

# Ethiopian Agricultural Extension System\*

## -The Past Experience, Present Status and Future Direction -

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### Abstract

Agricultural extension service in Ethiopia was started in early 1950s with mandate of transferring local research outputs and technologies to farmers, and importing technologies and improved practices from abroad. Extension service provided in this early time was limited to areas surrounding the experiment stations. Since then, Ethiopian Agricultural extension service has passed through at least five stages: the land grant extension system, the Comprehensive Package Programs, the Minimum Package Projects, the Peasant Agricultural Development Program, and the Participatory Demonstration and Training

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Extension System (PADETS). The comprehensive package extension program was 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 program used demonstration plots managed by development agents and used to train farmers organized through various field days. However, since all of these programs were operational in only small areas, the vast majority of the country was out of their reach. Through Participatory Demonstration and Training Extension System, the extension service in Ethiopia has come under the spotlight and government debates and external reviews are putting additional scrutiny on the system. Despite this long history, the system is still in its infancy in terms of coverage, communication and institutional pluralism. Currently in Ethiopia the Agricultural extension is provided primarily by the public sector, operating in a decentralized manner through which extension is implemented at the district level. Therefore, the main focus of this paper is to scrutinize the past, the present and the future Agricultural extension system in Ethiopia.

Key words: Ethiopia, Agriculture, productivity, extension system

## 1. Introduction

Increasing agricultural productivity is a major challenge in Sub-Saharan Africa, where about 62% of the population depends on agriculture for their livelihoods (Staatz & Dembele, 2007). Since 1960s, agricultural production in Sub-Saharan Africa countries has failed to keep up pace with population growth (Benin, 2006). Improving the productivity, profitability, and sustainability of smallholders farming is therefore the main

pathway to get out of poverty.

Ethiopia has undertaken a far-reaching programme of economic reforms over the last 19 years which have delivered strong economic growth. The agricultural sector which is critically important to both overall economic performance and poverty alleviation has performed strongly over most of the last decade, but there is still substantial scope to sustainably improve productivity, production and market linkages. It accounts over 43 per cent of the GDP and 90 per cent of the total export revenue and employs 85 per cent of the country's labour force (Asres *et al.*, 2013). Ethiopian agriculture is virtually small-scale, subsistence-oriented and crucially dependent on rainfall. About 90 percent of the country's agricultural output is generated by subsistence farmers who use traditional tools and farming practices (EEA, 2006).

Despite the importance of agriculture in its economy, food insecurity has been an enormous challenge to Ethiopia since the early 1970s. Achieving agricultural productivity growth will not be possible without developing and disseminating improved agricultural technologies that can increase productivity to smallholder agriculture (Asfaw, Shiferaw, Simtowe and Lipper, 2012). Available evidence shows that yields of major crops under farmers' management are still far lower than what can be obtained under research managed plots (Belay K., 2004).

Ethiopian agriculture is dominated by subsistence, low input-low output, rain fed farming system. The use of

chemical fertilizer and improved seeds is quite limited despite Government efforts to encourage the adoption of modern, intensive agricultural practices. Low agricultural productivity can be attributed to limited access by smallholder farmers to agricultural inputs, financial services, improved production technologies, irrigation and agricultural markets; and, more importantly, to poor land management practices that have led to severe land degradation.

## **2. Past experience of extension service in Ethiopia**

Agricultural extension service in Ethiopia is said to have started in 1953 with mandate of transferring local research outputs and technologies to farmers, and importing technologies and improved practices from abroad and introducing them to farmers (Belay K., 2004). The extension service at this early time includes demonstrations, regular visits of individual farmer's fields and the organization of youth clubs. The youth clubs were used as entry points to disseminate technologies to the larger farm communities.

In 1963, the mandate to provide agricultural extension was moved to the then Ministry of Agriculture, 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 (Belay K. 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) (Asres *et al.*, 2013). The program was not just an agricultural extension program, but 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.

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 ministry of Agriculture 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 (Asres *et al.*, 2013).

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 centers in 280 *districts* out of the total of 580 *districts* in the country by then. The major drawbacks of the MPP-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 MPP-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 *districts* 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 *district* 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 (Asres *et al.*, 2013). 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 *districts* 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 (Belay K., 2004).



### **3. Present Agricultural Extension System in Ethiopia**

The PADEP program continued for four more years under the Ethiopian People 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 (Belay K., 2004).

According to (EEA, 2006), 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(EEA, 2006). 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* (EEA, 2006). 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). 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 (Belay K., 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 55 thousand in 2013. 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.

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 *district* 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, without adequate attention given to the marketing of produce (Birhanu *et al*, 2006).

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.

The current extension service is almost exclusively funded and provided by the government through its *district* level Offices of Agriculture and Rural Development, 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 *district* 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 *district* level offices.

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 *districts* 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 for a in reaching the intended recipients of the message.

A key feature of Ethiopian innovative policy measure is the deployment of extension workers to every rural peasant association in Ethiopia to facilitate sustained knowledge and skills transfer to smallholder farmers. This has contributed to increased agricultural productivity particularly for cereals, pulses, and oil seeds. In a situation where many farmers are illiterate, acquiring competence in production, adding value, and marketing presents challenges. Recognizing this fact, the Ethiopian Government response includes increasing the number and education level of Development Agents through providing extensive technical vocational education and training (TVET) in agriculture and through the establishment of Farmers Training Centers to transfer improved agricultural technologies and give adequate services at a closer reach. To date, more than 25 agricultural TVET colleges have been established and a total of 55,500 Development Agents have graduated and assigned at Farmers Training Centers (FTCs) in all regions.

In terms of household training package, which is a type of agricultural activity carried out by farmers that earlier

acquired experience by participating in various extension packages, in 2012/13, above 500,000 farmers were trained. In addition, in minimum package training, where farmers were trained on packages they have chosen from technology menus made available to them, and where the training duration ranges from 5 to 15 days, above 5,000,000 farmers were trained during the year 2012/13. Extension and training programmes are also designed to pay particular attention to enhancing farmers' capacity to use water resources efficiently, and help build community-level institutional structures necessary for effective irrigation and water resource management.

At present, extension is provided primarily by the public sector, operating in a decentralized manner through which extension is implemented at the district level. Limited extension is also conducted by NGOs, usually working through the district-level Bureaus of Agriculture and Rural Development (BOARDS). However, only a very limited number of farmers (less than 15%) of have got access to new/improved Agricultural technologies in Ethiopia. This is a huge gap need to work on very strongly to end poverty in the country. Besides, the demand of farmers for new and successful technology is very high.

## 4. The Future Agricultural Extension System in Ethiopia

There are several gaps with the present Agricultural extension service in Ethiopia which need to be filled with the future extension system. The major ones are; the current extension system of Ethiopia follows a “ Top down and non-participatory nature” which is pervasive throughout the country. Top-down approach is not only between DAs and farmers, but also between the district and the regional level offices (Asres *et al.*, 2013). 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. The other problems are while commercialization of agriculture is seen by the government as a focal point for agricultural development, this market orientation is not fully operationalized. Instead, most of the government interventions favor food-security-oriented rather than market-oriented approaches ((Birhanu *et al.*, 2006).

For the most part, extension tends to focus on crops, especially cereals, and to leave out cash crops, natural resource management and livestock. It does so using a production-oriented package approach. The Ethiopian PADETES approach offers three main extension approaches, which are formulated at the federal level: household, regular, and minimum. Indigenous knowledge, which is an important component of an innovation



system, is not appreciated enough in the system and is disappearing, in part due to the focus on the promotion of modern packages, which tend to be preferred by extension and research at the expense of indigenous knowledge. Irrigation extension is also neglected in the approach. Therefore, the future extension strategy will give a due emphasis to those gaps.

Furthermore, the future extension services in Ethiopia are planned to centre around the use of farmer training centres (FTCs) (Asres *et al.*, 2013). The government plans to establish about 15 thousand FTCs throughout the country. This is about one FTC at each peasant association. Almost every *district* in the country has started to construct FTCs. Some *districts* have already constructed the required number of FTCs. The FTCs are constructed with participation of the farmers in the peasant association.

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, as has been mostly the case so far.

It is also envisioned that the Development agent 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 Development agent, 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

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 ministry of Agriculture. 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.

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 Development agent, 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.

## **5. 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. 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 others, 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 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 Development agent 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.

Other major problems of the extension system include focus on the transfer of technology 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, and availability of complementary institutional support services and shortage of relevant technologies has been among the enduring constraints confronting the agricultural extension service globally. 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.

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## 에티오피아 농촌지도사업의 현재와 미래

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### 초록

에티오피아의 농촌지도사업은 다른 아프리카 국가들과 비교하여 긴 역사를 가지고 있으며 다양한 접근방법과 모델을 통하여 이루어져 왔다. 오랜 역사에도 불구하고, 농촌지도사업 시스템은 사업영역, 커뮤니케이션, 제도적인 다원성 측면에서 초보단계에 머물고 있다. 농촌지도사업의 초점은 시험연구사업 결과에 대한 기술이전, 국가식량안보와 수출증가를 위한 농업생산성 증대에 있다. 최근 농촌지도사업 시스템에 대하여 많은 논의가 이루어지고 있으며, 다른 관점을 통하여 보다 지도사업 시스템이 엄밀성을 더해 가고 있다. 최근 에티오피아 농촌지도사업은 공공부문에 의하여 추진되고 있으며, 특히 district 단위에서 분권화된 방법으로 운영되고 있다. 그리고 제한된 수준이지만 NGO에 의하여 수행되고 있다.

에티오피아의 농촌지도사업은 1950년대에 연구개발 및 기술이전, 외국의 새로운 기술도입을 위하여 시작되었다. 초기에 농촌지도사업은 시험장 위주로 이루어졌다. 이후에 에티오피아 농촌지도사업은 다섯 가지 단계로 추진되었다. 대학 확장시스템(the land grant extension system), 패키지 프로그램, 최소 패키지 프로젝트, 농민 농업개발 프로그램, 참여민주주의와 훈련시스템(PADETS). 패키지 지도사업 프로그램은 시범지역에 최초로 수행되었으며, 15-20년내에 농촌지역의 90%까지 확대되었다. 이 프로그램은 개발기구에 의하여 관리되는 시범포를 사용하였으며, 조직화된 농민들을 훈련하였다. 그러나, 이 프로그램이 특정한 조그마한 지역에서 운영되어 다른 지역까지 확대되지 못하였다. 참여민주주의와 훈련시스템을 통하여 에티오피아의 농촌지도사업은 주목을 받게 되었으며



많은 논의가 있었으며, 외부의 관점들이 더 정교하게 만들었다. 긴 역사에도 불구하고, 이 시스템은 커뮤니케이션, 제도적인 다원주의적인 측면, 분권화 측면에서 걸음마 단계이다.

**주요어** : 에티오피아, 농업, 생산성, 지도사업



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