrated into the public system.

All of the past extension programs in Ethiopia were not based on a long-term strategic vision of extension service that provides a long-term guideline for the role and core functions of a plurality of service providers, with the state playing primarily a facilitating and co-ordinating role. Moreover, the extension services, except PADETS, were based on donor funding. The different extension programs until 1991 mostly benefited the large and wealthy farmers or commercial farmers, with the neglect of smallholders. In some of the programs, the neglect of the smallholders may not have been deliberate, indicating the need for an extension program to incorporate an explicit strategy to address the needs of smallholder farmers. Focus was also given to high potential areas for the most part. The bias of the extension service towards crop production, particularly cereals, persisted throughout all the extension programs. Another common feature of the extension programs in the past has been the top-down and non-participatory approach followed consistently throughout the period. Technologies were supply driven instead of being demand driven. Most of the extension programs were also focused on production,

1. A follow-up study will determine why the emphasis on the household package program varied across the regions.

without adequate attention given to the marketing of produce. After having been donor driven for nearly four decades, the extension service is now fully financed from national budget. This is an encouraging development. However, there is a need to ensure the financing of the extension service is adequate. Supplemental foreign financing could as well be beneficial to ameliorate budgetary problems of the national treasury, maintaining that the strategy is nationally driven.

4 Current extension service in Ethiopia

Materials presented here are partly based on literature, personal observations and information collected during participatory rapid appraisal (PRA) studies in eight Ethiopian *woredas*, which are selected as Pilot Learning *Woredas* (PLWs) for the Improving Productivity and Market Success (IPMS) of Ethiopian Farmers project.²

4.1 Organization of the public extension system

The current extension service is almost exclusively funded and provided by the government through its *woreda* level Offices of Agriculture and Rural Development (OoARD),³ with NGOs operating in limited and dispersed areas throughout the country. Full budget allocation from the public is a continuation of the tradition to support extension service from national budget that started in 1995 with the launching of PADETS. The fact that the extension service is provided almost exclusively by the government indicates the urgent need to devise strategies to make the extension service pluralistic (multi-provider). Public funding of the extension services can go along side the effort to develop pluralistic extension service provision. These *woreda* level offices are supported by regional level Bureaus of Agriculture and Rural Development (BoARD). In the regions of SNNPR and Oromiya, zonal level offices also exist to support the *woreda* level offices.

There are some variations in the structure of the *woreda* level OoARD (Table 1), apparently to fit the special requirements of the specific *woredas*. This suggests that some level of decentralized decision-making is taking place in the extension system. A notable case is that of Metema PLW in the Amhara Region. In this PLW, the *woreda* is classified into two extension areas and the extension activities in each extension area is handled by a team composed of an extension team leader, an extension and training expert, and experts in crop production, animal production, and natural resource management. In Mieso PLW of the Oromiya Region, which is partly a pastoral farming system, the *woreda* office is organized as Office of Pastoralists and Rural Development (OoPRD). Range development and veterinary services are emphasized in the pastoral farming system of this PLW. In the Dale PLW of the SNNPR, a special team for coffee and spices is organized, since coffee and spices are important cash crops in the horticulture based perennial crops farming system. The most common structure across the PLWs, however, is to constitute *woreda* level teams for crop production, livestock production and natural resources management.

2. Information on the IPMS project can be found at www.ipms-ethiopia.org

3. Bureaus of Agriculture and Rural Development (BoARD) operate at the Regional level.

Table 1. *Teams in the structure of woreda offices of agriculture (2004/05).*

Region	PLW (Woreda)	Teams
SNNPR	Alaba	Natural Resources Conservation and Development Extension Communication and Training Animal and Fisheries Resources Development Crop Development and Technology Dissemination
	Dale	Crop Production Livestock Production Natural Resources Development and Protection Coffee and Spices Development
Oromiya	Ada'a	Crop Production and Protection* Natural Resources and Rural Energy Development Animal Health and Husbandry Agricultural Input Distribution Agricultural Marketing Horticulture and Fruits Development Irrigation Development Land Use and Management
	Mieso	Range and Rural Infrastructure Development Natural Resources Management Irrigation Development Natural Forest Conservation and Development Veterinary Service, Animal Production and Markets
Tigray	Atsbi	Crop Production Livestock Production Natural Resources Management Extension
	Alamata	Crop Production Livestock Production Natural Resources Management Extension
Amhara	Fogera	Extension and Home Science Animal and Fisheries Resources development and Protection Crop Production, Technology Promotion and Protection Desk Natural Resources Management
	Metema**	Extension Team 1 Extension Team 2

* Includes the extension supervisors and DAs

** Each extension team has an extension team leader, extension and training expert, crop production and protection expert, horticulture and fruits expert, animal production and feed development expert, soil conservation and water development expert, and agro-forestry and forestry expert. The two extension teams share the service of a veterinarian, irrigation agronomist, home economist, and technicians in artificial insemination (AI), hides and skins, and apiculture.

Woreda level offices have subject matter specialists (SMS) based at the *woreda* level and development agents (DA) located at the Peasant Association (PA) level at development centres (or DA posts). Some of the *woredas* have used contractual employees, known as co-development agents (co-DAs)⁴ to ameliorate the shortage of DAs, and to cover for the DAs sent to the ATVETs for training (see section 4). Co-DAs are given training of 1–2 months mainly focused on the technology packages they were supposed to work on. Most of the DAs had received training of about nine months, although some are diploma holders. Each *woreda* is trying to upgrade all of its DAs into diploma level through training at the ATVETs. *Woredas* also hire ATVET graduates as new DAs.

Generally, the OoARDs are organized under five sectors: agricultural development; natural resources; environmental protection and land administration; water supply and rural roads; and input supply and co-operative promotion. Agricultural development sector is the largest unit in the office, and is responsible for the extension service. This sector is further subdivided generally into four teams: crop production, livestock production, natural resources management, and extension teams, although there are some variations across the PLWs (Table 1). The extension team is expected to have a team leader, several extension supervisors and a home economics agent, all based at the *woreda* level. Each extension supervisor is responsible for the supervision of extension activities in several PAs.

4.2 Extension approach and delivery

Extension services provided in Tigray and Amhara regions, and in some parts of Oromiya can be categorized into three groups: household package, regular package and minimum package. Household package extension programs are based on the selection of a package of technologies from a menu of package choices provided to farmers. In the moisture stressed areas, the household packages are centred on the construction of water harvesting ponds, or shallow well development, or ensuring access to different forms of irrigation such as river diversion or irrigation dams. Household packages are aimed at raising the annual household income to Ethiopian Birr⁵ (ETB) 18 thousand by 2006. With an average household size of a little more than five, this income translates to daily per capita income of just above USD 1, which is defined as the poverty line in the country. Household package programs seem to be well integrated with the credit supply service in most of the *woredas*. Household package extension program has not been implemented in SNNPR.

4. In some PLWs the co-DAs are called Assistant DAs.

5. ETB 8.68 = USD 1 at May 2006.

Impact of the household package extension program on household income and welfare is not known. Further research is needed to determine the impact of the household package extension approach, and identify its strengths and weaknesses. Such impact evaluation could combine both qualitative and quantitative research. Qualitative research is needed to analyse the process and the perceptions of the different stakeholders including the SMSs, DAs and most importantly the farmers themselves. Quantitative research is needed to identify the determinants of the impacts of the program and provide a quantitative assessment of the impact.

Regular package extension program aims at enabling farmers adopt improved seeds with commercial fertilizer, improved management practices and soil moisture conservation practices. Minimum package stipulates that farmers adopt improved seeds with traditional soil fertility management practices (e.g. application of compost and manure) and soil moisture conservation practices. To deliver knowledge, the extension services make use of individual, group and mass media approaches. In some of the *woredas* extension messages are transmitted at church/mosque gatherings during religious holidays or other occasional social gatherings, indicating the need to ensure the effectiveness of such fora in reaching the intended recipients of the message.

There seems to be a better understanding and realization by the extension service throughout the four regions of the crucial importance of getting farmers adopt technologies voluntarily, rather than through different forms of coercion by different means as appears to have been mostly the practice so far. However, pressure still appears to exist on DAs to fulfil quota of farmers expected to join the extension package programs, since fulfilment of quotas still remains a criterion in DA performance evaluation. Further study is required to verify the extent to which such pressure results in coercive involvement of farmers in extension programs. DAs in collaboration with some PA officials are reported to tour house to house in order to educate and convince farmers to join extension programs.

Woredas in Tigray and Amhara (where the household package is most prevalent) have plans to involve up to 80% of the farm households in the various extension programs by 2006. In these *woredas*, the annual extension activities proceed in quarterly planned set of activities. Education and persuasion of farmers to join the extension programs is conducted from October to December by DAs, SMSs and some PA officials. Training of those farmers who accepted to join the extension programs is conducted from January to March. From April to June, credit delivery through the rural micro-finance institutions and input supply services are provided. Evaluation of the annual extension activities is conducted from July to September.

While the extension service is generally heavily biased towards crop production, the household package program appears to give better attention to the livestock sector. Dairy production, fattening of cattle and small ruminants, poultry and apiculture are important integral components of some of the household technology packages. Socio-economic surveys had been conducted in order to identify technology packages suitable to different farming systems in the regions.

4.3 Relevance of the extension service to the transformation of the subsistence agriculture into market orientation

Each *woreda* in the country had prepared a market oriented development strategy starting in 2003. Strategies identified priority market oriented commodities and projected the development of the commodities, including input requirements and cultivated areas to be covered. However, the plans were heavily focused on production.

With the development of production for the market oriented commodities, the need for institutional support services such as credit, input supply and marketing services increases significantly. Historically the extension service in Ethiopia has been focused on improving productivity and production in line with the focus of government agricultural development programs on improving food security. When the market oriented development strategies of each *woreda* were prepared, simultaneous consideration of how to adapt the extension service to fulfil the requirements of the market oriented development strategy was not made.

Some of the market oriented commodities may not have been popular at the PLWs at the time the strategies were being prepared. For example, with the development of water harvesting and irrigation technologies, farmers shift to production of high value crops such as horticultural crops (vegetables and fruits). However, since such crops were not emphasized in the particular *woreda* previously, the extension service did not have the required subject matter specialists (SMSs) and DAs to support farmers technically. Moreover, providing marketing support services was not considered as a mandate of the extension service in Ethiopia. SMSs and DAs have not received training on facilitating market services. In addition, there is a serious shortage of personnel trained in agricultural economics, agribusiness or other business related disciplines at the *woreda* level offices of agriculture. As a result, market access and marketing is being a critical concern of farmers. There is a need to explicitly consider how to align the extension service to fit the market oriented development strategies envisioned in the *woreda* development plans.

An important aspect of a more market oriented extension service is the role of the extension system in facilitating linkages between producers and market parties. While this is not yet part of an official government approach, some encouraging (informal) developments in this respect were observed in several of the PLWs. For example, in Ada'a *woreda*, the staff of the office of agriculture and the EARO Debre Zeit Agricultural Research Center (DZARC) staff facilitated linkages between wheat producers in the *woreda* and local food factories. In Alamata, the OoARD facilitated contacts between producers and haricot bean exporters. In Metema, cotton producers were linked with potential buyers. Although the success of these arrangements differ, the initiatives are indicative of the appreciation of the need for market facilitation in the process of agricultural transformation. Studies are required to document the lessons of these initiatives.

Extension service is also expected to play a linkage facilitation role between farmers and credit and input suppliers. Linkage with the credit supply service appears to be working well, especially with regard to the household package. However, the extension service appears to have been heavily involved directly in input supply, some times taking considerable amount of the time of the experts of the *woreda* offices of agriculture and DAs. Extension service needs to gradually reduce its direct involvement in input supply and play more of facilitating linkages with input suppliers. If this is done, the extension service could better be placed to focus on knowledge transfer and skill development.

4.4 Problems with the current extension service

Top-down, non-participatory and supply driven

Top-down and non-participatory nature of the extension service is pervasive throughout the country. Top-down approach is not only between DAs and farmers, but also between the *woreda* and the regional level offices. The service is predominantly supply driven. Technology packages are prepared based on the available new/improved technologies and attempts are made to transfer them to farmers. This supply driven approach of extension has been a common feature of all the extension service programs in the country to date. Although socio-economic surveys were made to develop the menu of household level packages in Tigray and Amhara regions, it is not clear if farmers' needs and preferences were incorporated in the design of the packages. There is a need to refocus the extension service to make it more demand driven and based on community resources. There is also limitation in the availability of technology options both for the crop and livestock subsectors. The wealth of indigenous knowledge of farmers can also be used as source of improved technology options.

Staff morale, capacity and capability

The current extension service is also confronted with problems that relate to budget, incentive structure and morale of SMSs and DAs, and high turnover of same. *Woreda* offices of agriculture are operating with only about 50% of their manpower requirements on average compared to the number stipulated in their organizational structures. The reason for this is either budgetary or the lack of suitable experts to hire.⁶ The majority of staff are diploma or certificate holders, and each PLW has one DVM, except one which has two (Table 2). Annexes 1 and 2 present the number of *woreda* staff by level of education and field of training.

Table 2. Number of *woreda* level staff of the Office of Agriculture by level of training by PLW (2004/05).

Level of training	Region							
	Oromiya		SNNPR		Tigray		Amhara	
	Ada'a	Mieso	Alaba	Dale	Atsbi Wenberta	Alamata	Fogera	Metema
Certificate	9	11	17	10	9	5	9	2
Diploma	21	14	25	30	17	7	15	4
BSc	3	0	6	4	4	13	2	2
DVM	2	1	1	1	1	1	1	1
Total	35	26	39	45	31	26	27	9

Limitations in the number and capacity of DAs were found to be a common problem of the extension service throughout the four regions. Most DAs are certificate holders with 6–9 months training in agriculture. Average DA:farmer ratio in the PLWs was 1:797 (Table 3). In addition to DAs, co-DAs who received 1–2 months training were deployed in the PLWs although this is a temporary arrangement to fill the positions of regular DAs who were sent for training to the ATVETs.

In some of the *woredas*, farmers claimed that they know better than the DAs in agricultural production, and all they needed the DAs for was only input supply. Lack of adequate capacity of the DAs was also confirmed by the DAs themselves in some of the *woredas*. The plan to upgrade all DAs to diploma level and train additional DAs at diploma level through training at the ATVET is a timely and appropriate response to solve the problem of both the number and capacity of DAs.

6. Problem of shortage of qualified experts is not limited to the *woreda* level agricultural offices, but also to the regional bureaus of agriculture, and even to the MoARD.

Table 3. *Development agent to farmer ratio at the eight PLWs (2004/05).*

PLWs	Farm households	No. of DAs	DA:farmer ratio
Ada'a	28,448	36	1:790
Alaba	35,719	17	1:2101
Alamata	17,597	33	1:533
Atsbi Wenberta	22,565	32	1:705
Dale	77,557	118	1:657
Fogera	42,746	41	1:1043
Metema	15,675	23	1:682
Mieso	22,012	29	1:759
Mean	32,790	41	1:797

A related problem with the extension service is the low morale and high mobility/turnover of DAs and SMSs. Perhaps because of the incentive structure, several SMSs or DAs quit the extension service and join better paying NGOs or other government offices. SMSs and DAs quit their job usually after they had gained experience in the field. Serious shortage of operational budget is another problem that affects the extension activities and also the morale of the extension personnel. In some of the woredas, SMSs are entitled to a maximum of three days per diem in a month even if they are in the field for the whole month, and usually they are in the field for much more than three days. Shortage or complete lack of transportation facilities limits the capacity of DAs and SMSs to travel to the different areas of the woreda. Related with the budget constraint is the serious shortage of training and demonstration materials.

Extension methodology

Agricultural extension service is expected to be based on scientific principles of education and communication methodology. As such, the field of agricultural extension has developed as specialized field of training in higher learning institutions throughout the world. However, our observations across the eight PLWs indicate that extension methodology is not considered as something that has to be based on professional scientific principles of information communication, and knowledge and skill development. Extension program planning, choice and implementation of communication approaches etc. are considered to be handled by any agriculturalist. In short, we observed little recognition and appreciation for the role of agricultural extension discipline as a separate area of expertise. Subject matter specialists are considered as extension experts. Almost all *woreda* offices do not have experts who are specialized in agricultural extension.

Transmitting extension messages at church/mosque gatherings during religious holidays or other occasional social gatherings indicates the problem of targeting extension messages. People who happened to be at the church/mosque or the social gatherings may not necessarily include the target farmers for whom the messages are intended. Trainings given to households involved in the household package programs need to be organized in a better planned and co-ordinated way. Follow up mechanism of the package participants also needs to be improved. For example, in some *woredas* it was indicated that the package program participants do not graduate from the programs in time because they see their involvement in the program as the only way of getting inputs such as improved seeds and fertilizer. In most cases, the extension service is viewed by farmers as input delivery service, while in fact the extension service should have been knowledge broker and facilitator of linkages of farmers with input supply services.

With regard to the type of technologies being transferred to farmers, lack of or inadequate pilot testing of the technologies was mentioned as problem of the extension program in the PLWs. In addition to the lack of adequate pilot testing of technologies, appropriate and timely evaluation of the extension services has not been incorporated as an integral part of the extension service. Changes in the extension programs are often undertaken without any evaluation of the previous system. There is no in-built monitoring and evaluation system. Evaluation of the services and drawing lessons to improve future activities would contribute significantly to the improvement of the services provided. These would allow the lessons to be incorporated in the planning and implementation of future extension activities.

Involvement in non-extension activities

DAs are involved in several non-extension activities, including credit distribution and collection of repayments, forecasting of input demands and input delivery, and PA administration and adjudication. The problem of involving DAs in credit distribution and collection has been recognized by decision makers at the different levels (region to *woreda*) and efforts are underway to ensure that DA activities are limited to extension services. It was also noted that although the extension staff are still involved in input forecasting based on the packages, its involvement in the delivery of the inputs is reducing.⁷ However, the involvement of DAs in the PA administration and adjudication needs to be carefully handled to ensure that DA activities are limited to extension services only.

7. A separate paper is prepared on this topic.

Extension supervision

Absence of an extension team or the lack of extension supervisors trained in extension education is another major problem of the extension service. In Tigray and Amhara regions, the extension team was abolished from the *woreda* agriculture office structure. Reason for the elimination of the extension team was the misconception that extension education is not considered as a profession or discipline by itself. Another reason for the abolition of the extension team from the office of agriculture is the failure to realize that agricultural extension is a knowledge and information transfer service that is based on a specialized field of expertise.

DAs were supervised by SMSs. This had led to the lack of clearly defined accountability of DAs. Extension team has now been re-instated in the structure of the *woreda* agricultural offices in the two regions. However, the lack of extension supervisors trained in extension education remains a serious problem. There is only one department of agricultural extension education in the country, based at Alemaya University that offers BSc and MSc degrees training in agricultural extension education. Expanding the capacity of this department, and opening similar departments in other universities could alleviate the serious shortage of professionals trained in agricultural extension in the country.

In Oromiya and SNNPR, although extension supervisors are in place, their low level of training and their limited numbers weaken the supervision activities. For example, in Ada'a *woreda*, one extension supervisor supervises extension activities in about 18 PAs, and supervises up to 24 DAs. Supervisors themselves are diploma holders in general agriculture, with very little training in extension education.

5 Emerging government extension strategy

Future extension services in the country are planned to centre around the use of farmer training centres (FTCs). The government plans to establish about 15 thousand FTCs throughout the country. This is about one FTC at each PA. Almost every *woreda* in the country has started to construct FTCs. Some *woredas* have already constructed the required number of FTCs. The FTCs are constructed with participation of the farmers in the PA. The FTCs are expected to serve as:

- centres of extension service and information
- places where modular training to farmers for up to six months are given
- demonstration of entrepreneurship and
- sources of advice on projects.

It is envisioned that the FTCs will contribute to rural transformation rather than being limited to agricultural development only, and will operate on the wider principle of human resources development rather than in the limited view of transfer of technologies (TOT), as has been mostly the case so far. It is also envisioned that the DAs will not be involved in input supply and credit collection or other non-extension related activities. The agricultural extension service at the FTCs is expected to play an active role in linking farmers with other institutional support services such as input supply, credit, co-operative promotion, and agricultural produce marketing. It will be of interest to see how the strategy translates into practice and what its impacts will be. Studies will be needed to generate this information and provide feed back to policy makers.

Three diploma holder DAs, one each in the areas of crop production, livestock production and natural resource management, and most of which are expected to be graduates of the ATVETs, are expected to be placed at each FTC. Moreover, DAs that specialize in animal health and co-operative promotion are expected to serve several FTCs from their positions at *woreda* level. Each FTC will have a demonstration site of about 2 ha of land. The constructed FTCs are expected to start operation in the 2005/06 cropping season. However, most of the FTCs have not been fully equipped yet. A draft guideline of the operation and management of the FTCs has been developed by the MoARD.

While an FTC based extension system with new roles and approaches is envisaged to be funded with public fund, it is not impossible to also explore the use of private sector extension services in or outside the FTCs. Within a market oriented agricultural development, private production companies including co-operatives may employ extension staff themselves to teach 'their' contract farmers. Such potentials may, for example, be explored with coffee and vegetable production.

ATVETs have been operational since 2000/01 and are expected to produce the required number of graduates of 55 thousand by 2008. The training program at ATVETs was planned to give 30% theoretical and 70% practical training to the students. However, due to various problems, notably shortage of teaching staff and demonstration facilities, the students are receiving mostly theoretical courses. This problem has been recognized by the college administration, instructors and the students. There is a need to evaluate the skills and effectiveness of the DAs, and the relevance of their training to solving farmers problems in order to give feed back to the ATVET for curriculum revision and improvement of the training programs. It may also be important to provide the ATVET graduates with short-term on the job skill development practical trainings.

It is especially important to evaluate the extent to which the ATVETs give training in extension education principles, and especially on participatory and innovative extension approaches. Graduates of the ATVETs specialize in one of the five areas of crop production, livestock production, natural resource management, animal health and co-operative development. A course on extension education is given to all the students of the colleges as a compulsory course. However, it is important to carefully evaluate the contents of this course and to determine whether or not one course would be sufficient. Moreover, the training needs to include courses and practical training on agricultural marketing and enterprise development. A common course on business is provided as a compulsory course to all students in the ATVETs. It is important to evaluate the contents of this course and determine whether it equips the graduates with the required knowledge and skills to help farmers develop their entrepreneurial skills.

Another area that the ATVET needs to consider is the role of gender in agricultural production, and the relationship between HIV/AIDS and agriculture. Currently the colleges do not provide specific courses on these areas. The importance of these issues to agricultural development has been increasing in the recent years and the extension service needs to give due attention to these problems.

6 Conclusion and recommendation

Extension service in Ethiopia has passed through at least five stages: the land grant extension system provided by the Imperial Ethiopian College of Agriculture and Mechanical Arts (IECMA), the Comprehensive Package Programs (CPPS), the Minimum Package Projects (MPPs), the Peasant Agricultural Development Program (PADEP), and the Participatory Demonstration and Training Extension System (PADETS). All extension services prior to the PADETS were donor driven and funded from external sources.

Extension service provided by IECAMA in the early 1950s was limited to areas surrounding the experiment stations that were being operated by the college. Comprehensive package programs were more of rural development approaches than just extension service programs and were limited to only few high potential areas. Minimum package projects had wider coverage compared with the CPPs, but still failed to cover the majority of the country. PADEP was a victim of the ideological doctrine that was being followed by the Marxist military regime and so limited its services to producers' co-operatives. The initial success recorded by PADETS also failed to be sustained due to various reasons.

The current extension service appears to give more attention to smallholders compared to its predecessors. The realization that farmers need to adopt technologies voluntarily and that DAs should not be involved in non-extension activities are encouraging developments. However, these realizations need to be fully operationalized. The low morale and high mobility of extension personnel is another major problem with the current extension system. Serious shortage of manpower, budget and facilities such as transportation facilities also need close attention.

Based on the analysis in this paper, several common and enduring problems of the extension system in Ethiopia over the last four or so decades can be identified. The extension service has basically been provided by a single service provider, i.e. the government, and attempts by NGOs to introduce alternative extension approaches have not been well integrated into a pluralistic framework. The fundamental reason for this is the lack of long-term strategic vision of extension in the country to develop it into a pluralistic model, as well as the emphasis on low value food crop production. Such a vision would have paved the route for the establishment and development of different extension service providers, defining for the complementarity of the services provided by different agents, and the role of the public sector in agricultural development. Experience in other countries shows that the possibility for the involvement of private extension providers increases with a more commercially oriented agriculture.

Other major problems of the extension system include focus on the transfer of technology (TOT) model, non-participatory and top-down approach, and its supply driven nature (as opposed to demand driven). An extension approach that is more participatory and focuses on human resource development rather than on technology transfer *per se* would enhance the impact and sustainability of the extension service.

The focus of the extension system has been on cereal crop production and little attention was given to other subsectors, especially the high value crop commodities and livestock subsector. The market oriented agricultural development strategy has raised the importance of the high value crop commodities, which indicates that the extension system should accord due attention to the development of these commodities. The high potential of the livestock sector still remains untapped, partly because of the little attention accorded to it by the extension service.

Problems related to limited coverage, policy environment, availability of complementary institutional support services and shortage of relevant technologies have been among the enduring constraints confronting the agricultural extension service globally. While the political commitment to accelerate agricultural development has been high in Ethiopia since 1991, the other limiting factors are still critical issues in the country's extension service. With the devolution of power to the regions and *woredas* in Ethiopia, the extension service has also seen some degree of decentralization, although top-down approach is still prevalent. Effective decentralization in the extension service can induce flexibility and adaptability in the service provision.

Market oriented development strategies developed by each of the *woredas* have not been accompanied by an explicit consideration of how to align the extension service to fit the requirements of this direction of development. In particular, the traditional thinking of considering market support services as being out of the mandate of the extension service needs to change. The staff composition and skills will have to be considered in line with the new development plans.

The future of extension service in Ethiopia will be centred around the Farmer Training Centres (FTCs). The FTCs are expected to play multiple roles in rural development. The extension activities of the FTCs need to incorporate the lessons of the extension services to-date. The training provided by ATVETs need to be evaluated to determine their effectiveness in preparing the graduates for a participatory and innovative extension approaches, since the full participation of farmers in technology development and extension program planning and implementation is decisive for the success of the extension services.

For the extension service, and in particular the FTCs, to adapt its approach and roles towards a market driven agricultural development, new operational service models will have to be developed. Such models should evolve through a learning process, rather than being 'dictated'. With the emergence of the high value marketable commodities, involvement of the private sector in some of the extension tasks in the FTCs should be encouraged. To ensure that the development of new extension models is mainstreamed into the MoARDs capacity building program, the ATVET program should be included in this learning process and lessons learned should be incorporated in the curriculum of ATVETs. In addition, the knowledge and skills of the ATVET instructors should be regularly updated to respond to the changing environments in agricultural production. For example, the lack of training in ATVETs on the relationship between HIV/AIDS and agricultural production is an indication of the need for regular upgrading of knowledge and skills of instructors.

Top-down and supply driven nature of the extension service has limited the identification of development alternatives that are based on the biophysical and socio-economic realities at the *woreda* or PA levels. Identifying development alternatives at the *woreda* or PA levels will be better done by the farmers themselves with the assistance of DAs and/or *woreda* experts. Realizing such an approach to rural development will require an innovations approach to development. Hence, we recommend the establishment of an innovations team at the MoARD at the Federal level, and at each regional BoARD. The federal innovations team would be responsible to develop innovation methodologies, develop guidelines and provide capacity building support. Regional level innovations teams would be responsible to provide training to *woreda* level extension staff on innovation approaches and provide back up.

References

- Alemu D and Demese C. 2005. The National Extension Intervention Program (NIEP) and sustainable agricultural development: An exploratory study to steer the debate on ADLI. In: Negatu W, Dadi L, Hailegebriel A, Belete S and Gebremedhin B. (eds), *Reversing vulnerability of rural livelihoods in Ethiopia: Options for sustainable development: Proceedings of the 7th annual conference of the AESE (Agricultural Economics Society of Ethiopia), Addis Ababa, Ethiopia*. AESE, Addis Ababa, Ethiopia.
- Anandajayasekeram P, Dijkman J, Hoekstra D and Workneh S. 2005. Past, present and future of extension services. Paper presented at extension training workshop organized by the Improving Productivity and Market Success (IPMS) of Ethiopian Farmers project, May 23–25, 2005. ILRI (International Livestock Research Institute), Addis Ababa, Ethiopia.
- Ashworth V. 2005. The challenges of change for agricultural extension in Ethiopia: A discussion paper. Federal Democratic Republic of Ethiopia, Addis Ababa, Ethiopia.
- Axinn GH. 1988. *Guide on alternative extension approaches*. FAO (Food and Agriculture Organization of the United Nations), Rome, Italy.
- Crowder LV. 1996. *Partners in sustainable development: Linking agricultural education institutions and farmer organizations*. Sustainable Development Department of the Food and Agriculture Organization of the United Nations, Rome, Italy. FAO, Rome, Italy.
- Eicher C. 2004. *Rebuilding Africa's scientific capacity in food and agriculture*. Background paper 4. Paper commissioned by the InterAcademy Council (IAC) Study Panel on science and technology strategies for improving agricultural productivity and food security in Africa. IAC, Amsterdam, the Netherlands.
- Mathewos B and Chandargi DM. 2003. Models for private and public extension cooperation as applicable to the Ethiopian system. In: Tesfahun F and Osman A. (eds), *Challenges and prospects of food security in Ethiopia, proceedings of the food security conference, 2003, Addis Ababa, Ethiopia*.
- Mohammed I. 2004. Extension experiences in Ethiopia. Paper presented at Improving Productivity and Market Success (IPMS) of Ethiopian Farmers project launching conference, 30th June 2003, ILRI (International Livestock Research Institute), Addis Ababa, Ethiopia.
- Moris J. 1991. *Extension alternatives in tropical Africa*. Overseas Development Institute, London, UK.
- Purcell DL and Anderson JR. 1997. *Agricultural research and extension: Achievements and problems in national systems*. World Bank Operations Evaluation study, World Bank, Washington, DC, USA.
- Rivera WM and Zijp W. (eds). 2002. *Contracting for agricultural extension: International case studies and emerging practices*. CABI Publishing, New York, USA.
- Rivera WM, Qamar MK and Crowder LV. 2001. *Agricultural and rural extension worldwide: Options for institutional reform in developing countries*. FAO (Food and Agriculture Organization of the United Nations), Rome, Italy.
- Roling N. 1988. *Extension science: Information systems in agricultural development*. Cambridge University Press, Cambridge, UK.
- Swanson BE, Farner BJ and Bahal R. 1990. The current status of agricultural extension worldwide. In: Swanson BE. (ed), *Report of the global consultation on agricultural extension*. FAO (Food and Agriculture Organization of the United Nations), Rome, Italy.
- World Bank. 1977. *From vision to action in the rural sector*. World Bank, Washington, DC, USA.

Annex 1 Number of staff of *woreda* offices of agriculture of four PLWs in Oromiya and SNNPR regions by level of education and field of training, excluding personnel located at PA level (2004/05)

Expertise	Regions														
	Oromiya					Alaba					SNNPR				
	Ada'a		Mieso		Alaba		Dale		Oromiya		Alaba		SNNPR		
Certifi- cate	Di- ploma	BSc	DVM	Total	Certifi- cate	Di- ploma	BSc	DVM	Total	Certifi- cate	Di- ploma	BSc	DVM	Total	
Crop															
Production	2	1		3	1	1	6	3	10	1	8	1		10	
Protection	2			2	1		1		1		1			1	
Horticulture	1	1		2		1	1		1		1	1		2	
Irrigation	3	1		4	1	2	1		3		1			1	
Extension															
Extension supervisors	2			2	4	4	8	1	9		3			3	
Home science				3	1	1	1		1		2			2	
Animal/															
Fisheries															
Production	1			1	1	4	5	1	10	4	2			6	
Forage/ range expert	1			1	1	1	1		2		1			1	
Animal health	6	2		10	1	4	1	1	3	5	3		1	9	
Apiculture	1			1							1			1	
Skin and hides	1			1	1	1	3		1		3			3	
NRM*	5			5	5	2	8	1	10	4	2			6	
Grand total				35		28			49		45			45	

* This includes foresters, agro-foresters, biological conservationists and soil and water conservation experts.

Annex 2 Number of staff of *woreda* offices of agriculture of four PLWs in Tigray and Amhara regions by level of education and field of training, excluding personnel at PA level (2004/05)

Expertise	Regions																			
	Tigray					Amhara					Metema									
	Atsbi		Alamata		Fogera		Amhara		Metema		Fogera		Amhara		Metema					
Certifi- cate	Di- ploma	BSc	DVM	Total	Certifi- cate	Di- ploma	BSc	DVM	Total	Certifi- cate	Diploma	BSc	DVM	Total	Certifi- cate	Di- ploma	BSc	DVM	Total	
Crop																				
Production	1			2	2				2	2					2	1	1			2
Protection	1	2		3	2															
Horticulture	2		1	2	3	1			3						3					
Irrigation											2				2					
Extension																				
Extension supervisors	3	1		4	3	1	2		3	1	1				2			2		2
Home science	1			1	1	1			1		1				1					1
Animal/																				
Fisheries																				
Production	2	1		3	2	1	2		4	1	2				4					1
Forage/ range expert		1		1	1															
Animal health	2	1		4	3	7	2		10	1	2				4					1
Apiculture	1			1			1		1		1				1					1
Skin and hides	1	1		2																1
NRM*	2	6	1	9	9	2	5		25	2	2				2	1				1
Grand total				31	25				27						27					9

* This includes foresters, agro-foresters, biological conservationists and soil and water conservation experts.



International Livestock Research Institute



Canadian International
Development Agency

Agence canadienne de
développement international



በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
የግብርናና ገጠር ልማት ሚኒስቴር
Federal Democratic Republic of Ethiopia
MINISTRY OF AGRICULTURE AND
RURAL DEVELOPMENT