

The Agricultural Knowledge System in Ethiopia

Insights from a study in the Tigray region

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Background

As a national vision for agricultural development, the Government of Ethiopia designed an overarching strategy known as the Agricultural Development-Led Industrialization (ADLI). The ADLI strategy focuses on improved agricultural packages, proper use of land and water resources, access to improved rural finance, better functioning markets, and better roads. Within the framework of this strategy, the Government adopted several policies, strategies and instruments. However, actual policy implementation is hindered by a lack of systematic coordination of different aspects of agricultural policy. Recently, new policy frameworks and institutional developments have taken place in order to coordinate and integrate the activities of various sectors at all levels of government. This requires knowledge of how the whole system operates and the frame conditions affecting it.

The study aims to provide a systemic perspective for a better overview that highlights interactions and synergies between policy, service, support and client systems by looking at the history, current status and future direction of the Agricultural Knowledge System (AKS) in the Tigray region with a focus on the extension service

as a core component of the system and its institutional linkages. This is because the extension service reaches all the way down to the village level and facilitates the interplay and nurtures the synergies within the AKS. The extension service is a key policy instrument which the Government uses to realise the objectives of its agricultural and rural development policy. The study rests with the presumption that the performance of the extension service can explain the nature and effectiveness of the overall AKS.

A systems approach to agricultural knowledge

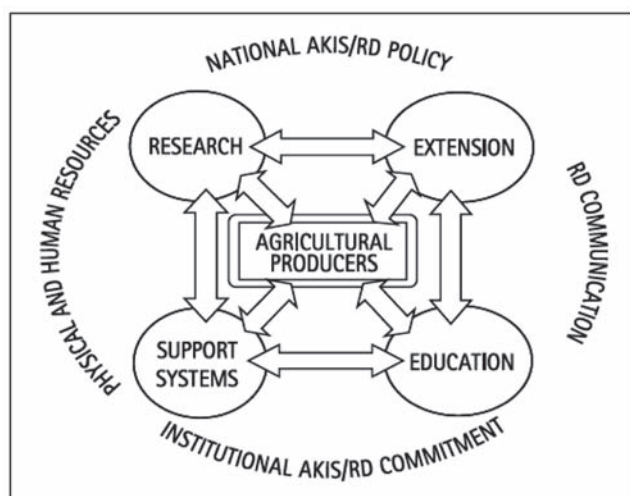
Sectoral efforts in agricultural development usually single out a particular dimension of agricultural problems and fail to look at the full picture. In the Transfer of Technology model, agricultural knowledge is treated as an input which has a definite beginning and end. The systems approach is an effort towards shifting away from this conventional perspective, attempting to bridge the gap between the components of the AKS and acknowledging the multiplicity of actors in the knowledge process (Biggs 1989). Each actor plays one or more, often overlapping, tasks with functional interdependency (McDermott 1987). Therefore, in addition to farmers, researchers and extension, education and training institutions, policy makers, private firms dealing with agricultural support services, non-profit organisations, consumers, civil societies and others are now seen as important elements of the AKS (Bachmann 2001). The various components of the AKS are no longer seen as isolated parts, but rather in interaction with one another. As Nagel (1980) states, the process of information flow in agriculture is neither one-way nor does it have a definite beginning or end. Therefore, without adopting an attitude that

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everything is interconnected, the function of each element may not be fully understood without the other elements. Furthermore, the whole AKS is seen as interacting with its environment and with other knowledge systems, instead of an isolated entity.

With the emergence of the Agricultural Knowledge and Information Systems for Rural Development (AKIS/RD) as a guiding framework for conceptualising and developing AKSs (FAO/World Bank 2000), AKS concepts and models have evolved substantially. Earlier models focused on forward linkages between the three basic institutional components of the system. Later backward linkages or feedback mechanisms were built into the AKS model. More recently, other entities, such as the media, government, the private sector, support systems and civic society, are recognised as playing an important role in the system, making the system more complex and the need for coordination and integration greater ever. Figure 1 illustrates a more comprehensive AKS model that includes support systems (credit institutions, supplies and markets) and the contextual and environmental factors surrounding and influencing the system (government policy, institutional commitment, communication systems, and physical and human resources).

Figure 1:
A comprehensive AKIS/RD model



Source: Rivera et al. (2005,7)

The model has a range of institutional inclusiveness, embracing all those concerned with AKISs, and its central purpose is beyond earlier notions of system linkages, broadly concerned with fostering practical knowledge in an agriculturally organised rural learning society, with a view to developing a rural knowledge society (Rivera et al. 2005). Compared to earlier concepts of AKISs (Röling 1990), the model recognises the importance of the institutional and political context, and the behaviour of actors and their commitment in increasing system synergy and performance.

If AKS institutions are to serve society through the farmer, then they must be in close interaction with the farmer (McDermott 1987). Based on this model, therefore, a well-functioning AKS can be described as a continuous process of institutional development and technical change with a continuous interaction among all stakeholders, and an effective provision of services based on demand. In other words, a successful AKS is characterised not only by strong intervention power and a good calibration of the research-practice continuum, but also by strong user control (Röling 1986). The demand side of the AKS is crucial to make the system functioning effectively.

Methodology

Using narrative interviews and focus group discussions, the study was undertaken at community and institutional levels in order to analyse interfaces between the two sub-systems. The investigation at the community level began with understanding the past situation and converging into the present situation, depicting interfaces between local and formal knowledge systems. To fully understand the current situation of the extension service, it is necessary to look at changes over time since the past situation determines the present situation, which in turn provides useful insight into future development. At the institutional level, the study analysed the organisational and human capacity constraints affecting the system, the inter-institutional field, and the potential of recent AKS reforms to improve the performance of the overall system.

Results of the study

The main findings of the study are outlined below, focussing on problems facing the AKS and recent developments towards improving the system.

- **Politics controls all spheres of life.** The analysis of the biographical interviews and the focus group discussions revealed that farmers have limited strategies and that the general tendency is not an improvement but rather a decrease in livelihood options. Throughout the different government systems, the relationship between government representatives and farmers has not changed. Down to the field level, people stick to administrative bureaucracy with upward accountability. There is no separation of political roles and civil service functions, leading to persistent role conflict of extension advisors and local administrators, thus hindering effective policy implementation and support to farmers. Feedback is deliberately misinformed, corrupting the system.
- **Mechanisms for public participation and local control are lacking.** Persuasion and pressure are the main thrust for involving farmers in the extension program, which is implemented based on a quota system and competition, and with a poor feedback system. This caused local leaders and development agents to make or accept unrealistic plans and force farmers to implement those plans. Development agents faced difficulties in convincing farmers that the improved inputs are effective under farmers' conditions, and farmers are able to sense this, which creates a breach of trust and makes it difficult to establish a basis for learning and communication between the two groups. Faced with a situation where a small number of development agents have to work with many farmers, the extension service employed a model farmer strategy to increase extension coverage and serve more farmers. The use of model farmers is, however, unsuccessful due to personal and technical problems. The model farmers are selected based on favoritism rather than on their knowledge and skill in farming, willingness to assist other farmers, and ability to use new inputs because of expected incentives or benefits from the government. As a result, follower farmers do not actually believe that model farmers are really better farmers or useful sources of information.
- **Farmers' circumstances and livelihood systems are poorly understood.** The extension packages lacked client group and agro-ecological specificity. To minimise risks and fit their circumstances, farmers adapted extension packages, but development agents do not value this, and instead persuade farmers to adopt improved inputs, which have not undergone adequate local adaptability trials to address the problems and specific situation of farmers. Actual extension work is more than simply extending new information, but also integrating it into the structures of local resources, values and opportunities.
- **Organizational and human capacity constraints.** Shortage and poor capacity of development agents are critical problems limiting the performance of the extension program. Development agents lacked adequate capacity and motivation to initiate change in the farmers' interest. They are the weakest stratum in the organisational pyramid of the extension service in terms of training, knowledge and skills, status and motivation. They are not involved in the decision making process regarding the objectives and methods of the extension program, and also their responsibilities are widespread. This affects their relationship with farmers and reduces their motivation and productivity. The shortage of development agents leads to inefficiency and a decline in the quality of the extension service. This problem is exacerbated by the development agents' poor access to information and technical support. They received inadequate support from supervisors whose relationship is determined by control purposes. Agricultural radio programs are poorly coordinated with the extension program, and there is no agricultural press to provide vital information for farmers and development agents.
- **Institutional constraints.** The limited access and capacity of farmers to internalise the returns from the utilisation of improved agricultural technologies is one of the basic factors contributing to the

low level of technological utilisation. The farmers are generally willing to use improved extension packages, but this willingness has not led to a widespread adoption of the extension packages due to the institutional constraints surrounding the extension service. The lack of effective linkage between extension, research and support systems affects the performance of the extension service. The institutional environment for credit, input supply and output marketing does not provide adequate incentive for farmers to use improved inputs.

- **Recent developments and directions.** Ethiopia recently underwent a major transformation with greater political, financial and administrative decentralisation to regions and districts within the Government system and demonstrated a strong commitment to agricultural and rural development through fostering the participation of the private sector and institutional coordination, thereby gradually moving in the direction of the development of an integrated AKS. Understanding that poor institutional coordination and linkage has become a major challenge for development, a fundamental step towards institutional coordination and integration was initiated at all levels of government. *The Rural Development Policies, Strategies and Instruments* (FDRE 2001) focuses on the need to promote strategic sectoral alignment where each sector would agree jointly on a set of priorities toward which each would then set out to achieve them in coordination with the other sectors. With the merger of the Ministries of Agriculture and Rural Development at the national level, organisations concerned with agriculture and rural development are coordinated under the Bureaus of Agriculture and Rural development and their district offices at the regional level. Agricultural research and training are also decentralised to work closely with extension services on situation specific problems. Farmer Training Centers (FTCs) are established at the community level and are expected to work closely with research centers and Agricultural Technical and Vocational Education and Training (ATVET) colleges. Research-Extension Advisory Councils (REACs) are major innovations towards improv-

ing institutional coordination and information flows within the AKS at all levels. However, all these institutional developments are at their infant stages. Developing the demand capacity of farmers and their organisations will be crucial to the development of client-oriented agricultural service systems.

Conclusion

The recent AKS reforms are ideally correct, but the challenge is how to make the reforms working effectively. Despite all top-down ordered policy reforms, which come and go, there is the danger of persistence of attitude and behavior of extension advisors. Field-level extension advisors feel to be the lowest representatives of government, who must control and guide the peasantry. However, the reform must be seen as a positive start toward improvement, and getting it working effectively asks for a political commitment and a long-lasting organisational development process. There are deficiencies everywhere in the system and imperfections will continue, but over time, there will be an improvement that would turn the direction to development. Success requires effective interactions between enabling policy, demand, supply and support systems, and linkage and capacity building at levels of government. The AKS reform will not be effective without accompanying political, socio-economic, and cultural and value changes. Therefore, the AKS will be as good as the total system of government, society and economic growth.

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