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Full Length Research Paper

From research-extension linkages to innovation platforms: Formative history and evolution of multi-stakeholder platforms in Ethiopia.

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Many different research-extension linkage arrangements have been practiced in Ethiopia. In this paper, the authors review the history and evolution of different linkage mechanisms and show their relative efficacy in developing collaborative learning and action among agricultural development stakeholders. The paper finds that organizational and institutional challenges characterized the history of research-extension linkages in Ethiopia. In recent times, however, informed by many years of experience and new development approaches, linkage mechanisms in Ethiopia have begun to shift from a traditional, technology-oriented research-extension linkage system to a more dynamic, multi-stakeholder innovation platform. Driven by research for development projects, innovation platforms emerged as inclusive and equitable multi-stakeholder forums aimed at developing innovation capacity of a range of development actors in a more market-oriented development system. The paper concludes that linkage facilitation appears to be a key function of extension services in Ethiopia and that extension agents need to have a set of skills to facilitate interactions and learning among farmers, service providers, and processing and marketing actors.

Keywords: Linkage facilitation; multi-stakeholder platforms; extension services; Ethiopia

INTRODUCTION

Agricultural development process proceeds more rapidly when the organizations involved act in a coordinated and mutually supportive way (Agbamu, 2000). Agricultural technology development and delivery system requires effective linkages among the actors involved in the generation, dissemination, and utilization of agricultural knowledge and information (Peterson *et al*., 2001). Farmers often use multiple sources of information to shape and enrich their knowledge base to manage their farms (FAO, 1995). They are resourceful in generating and adapting new ideas and, for most of their information needs, they depend on their own experiences and that of others and spread innovations through their networks (Reij and Waters-Bayer, 2011). An understanding of the sources to which farmers have most access or regard as the most reliable is important for research and extension to collaborate with and use them as channels for getting new knowledge and information to farmers and obtaining feedback about their information needs (Garforth, 2001).

Ensuring effective linkages among farmers, extension and research has remained a major discourse in the agricultural research and extension system in Ethiopia (EARO, 1999; MoA, 2012b). While there have been different efforts to strengthen linkages among the major agricultural development actors in Ethiopia, most of them were project-based and donor-driven initiatives (Lemma, 2007; Kassa, 2008; Sewnet, Elemo and Derso, 2016). Linkage initiatives faced considerable organizational, implementation and financial problems and lacked appropriate institutionalization mechanisms. There existed little incentive and collaborative spirit to

work together between research and extension. This institutional culture partly arises from their mandates fixed by legislation, which does not encourage the culture of collaboration between the organizations. Thus, cooperation is impeded by differences in the nature of the tasks allocated to research and extension and by their competition over functional responsibilities. It is also due to weak institutional culture and managerial capacity of the institutions and lack of strong user control (Röling, 1990).

As a result, research and extension organizations give less attention to institutional linkages as an important element of strategic planning and decision-making (Sims and Leonard, 1990). The choice of strategies to implement linkage policies, weaknesses in management of linkage mechanisms, and an inappropriate institutional environment are among the factors that limit the effectiveness of linkages in the agricultural knowledge and information system (EARO, 1999).

The aim of this paper is to provide lessons for research and development actors who are seeking to design and facilitate multi-stakeholder platforms. The paper is organized as follows. Section 2 reviews the different institutional linkage arrangements in Ethiopia. This is followed by a discussion of the findings and implications for extension services in Section 3. Section 4 concludes the paper.

History and evolution of multi-stakeholder platforms in Ethiopia

Ensuring effective coordination, integration and communication among the major agricultural development actors remains a crucial development issue in Ethiopia. The agricultural support infrastructure has not typically adopted participatory approaches and also has not realized all the potential synergies which close collaboration among different development actors may bring (Lemma, 2007). Several research and extension linkage initiatives have been practiced at different times and administrative levels, with varying degrees of success (Lemma, 2007; Kassa, 2008; Sewnet, Elemo and Derso, 2016). Overall, the linkage mechanisms that have been in place were either driven by the Ministry of Agriculture or the National Agricultural Research System (MoA, 2012b). Overtime, through each succession of the different linkage mechanisms, valuable lessons have been learned and refinements made in the institutional arrangements, composition of membership, and legality of the linkage mechanisms.

The history of research-extension linkages in Ethiopia

Research and extension in Ethiopia have a brief history. The Institute of Agricultural Research (IAR) was established in 1966 with the mandate to formulate and implement agricultural research policy and coordinate research programs nationwide. By then the task of technology transfer was not explicitly considered part of the mandate of the research system. The tendency was to treat technology transfer as only a peripheral responsibility to the given mandates of technology development and research coordination (EARO, 1999). Researchers maintain that the task of identifying and communicating farmers' problems to the research system and translating research findings to find practical solutions to farmers' problems is the responsibility of the extension system (Roberts, 1987). As a result, the research system avoids the most important task that links it with extension and farmers, and this creates 'a fatal gap' between research and extension (McDermott, 1987).

An effective linkage between research and extension is key to ensure that research and extension programs are relevant to farmers' needs and problems (McDermott, 1987; Agbamu, 2000). In Ethiopia, both research and extension have experienced several structural changes a number of times with the aim of achieving a coordinated technology development and transfer system. Despite efforts at reorganizing the technology system, there has been a weak linkage between extension and agricultural research (Bishaw, 2004). The first attempt to create linkage between research and extension was the establishment of joint adaptive trials of the IAR and the Extension Program Implementation Department (EPID) of the Ministry of Agriculture (MoA) in 1974 (EARO, 1999). The trials were initiated for technology testing and formulation of recommendations for different agro-ecological zones. However, the linkage was discontinued from the start due to a lack of organizational commitment and budgetary problems (Sewnet, Elemo and Derso, 2016).

In 1980, the linkage effort was reinitiated between the IAR and the Agricultural Development Department (ADD) of the MoA, but with the same problems. On-farm trials were not implemented systematically to warrant meaningful results. Researchers could not travel regularly to handle trials due to the lack of transportation and budgetary constraints. When the management of trials was added to the regular duties of extension agents, they did not have the time, capacity or the motivation to handle the trials properly. Even when the trials were managed properly, the outputs were poorly analyzed and the results rarely communicated to extension agents due to the lack of efficient coordination and communication between research and extension. As a result, research results were not sufficiently communicated, and appropriate extension messages were not developed for specific areas (EARO, 1999).

In 1985, the IAR established a Research and Extension Division (RED) with the initiation and financial

support of the World Bank. Since its establishment, the RED played an important role in disseminating research findings to subject matter specialists (SMSs) and extension agents, and conducting pre-extension demonstration and popularization activities. However, it also had problems, such as inter-group relations and resource constraints. Researchers working in the RED were left out of the mainstream technology process, being introduced to new technologies at the same time with SMSs. Moreover, the financial resources required for implementing linkage activities were lacking because the activities were not planned and budgeted. The RED was also not staffed with adequate and qualified staff, because it was seen as a simple task.

In 1986, Research-Extension Liaison Committees (RELCs) were formed along the Peasant Agricultural Development Extension Program (PADEP) zones with a modified Training and Visit extension system. The committees were mandated to review and approve research proposals and extension recommendations. Despite efforts to bring different stakeholders through meetings to ensure effective linkages, RELCs were not successful because meetings were irregular. The RELCs also lacked legal authority that ascertains their duties and responsibilities and thus decision making power to inforce linkage activities. Committee membership was seen as an add-on responsibility because there was no accountability and incentive system (EARO, 1999). Further, RELCs were affected by frequent changes in the organizational structure of the MoA, causing reshuffling of committee members and discontinuity of information. As a result, recommendations made during preceding meetings were either lost, or not carefully handled by incoming committee members, since they were new to the position, or even to the work place. Moreover, the participation of farmers was passive; they did not even attend a single meeting.

In 1999, the research-extension linkage issue revived with a new linkage strategy to bring together stakeholders in the entire process of technology generation, transfer, utilization and feedback. This has been materialized through the establishment of legalized Research-Extension-Farmers Advisory Councils (REFACs) at federal, regional and zonal levels. The federal advisory council was the highest responsible body for the overall policy guidelines and oversight with regard to research and extension program co-ordination and linkage activities in the country.

A notable contribution of the REFACs at the zonal level has been the establishment of farmer research groups (FRGs) which were voluntarily formed to undertake experimentation on their own fields (EARO, OARI and JICA, 2005). The FRGs aimed to develop collaborative relationships and partnerships between farmers, research and extension in view of making agricultural research and extension more demand and client-oriented (Tesfaye, 2007; MoA, 2012a). However, despite the high expectation, the REFACs performed no better than their predecessor. Annual meetings were not held on regular basis, and farmers were not sufficiently represented in council meetings.

ADPLACs: public sector oriented multi-stakeholder platforms

In 2008, under the leadership of the Ministry of Agriculture (MoA), new institutional arrangements known as Agriculture Development Partners Linkage Advisory Councils (ADPLACs) have been established at different levels to promote alignment and collaboration among the major stakeholders in the agricultural sector. ADPLAC is the outcome of successive changes which reflect changing priorities and the shift to the integration of farmers and other stakeholders to what were previously purely research-led, technology-oriented linkage mechanisms (Table 1).

The ADPLAC, as a multi-stakeholder platform, consists of layered linkages: national, regional, zonal and district level platforms. The MoA acts as a central coordinating body that facilitates linkages and communications across the different levels. The governance of the ADPLACs at different levels is guided by the nationally approved guideline (MoA, 2010). Key functions of the ADPLACs include serving as a platform for creating stakeholder alignment on development policies and agendas, identification and prioritization of scalable development interventions and practices, a monitoring and accountability mechanism, and sharing experiences among major stakeholders across regions and sectors in the country.

The performance of ADPLACs as multi-stakeholder platforms can be evaluated based on key performance criteria, such as composition of membership, periodicity of meetings, quality of meetings, and outcomes of the meetings (MoA, 2012b).

Although ADPLACs are more inclusive and extensive than their predecessors, institutional and operational challenges constrain their full potential. In general, they fall short of expectations to develop innovation capacity of the stakeholders in the agriculture sector. While ADPLACs are established in most of the zones, outreach to the *woreda* level is limited (Figure 1). Awareness of *woreda* stakeholders about the purpose and functions of the ADPLAC is limited (Gera *et al*., 2010), resulting in weak stakeholder engagement and unsystematic execution of linkage activities at the lower levels. This may be due to limited efforts at the higher level in terms of providing support and organizing learning and sharing events on how to develop and manage linkage activities.

Table 1: ADPLAC and its predecessors

Linkage mechanisms	Period	Focus	Major actors	Administrative layers
Research-Extension Liaison Committees (RELCs)	1986	Technology transfer and adoption	Research, extension	National, zonal level
Research-Extension-Farmers Advisory Councils (REFACs)	1999	Technology transfer, adoption and feedback	Research, extension, farmers	National, regional, zonal level
Agriculture Development Partners Linkage Advisory Councils (ADPLACs)	2008	• Collaborative learning and innovation	Research, extension, farmers, policy makers, private sectors, civil societies	National, regional, zonal, district level

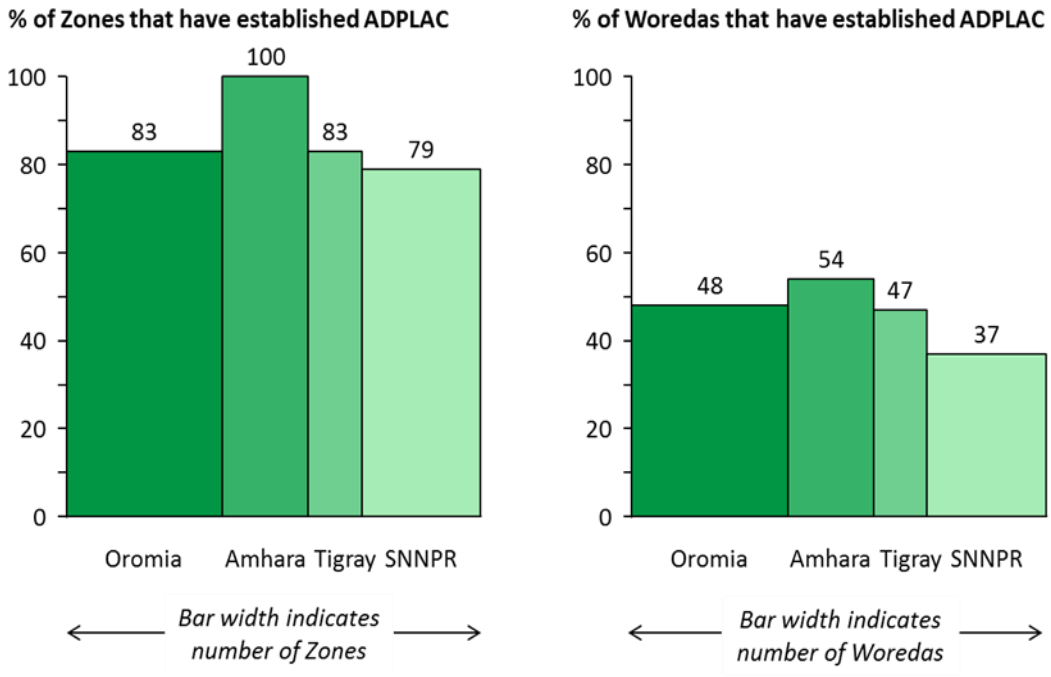

Figure 1: ADPLAC establishment at zonal and woreda levels (Source: ATA and MoA, 2013)

Although ADPLAC focal persons (case workers) are assigned at different levels, they are often engaged in multiple activities, having limited time and strategic focus to systematically plan and execute linkage activities. In addition, the frequent turnover of focal persons at different levels affected effective follow-up of decisions of executive committee and general assembly meetings (MoA, 2012b). This implies that the ADPACs at different levels are not well integrated, and information flow is limited across the administrative levels. Additionally, *woreda* level ADPLACs faced resource and capacity limitations to execute linkage activities. Capacity development of ADPLAC executive committee members in strategic planning, facilitation of stakeholder engagement, and monitoring and evaluation of linkage functions is particularly needed to create awareness and demand among development partners about the purpose and functions of multi-stakeholder platforms.

Both structurally and functionally, ADPLACs are public sector dominated multi-stakeholder platforms with funding from donor-funded projects and deliberation agendas focusing on planning and implementation issues of almost all agricultural sub-sectors. This means that ADPLAC membership composition is influenced by perceptions of unequal power relations, indicating failure to realize the interdependence of stakeholders. Consequently, stakeholder engagement is mostly passive with no incentive for proactive and self-financed participation, particularly from non-public sector stakeholders, as they see no real value in participating. Moreover, the ADPLAC membership and structure is not dynamic and lacks a clear strategic focus that is

adaptable to changing situations and priorities.

This calls for the need to have independent and capable coordinating body (such as a consortium of key stakeholders) and issue-based working groups and sub-committees to address the needs of individual members and actor networks. Particularly, ADPLAC platforms need long term vision and strategy to systematically create private-sector driven interactions among value chain actors and service providers.

Innovation platforms: inclusive and equitable multi-stakeholder arrangements

Agriculture plays environmental, social and economic roles and interacts with other sectors, requiring a cross-sectoral, holistic and inclusive approaches to agricultural knowledge and information. The dynamic changes in the context of agricultural development call for the need to involve a range of actors in the innovation process (Hall *et al*., 2006). An innovation system approach to agricultural development is essential to understand the complexity inherent in the agricultural knowledge process, since it addresses the linkages and interactions among a multitude of actors, the performance of their relationships, and the social and institutional boundaries involved (Sulaiman and Hall, 2002; Spielman, 2005; Abate *et al*., 2011; World Bank, 2012). Each knowledge actor plays one or more, often overlapping, tasks with functional interdependency (McDermott, 1987).

Multi-stakeholder processes can be applied to diagnose challenges and identify opportunities and solutions through an inclusive innovation process based on joint learning and sharing among agricultural development actors. Multi-stakeholder platforms come in different forms, such as learning alliances (Lundy, 2004; Lundy, Gottret and Ashby, 2005; Belt *et al*., 2011), coalitions (Biggs, 1990), innovation networks (Spielman *et al*., 2010, Ayele *et al*., 2012), collaborative research (Visser *et al*., 2012), and innovation platforms (Nerderlof *et al*., 2011).

Innovation platforms involve an inclusive multi-stakeholder approach to partnerships and consultations to solve complex development problems (Kilelu, Klerkx and Leeuwis, 2013; Swaans *et al*., 2014). The interaction among a wide range of stakeholders leads to a participatory diagnosis of problems, a joint exploration of opportunities, and an investigation of solutions leading to agricultural innovations (Nerderlof *et al*., 2011; Swaans *et al*., 2013; Dror *et al*., 2016).

Since their first introduction by the Forum for Agricultural Research in Africa (FARA), as a mechanism to help implement the Integrated Agricultural Research for Development approach in the early 2000s, innovation platforms have been widely used around the world, particularly in sub-Saharan Africa (MoA, 2012b). Innovation platforms can have different goals and structures: some platforms have central coordinating structures, whereas others consist of distributed networks of interactions (Nederlof *et al*., 2011).

In Ethiopia, experimentation with innovation platforms began with the start of value chain development projects, such as Improving the Productivity and Market Success of Ethiopian Farmers (IPMS) and Business Organizations and their Access to Markets (BOAM) projects (Visser *et al*., 2012; ILRI, 2013). Key to innovation platforms is the recognition of innovation as a collective, evolutionary and dynamic process. The emphasis is on dynamic stakeholder interactions and adaptive management of multi-stakeholder processes, resulting in enhanced innovation capacity of actors to address complex development challenges.

Learning from IPMS project experiences, the Livestock and Irrigation Value Chains for Ethiopian Smallholders (LIVES) project established commodity platforms at regional, zonal and district levels as a means for project work planning and obtaining feedback from value chain actors and service providers. Commodity platforms brought together a range of value chain actors and service providers to identify value chain challenges, opportunities and interventions.

Operating at different levels, commodity platforms aim to share information and facilitate linkages among value chain actors and service providers. At higher level, they are used to bring value chain bottlenecks to the attention of policy makers and help take policy actions. At local level, they aim to promote interactions, share knowledge and create linkages among value chain actors and service providers for new business opportunities. Sustainability depends more on the benefits individual participants believe they are realizing from participating in the platforms.

Commodity platforms help enhance confidence of smallholder farmers to establish and maintain relationships with input suppliers and marketing businesses. They also help identify and address production and marketing challenges. For example, in Gamo Gofa zone of the SNNPR, as a result of commodity platform meetings, livestock feed supply shops and banana market places have been established, addressing critical production and market challenges. In Bona zuria district, vegetable seed and chemical supply shops have been established. In Arbegona district, as a result of platform discussion on livestock breeding challenges, awareness raising intervention was planned and implemented on estrus synchronization and mass artificial insemination program, resulting in desirable behavioral changes on the part of dairy farmers and service providers.

In Dembia district of Amhara region, value chain actors identified critical irrigation development bottlenecks, such as lack of reliable and accessible irrigation equipment supply and repair service providers. As a result, providing practical training and coaching support for producers and extension staff was agreed as a way forward to develop village-level motor pump repair and maintenance and spare part supply service providers. Many entrepreneurial producers established motor pump repair and spare part supply services. Often these local service providers established business networks with private garages, motor pump and spare part suppliers and vegetable seeds suppliers. Farmers preferred such local service providers due to location advantages, trust developed, and flexible payment arrangements. They also provided complementary and embedded services, such as supply of spare parts, vegetable seeds, rental services, and advisory and technical support services.

However, making commodity platforms truly useful to deliver solutions that participants can benefit from has been a challenging task. They need to be driven by knowledge and information demands of members to address critical production and marketing challenges. They can function effectively when practical knowledge and information is shared and collective learning and action promoted. To share knowledge and information, physical meetings and other means may be used over time, including use of social media platforms (Lemma *et al*., 2014). The size and composition of commodity platforms depends on the issues at hand. They may not bring members together all the time. Commodity platform meetings can be value chain stage specific, only bringing together specific actors to deal with issues of common concerns. For example, if market is an issue, market actors can come together to discuss and share information on marketing issues. Membership is also purely voluntary. Depending on the issues at hand, value chain actors and service providers can join and leave commodity platforms at any time. The platforms cannot decide on actions for individual or group of actors. Members can take actions individually or initiate actions jointly.

DISCUSSION AND IMPLICATIONS FOR EXTENSION SERVICES

Analysis of the history of research-extension linkages in Ethiopia shows that organizational and institutional challenges characterized multi-stakeholder platforms. The challenges arose from a lack of clearly articulated agricultural knowledge policy that would mandate interactions and collaborations among agricultural development actors. This lack of agricultural knowledge policy is evident in the legislations that define organizational missions and mandates that do not require interactions and collaboration among key agricultural development actors. Policy incentive and accountability is critical to develop the culture of collaboration and interaction among agricultural development actors. Studies show that conducive institutional conditions are key elements that enable collaboration among actors for innovation (Klerkx, Aarts and Leeuwis, 2010; Drost, Van Wijk and Mandefro, 2012).

Historically, upward accountability is predominant in Ethiopia. Despite efforts to decentralize development planning and budgeting to the lower administrative levels, downward accountability is still limited or non-existent. Farmers remain poorly organized with weak demand capacity. However, with the commercialization of agriculture in Ethiopia, new demands for knowledge and information and new organizational forms will require business-oriented stakeholder interactions with a focus on learning and innovation rather than only on technology transfer and adoption.

Value chain and market-oriented development requires inclusive and sustainable pathways to agricultural development. Business incentives drive strong linkages among value chain actors and service providers. Multi-stakeholder platforms can be effective and sustainable when they operate in a business-like modality, with flexible arrangements, defined objectives, and self-sponsored participation of stakeholders. This shows the need to shift from conventional, technology-oriented research-extension linkage mechanisms to more market-oriented interactions among value chain actors and service providers. In business-like stakeholder interactions, access to information, knowledge, technologies and business networks are the incentives that engage value chain actors and service providers in long-term beneficial interactions around shared objectives and concerns. Hence, it is only when actionable knowledge is shared and beneficial business networks are formed that multi-stakeholder platforms can become effective and sustainable (Lemma *et al*., 2014).

This has implications for the organization, functions and capacity of extension services in Ethiopia. While there are islands of innovative market-oriented extension approaches, experiences and lessons from development projects, public extension services generally have limited capacity and mindset to absorb and scale out these innovative approaches and experiences. Extension services need to embrace linkage facilitation through collective actions and multi-stakeholder platforms as key function, and extension staff need to have appropriate set of skills and competencies (Lemma *et al*., 2016).

CONCLUSIONS AND RECOMMENDATIONS

The history of stakeholder interactions in Ethiopia is littered with examples of linkage initiatives that have failed to deliver results. A number of organizational and management challenges characterized the different linkage arrangements. Firstly, until recently, the linkage mechanisms generally lacked legal authority that ascertains their mandates, functions and objectives. This is due to a lack of agricultural knowledge policy that mandates collaboration and interaction among the major agricultural development actors. As a result, throughout time, linkage mechanisms suffered from a lack of institutionalization, which is not backed-up by stakeholder awareness, organizational leadership, and appropriate incentive and accountability mechanisms.

Existence of an independent and able facilitating organization is key to the success of multi-stakeholder platforms. In most cases, linkage arrangements are driven by research and extension organizations with limited engagement of the private sector, including smallholder farmers. They are usually dominated by the public sector with limited representation of farmers and the private sector. As a result, participation in linkage activities has been passive with limited awareness about the purpose and functions of linkage platforms.

Awareness of the importance and benefits of collaboration by actors is essential if institutional arrangements are to be established to strengthen effective linkages among different actors. When key stakeholders are convinced about the benefits of participating in stakeholder platforms, they would then assume responsibility by assigning tasks to the right stakeholders and tracking their accomplishments and expected outcomes.

While the ADPLAC is more inclusive and extensive than its predecessors, its membership is very large which makes active participation difficult. There is a need to bring the right stakeholders at the right time through organizing members into issue-based working groups. This will help address specific issues with concerned stakeholders and will also facilitate innovation processes. Agenda must respond to the needs of stakeholders represented; different stakeholders can participate at different stages and for different issues.

Unlike previous multi-stakeholder platforms in Ethiopia, innovation platforms present a different conceptualization of the process of innovation, the roles of each stakeholder, and the nature of management of stakeholder interactions. This has implications for research and extension systems, requiring to move away from technology-oriented stakeholder interactions to more dynamic, innovation-oriented stakeholder interactions and innovation management, with emphasis on inclusive, equitable, and evolutionary innovation processes.

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