Multi-stakeholder Platforms Strengthening Selection and use of Fodder Options in Ethiopia: Lessons and Challenges

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Abstract

Although existing literature eloquently elaborates the role of an "innovation systems perspective" in rural development and provides theoretical insights into the concepts of the approach, there are few practical lessons emerging from application of the approach in research for development projects in various contexts. This paper analyzes a project designed to strengthen the ability of smallholders to innovate in ways that improved the returns to fodder use in Ethiopia. The paper applies an innovation systems perspective to the innovation process as a means of describing the contribution of a project-driven multi-stakeholder platform. A number of key lessons were gleaned from our research. Participatory selection of technologies that addressed farmers' priority problems and demonstrating tangible economic benefits were found to be effective in winning the trust of farmers and drawing the attention of a wider group of stakeholders. The benefits from the technologies needed to carry limited risk and accrue early economic gains to be attractive to farmers. Linking forage technologies with a range of value chain issues in livestock enterprises was essential for successful adoption of forage technologies by farmers. Engaging diverse actors in stakeholder platforms, including local decision makers, along the dairy/fattening value chain was found to be instrumental in turning the wealth of knowledge surrounding fodder technologies and practices into action and creating immediate benefits to poor livestock keepers. On the other hand we found that nurturing collective capacity of a network of organizations and individuals was a major challenge for small projects with limited mandate and resources. For sustainability, organizations with a long term commitment and strong decision-making power need to play a leading role in facilitating innovation processes. An effective agricultural innovation system requires a cadre of professionals with a new skill set and mind set (markets, agribusiness, rural institutions, rural microfinance, facilitation, system analysis, conflict management, etc.). This implies the need for research and development organizations to re-skill, and the need for the reform of university curricula to include skills in agribusiness, communication and partnership facilitation. Large scale institutional and policy change requires piloting of the concept and practices of facilitating innovation through stakeholder platforms in different contexts, documenting and sharing experiences, building on successes and engaging policy makers in the research process.

Keywords: Fodder, innovation systems approach, stakeholders, stakeholder platforms

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1. INTRODUCTION

Innovation and technical changes are critical drivers of social and economic transformation in the agrarian-based economies of many developing countries (World Bank, 1999, Kate, R. W., et al, 2001 and UNDP, 2001, Kristjanson et al., 2009). Research that takes an innovation systems perspective indicates that production and exchange of (technical) knowledge are not the only prerequisites for innovation; several additional factors play a key role including policy, legislation, infrastructure, funding, and market development (Klein Woolthuis et al., 2005). Organizations do not innovate in isolation but in the context of the biophysical and social systems within which they operate. Agricultural innovation involves interaction among multiple actors along the commodity value chain and beyond (Nelson and Winter, 1982, Freeman, 1987, Dosi et al., 1988, Metcalfe, 1988, Lundvall, 1992, Edquist, 1997 and Spielman et al., 2008). Such actors may include researchers, extension service providers, the private sector (input marketers, processors, output marketers, and credit providers), policy makers, donors, farmer organizations and consumers. Joint problem-solving arrangements can play a useful role in capability enhancement by promoting the transfer of complex and difficult-to-codify knowledge. If innovation is seen as a process of creating and managing effective linkages between different subsystems within an innovation system, then, for this process to progress, a continuous alignment of actors in innovation networks has to take place (Klerkx and Cees Leeuwis, 2007). Some of the broad principles advocated by scholars taking an innovation systems perspective include joint action research, working with diverse groups of local partners, setting action plans with stakeholders and monitoring stakeholder roles and interests and joint learning in stakeholder platforms.

Although many authors, including those cited above, eloquently elaborate the concepts and provide interesting theoretical insights into the broad principles of an innovation systems perspective, they provide little in the way of translating the principles into practice in specific settings with varying rural development challenges. For example, who should act as a facilitator and coordinator of the actor network? How are the actors selected and engaged into the stakeholder platform[1]? How are the roles and responsibilities set and shared? Who maintains the integrity of the network? What are the principles and rules of engagement of actors in the stakeholder platform? What are the incentives and disincentives for actors to take part in the stakeholder platform? In the absence of guidelines for implementation of the processes which strengthen innovation capacity, organizations piloting the approach face significant operational challenges. The generic principles emerging through various experiments in different parts of the world need to be tested and adapted to local contexts. One option is the formation of multi-stakeholder platforms, which provide a space for stakeholders to share opinions and seek negotiated solutions in an open forum.

This paper presents learning experiences from efforts to build multi-stakeholder platforms designed to address feed scarcity for smallholder livestock farmers in Ethiopia. We present some practical lessons and challenges faced in implementation of the use of a stakeholder platform to catalyze innovation under field conditions. Such lessons contribute to our understanding on how actors learn practical lessons in a stakeholder platform. They also help us to distill some generic principles on best practices for organizing and managing stakeholder platforms.

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[1] A stakeholder platform could be defined as a mechanism which provides an overall focus to encourage collaborative innovative effort supporting and enabling the exploitation of new ideas and the transfer of knowledge for economic and social uses.

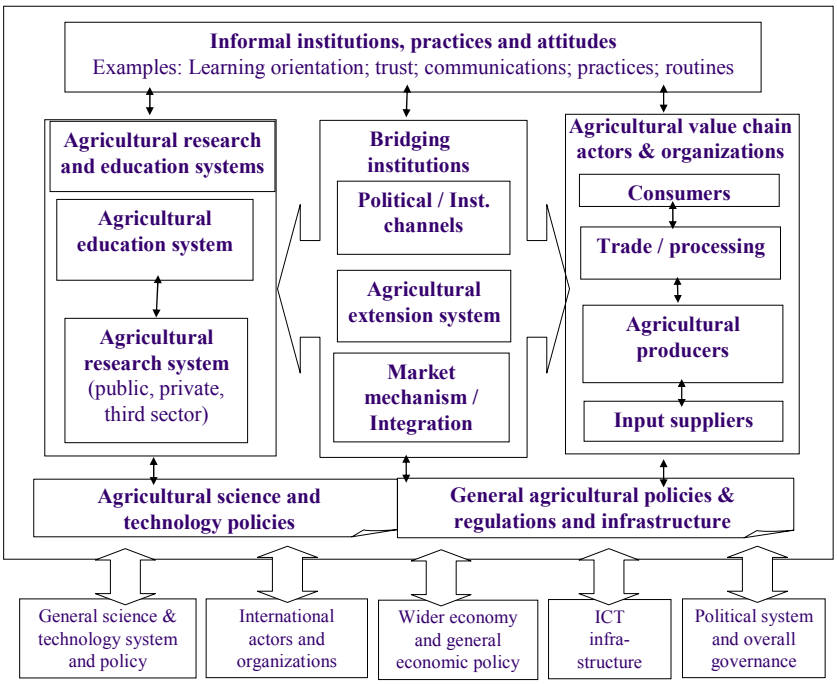
2. CONTEXT

The livestock sector accounts for about 40% of agricultural GDP and 18% of overall GDP in Ethiopia (FAOSTAT, 2004). However, livestock production in the country is subsistence-oriented with traditional technology playing a dominant role. Because of the low use of modern technologies and inputs, livestock productivity is low and has changed little in recent decades. Milk yields, for example, are among the lowest in East Africa. The average yield per cow in Ethiopia is about 270 litres per year compared with 500 litres in Kenya, 480 litres in Sudan, and 350 litres in Uganda (Muriuki and Thorpe, 2001). The economic contribution of the livestock sector could be improved substantially if the sector were better integrated into the market economy and improved technologies and practices were adopted. Feed scarcity is often cited as the primary constraint to livestock productivity in crop-livestock mixed farming systems (Gebremedhin, 2006, Legesse, et al. 2008).

The agricultural research community in Africa has approached the problem of feed scarcity by developing new fodder technologies and introducing new fodder varieties and feeding systems for more than three decades (Chema et al 2003). The range of technologies developed to address the issue of fodder shortages include improved forage species, various forage conservation techniques, and enhancement of nutritive value of straw and other residues through physical and chemical treatment (Lukuyu *et al.* 2010). Development projects have also invested in fodder banks and alternative cropping patterns to introduce new fodder varieties and feeding systems. While there has been some measure of success, persistently inadequate supplies of feed for livestock in Ethiopia and across developing world are a reminder of the disappointing performance of this strategy. The issue of fodder scarcity is not just about technologies but also about the collective capacity of a network of individuals and organizations to use different types of information to bring about change.

We used the “agricultural innovation systems” (AIS) framework that fits into this participatory learning and action paradigm (Figure 1). The framework illustrates the main actors (e.g., typical agriculture knowledge and technology providers and users as well as bridging/intermediary institutions and actors that facilitate interaction among them), their potential interactions with each other, all influenced by the agricultural policy context and the overall informal institutions, attitudes and practices that either support or hinder innovative processes.

Figure 1: A stylized schematic of an agricultural innovation system



Source: Spielman and Birner (2008); adapted from Arnold and Bell (2001).

This paper analyzes a project designed to strengthen the ability of smallholders to innovate in ways that improved the returns to fodder use in Ethiopia. The project activities were targeted in three countries: Ethiopia, Syria and Vietnam. In Ethiopia the project was implemented in four Pilot Learning Woredas (PLW), viz., Ada'a, Miesso, Alamata and Atsbi in collaboration with the Improving Productivity and Market Success (IPMS) of Ethiopian Farmers project. FAP has been facilitating partnership among different actors which are involved directly or indirectly in livestock and fodder development activities in the country to tackle the problems of feed scarcity to bring about sustainable improvement in the livelihoods of poor livestock keepers. The vision is for innovation in the livestock and fodder sector to be accelerated through facilitation of these multi-stakeholder platforms.

3. METHODS AND PROCESSES

3.1 Processes of establishing fodder stakeholder platform

The stakeholder platforms were established organically by undertaking action research where forage planting was linked with facilitation of the introduction of improved dairy cows, provision of veterinary and Artificial Insemination (AI) services and milk marketing. Designing, setting joint action plans, implementing, reflecting, redesigning and documentation of innovation processes were followed over the course of the project's life. The stakeholder process followed Kolb's (1984, 41) learning cycle whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping experience and transforming it. David A. Kolb created his famous model out of four elements: concrete experience, observation and reflection, the formation of abstract concepts and testing in new situations. He represented these in the famous experiential learning circle that involves (1) concrete experience followed by (2) observation and experience followed by (3) forming abstract concepts followed by (4) testing in new situations.

The project proceeded through several overlapping and iterative processes (Figure 2):

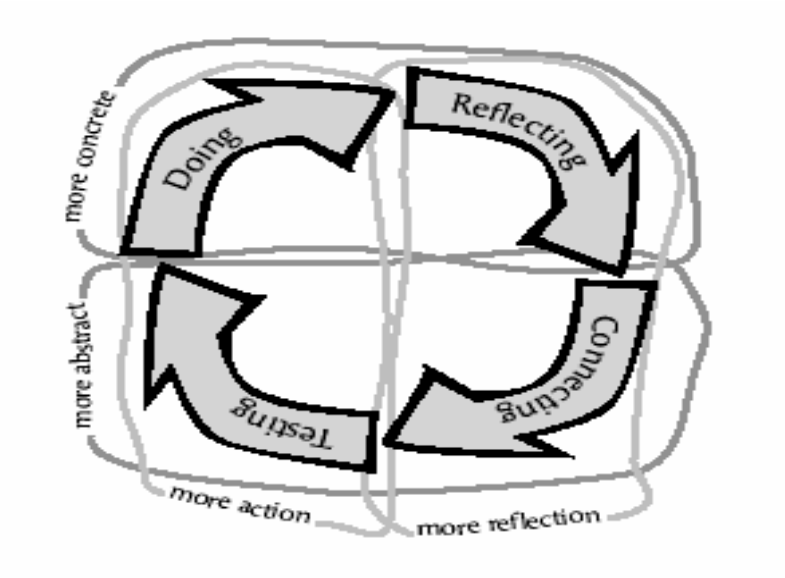


Figure 2: FAP project stakeholder process

This matrix provides a learning cycle that involves four processes that must be present for learning to occur. Kolb called this *Experiential Learning* since experience is the source of learning and development (1984). Each ends of the continuums (modes) provide a step in the learning process.

Moreover, a range of complementary activities including training of extension agents and farmers, farmer field days, farmer exchange visits, stakeholder meetings, conferences and fodder roundtable meetings were pursued in the study districts. The process of setting up stakeholder platforms involved focus group discussion, farmer field days, formal or informal meetings and contacts over the course of the project implementation. These range of actors involved in these activities soon coalesced into stakeholder platforms which met on a regular basis to consider livestock/fodder issues in the locality. An action research programme combining technical fodder interventions with development of multi-stakeholder platforms was followed. Much of the emphasis was placed on establishing stakeholder platforms at the operational level in each study site. The technical fodder interventions were used as an entry point to observe how technology acquisition and use were affected by the composition and behaviour of various groupings of actors involved. Actors directly or indirectly involved in livestock value chain in the project sites were included in the platform through interactions and proactive networking by the project. A platform at national level was established by convening the Ethiopian Fodder Roundtable and holding meetings twice a year with a range of players in the livestock feed system; Ministry of Agriculture and Rural Development, national and regional agricultural research institutes, private sector, NGOs, projects and international research organizations. A National Advisory Committee for the project was convened and meetings were used to obtain direction on national research and development priorities and to assess progress.

3.2 Data collection and analysis

The findings presented here come from a combination of internal evaluations, the authors' first-hand experiences, interviews and literature reviews. Some of the tools suggested by Taylor-Powell et al (1998) were used for organizing necessary information. The project staff proactively documented innovation facilitation process and the key steps taken through the project cycle. The desk review involved analysis of minutes, meeting logs, conference proceedings, annual reports and the country's agricultural policies and strategies. This was enriched by consultative meetings with project staff and

key informants at the project sites and by the personal experiences of the authors. In addition, the authors convened a technical meeting with practitioners drawn from various agencies to elicit their impressions on the progress of stakeholder platform facilitation process and institutional learning.

4. RESULTS AND DISCUSSION

4.1. Development Outcomes

4.1.1 Institutional Learning and Innovation

Training and on-farm demonstrations, farmers' field days, stakeholder planning meetings, farmers' experience sharing visits, debriefing conferences and fodder roundtables shaped the process of shared learning and increased trust and mutual understanding among the actors. The stakeholder platform began to break the institutional barriers, bridging system failures in the pilot districts. More interactions and institutional learning intensified among actors including farmers. The partners began to discharge responsibilities agreed upon in the joint planning sessions. The platform has become a suitable venue to raise and discuss common issues of concern among actors. For instance, shortage of crossbred cows, poor access to artificial insemination and veterinary services and issues related to milk transportation were raised as a major impediment to forage technology uptake at Ada'a stakeholder platform. These issues are being addressed by joint action of FAP, IPMS, Ada'a Office of Agriculture and Rural Development, Debre Zeit Agricultural Research Center and Ethiopian Meat and Dairy Technology Institute. Similarly, the issue of introducing dual purpose sorghum and optimal utilization of available native feed resources, such as fodder trees, stovers and cactus emerged in stakeholder platform meetings at Mieso and Alamata.

The awareness of farmers about the use of improved forages, including their management and utilization, has increased over the course of the project. A total of 104 farmers planted forages in three PLWs during 2008 cropping season. Each farmer allocated about 0.5 hectares of land on average for planted forages. This was considered to be a marked success by members of the stakeholder platform in comparison to previous experiences whereby farmers planted only small stands of forages in their backyards. Drawing lessons and experiences from the first year, large number of farmers are participating in forage development in the pilot sites. A total of 203 farmers have planted improved forages in 2009 cropping season. Scaling out successful forage technologies and innovation systems approaches is high on the agenda of the stakeholder platform for 2010 in all the study sites. We realized that facilitating fodder technology intervention needs to consider a broader context of the livestock production system and important livestock commodities. For example in Ada'a, fodder development helped to support formation of dairy cooperative and motivated farmers to allocate prime land for fodder development.

Box 1: Institutional Learning at Ada'a

Ada'a district is located just 40 kilometers from Addis Ababa and is attracting the largest number of actors and the most diverse group signifying the importance of market access to enhancing commercial livestock enterprises and establishing strong actor linkages. The project partners selected 44 farmers in two PAs and provided forage planting material in the initial year and facilitated group learning. Farmers' field days were arranged by the stakeholder platform to highlight the performance and utilization of different forage species planted in 2008 and 2009 at Ada'a district. In the field days, farmers stressed that introduction of crossbred dairy cows, veterinary services and milk marketing as prerequisites for adoption of improved fodder technologies. Actors thoroughly discussed the issues at the field day meetings and shared responsibilities. The Office of Agriculture and Rural Development agreed to

solicit dairy cows and facilitate procurement of the animals while farmers expressed willingness to pay full cost of the dairy cows. The Fodder Adoption Project and IPMS agreed to liaise with Ethiopian Meat and Dairy Technology Institute and Debre Zeit Agricultural Research Center for crossbred dairy animals. Through these joint efforts 14 dairy animals were purchased by farmers. In less than a year farmers established a functional dairy cooperative and started supplying milk to private milk processors. In the 2009 cropping season 48 farmers purchased oats-vetch seed with their own cash and planted the forages on their prime land. Ten farmers bought fodder beet seed during a farmers' exchange visit site and planted in their back yards. Three more farmers bought alfalfa seed from a private forage seed trader and planted in their farm. The density and diversity of actors participating in the stakeholder platform coupled with access to markets for inputs and outputs are facilitating innovation capacity building at Ada'a. The dairy cooperative is currently supplying more than 100 litres of milk per day to nearby town and the signs are that this could increase markedly.

The establishment and utilization of planted forages in the fields of farmers is drawing the attention of many partners from national and regional research systems, the extension service providers, private sector, NGOs and the international research organizations. This is demonstrated by regular and active participation of major partners in stakeholder meetings. The number and diversity of actors differ from site to site depending on proximity of the site to the major towns and infrastructure. Forage development is largely driven by urbanization and markets rather than by availability of forage technologies. For instance, Ada'a is rich in its actor profile and therefore offers more opportunities for joint actions. The connection between fodder and commercial livestock products (e.g., milk and meat) is loose at sites with unreliable rain fall and poor access to major market centers. For example, commercialization of livestock enterprises and adoption of forage technologies is limited in drought-prone Mieso and Alamata districts. Farmers are not impressed with perennial forage species due to low and unevenly distributed rainfall and recurrent drought in Mieso, Atsbi and Alamata. Promising progress has been made with cow pea at Mieso, however. Among the different forage options given to farmers, farmers at Mieso were keen on cow pea as it is a dual purpose crop. Farmers use the grains for human consumption and the stovers are fed to the livestock. As a result the number of farmers planting cow pea in the 2009 cropping season increased to 80 as compared to 40 farmers in previous year. Connecting forage development with semi-commercial cattle fattening holds the key for better adoption of fodder technology at Mieso. The emergence of Abergelle International Livestock Enterprise Plc, a large export abattoir in Tigray, may catalyze the future market for beef and small ruminants at Alamata and Atsbi. This is expected to have a positive effect in fodder technology adoption at Atsbi and Alamata.

4.1.2 Organizational Innovation

As a result of the concerted efforts made by a range of actors at Ada'a district, a dairy cooperative has become operational in Godino in the first two years of the project's life (Box 1). The dairy cooperative is supplying milk to nearby towns on a daily basis. Other farmers involved in fodder development are buying more crossbred dairy cows. Besides, commercial fodder and forage seed production emerged as key issues in various meetings and fora with partners. The idea of commercial fodder production was perceived as a business opportunity for those farmers with ample land willing to grow forages and sell to the urban/peri-urban dairy producers who face serious feed shortages. Engagement in commercial fodder production has the potential to generate necessary cash to buy improved dairy cows in future. An economic feasibility study carried out by FAP researchers in collaboration with Debre Zeit Agricultural Research Center showed that commercial fodder production could be competitive with established crops such as wheat and chick pea at Ada'a. The Ada'a dairy co-operative has shown interest to link to farmers at Godino who have irrigation facilities to grow forages on a year-round basis and possibly supply to the members of the Co-operative. The Ada'a Woreda Cooperative Promotion Office came on the scene and showed interest in facilitating creation of commercial fodder producers'

co-operatives at Godino and linking them to Ada'a Dairy Co-operative. The process of establishing a commercial fodder producers' cooperative is on the agenda of the stakeholder platform.

5. LESSONS LEARNT, REFLECTIONS AND ANALYSIS

Choosing an entry point with partners in a participatory manner and addressing farmers' priority problems and demonstrating tangible economic benefits in the short term were keys to winning trust with farmers and drawing the attention of more partners. Agricultural transformation needs improvements in technology as well as the functioning of markets (such as for inputs, credit, and output).Institutional arrangements and basic development infrastructure (including roads, electricity and ICT) are essential for proper functioning of market-led agricultural innovation and produce the needed impact. Linking forage technologies with a range of value chain issues in livestock enterprises such as dairy and fattening is essential for successful adoption of forage technologies by farmers. For example, we found that introduction of improved forage technologies needed to be accompanied with introduction of improved breeds of dairy cows, artificial insemination and veterinary services and creation of market linkages with milk buyers.

Working with diverse actors in stakeholder platforms (where planning of joint activities, interactive learning, filling role gaps, and strategies for scaling out successful practices and approaches are facilitated) is key to turning the wealth of knowledge surrounding improved fodder technologies and practices into action and creating immediate income benefits to poor livestock keepers and bolstering food security. We found that there was a need to clearly delineate the roles and responsibilities of each partner in the stakeholder meetings. A clear understanding of the roles can enable partners to budget their resources for joint activities. Working with diverse actors was not without difficulties however; nurturing collective capacity of a network of organizations and individuals is a big challenge for small projects with limited mandate and resources. We quickly realized that for sustainability of what we were doing, organizations with a long term commitment and strong decision-making power needed to play a leadership role in the stakeholder platform facilitation to ensure that each actor delivered the agreed tasks in the Ethiopian context.

The Ministry of Agriculture and Rural Development in Ethiopia has the necessary personnel and community linkages to play the coordination and partnership role. The Ministry could usefully broaden its mandate as the dominant rural development actor to include "innovation brokerage" as one of its functions. This could involve negotiating relationships among key actors to facilitate change. In our view an effective agricultural innovation system requires a cadre of professionals with a new skill set and mind set (markets, agribusiness, rural institutions, rural microfinance, facilitation, system analysis, conflict management, etc.). This implies the need for public research and development organizations to re-skill, and the need for the reform of university curricula to include innovation systems principles, skills and case studies. Recognition of the need to proactively foster stakeholder networks as a key task by the public research and extension system and allocation of necessary resources could turn existing knowledge and technologies into action and create immediate benefits to poor livestock keepers and bolster food security. The observations and lessons gained in the a three year project cycle are admittedly not sufficient to generalize implementation challenges of an innovation systems approach. Large scale institutional and policy change needs an evidence base through piloting the approach in different contexts, documenting and sharing experiences, building on successes and stimulating policy dialogue. However, our preliminary experiences suggest that there is a promise in the use of stakeholder platforms including diverse actors to foster innovation in livestock production particularly where market access is good and the range of actors is reasonably broad and diverse.

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