

*Full Length Research Paper*

# Linking Graduate Research to Development: Opportunities and Challenges for Value Chain-oriented Graduate Training and Research in Ethiopia

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**Institutionalization of a value chain development approach within the public sector requires a critical mass of trained individuals who would lead implementation and scaling out of the approach. Strengthening the research and extension system through graduate training and research is one of the capacity development interventions of the Livestock and Irrigation Value Chains for Ethiopian Smallholders (LIVES) project. This paper presents the experience of the LIVES project in working with graduate programs and partners to support capacity development of public sector staff. The paper is based on analysis of 122 graduate research by gender, commodity, value chain component, and type of study. The paper also makes use of information obtained through individual interviews with supervisors, project teams, and graduate fellows. The paper finds that, despite the value chain-oriented research agenda of the project, most graduate research focuses on the production component of the value chain system. Finally, it concludes that graduate programs are, for the most part, disciplinary-based and need to integrate interdisciplinary and holistic education and research programs.**

**Keywords:** Value chain development, graduate research, Ethiopia.

## INTRODUCTION

Higher learning institutions (HLIs) have an important role to play in bringing about social, political and economic change. But it is vital that the learning promoted by HLIs is relevant and congruent with the reality of life in the wider community. HLIs are often prevented from engaging intensively and systemically in collaborative learning by both internal and external constraints, including shortages of resources and capacity, and the absence of political will (IDS, 2003; Mutula, 2011; Njuguna and Itegi, 2013).

Higher education in Ethiopia is facing the challenge of remaining relevant and cost effective to produce graduates that meet the requirements of the job market. Traditionally, HLIs offer disciplinary-based education, which is inadequate to prepare graduates to solve complex development challenges. Integrative education is required to offer multifaceted solutions to complex development challenges (Davies *et al.*, 2007; Belay, 2008). Research plays a pivotal role in the systematic

development of new knowledge and is central to the effectiveness of HLIs (Njuguna and Itegi, 2013). Graduates are required to have systems and critical thinking skills, where they are able to explore diverse perspectives and multi-level interactions. They need to be able to question their own and others' values, gather evidence, and analyze and solve problems.

In line with these new sets of skills, there is a high need for higher education in Ethiopia to adopt research-based, interdisciplinary, and holistic education programs (Kassa, 2008; Lemma *et al.*, 2012). Collaboration with research and development projects can help HLIs integrate internship and community service learning programs in their curricula (Lemma and Haile, 2003; Lemma and Hoffmann, 2006; Kibwana, Haile and Tegegne, 2011). Mihyo (2013) argued that university-industry linkages are the best modality for developing technical and technological capabilities through research and innovation.

Linking HLIs systematically to research and development projects through community-based practical training and participatory action research programs can increase their contributions to sustainable poverty reduction (IDS, 2003; Jimma University, 2013). It can also provide opportunities for students and faculty to realize the realities of the farming community through experiencing rural life and also can enable social continuity between HLIs and local communities (Lemma and Haile, 2003).

The Livestock and Irrigation Value Chains for Ethiopian Smallholders (LIVES) project works with graduate programs in four regions to support capacity development of public sector staff. The project's graduate fellowship program aims to develop the research and development capacity of partners in livestock and irrigation value chains in order to increase uptake and application of project results and lessons and produce development outcomes at a larger scale.

Value chain-oriented graduate research is a core component of LIVES research program. Given the focus on the transformation of the smallholder agriculture in Ethiopia, higher education is undergoing changes in terms of diversifying programs. Many higher learning institutions are starting agribusiness and value chain management programs with which the LIVES project is collaborating to develop the capacity of the public sector. Engaged with partners in a participatory consultative process, the project identified pertinent research problems that ensure the relevance of graduate research to address local value chain development challenges. LIVES also conducted diagnostic studies and the results were shared and discussed in stakeholder workshops. A research planning workshop was also conducted which identified pertinent research issues and research partners to address these challenges.

LIVES developed gender-responsive selection criteria and approval procedure for graduate fellows in consultation with project partners. LIVES regional teams worked with development partners to publicize the purpose and conditions for the graduate fellowship program. Partners were required to maintain fifty percent gender and commodity balance in the selection of candidates, who were then required to work in project zones and districts to address the research problems identified through the research planning workshop. LIVES regional teams have also engaged with graduate programs to create alignment on the purpose of the project and conditions for the graduate fellowship program. A co-supervisory and mentorship approach is used to engage with graduate programs and introduce LIVES research agenda to ensure relevance and grounding of graduate research in the local development context.

Graduate fellows were offered with opportunities to interact with development partners as well as community

members for experiential learning. The project encouraged graduate fellows to take part in project activities, such as training activities, commodity platform meetings, and stakeholder workshops and to have exposure to local development needs, challenges and innovations. Graduate fellows were also required to give graduate seminars at regional, zonal and district levels using the agricultural knowledge centers, which are established with the support of the LIVES project.

## **MATERIALS AND METHODS**

Analysis of LIVES database of graduate fellows provides the empirical data for this paper. Samples of 122 graduate studies were analyzed by gender, commodity, value chain component, and type of study. The empirical result was also supplemented with qualitative information from review of project documents and individual interviews with supervisors, project teams, and graduate fellows.

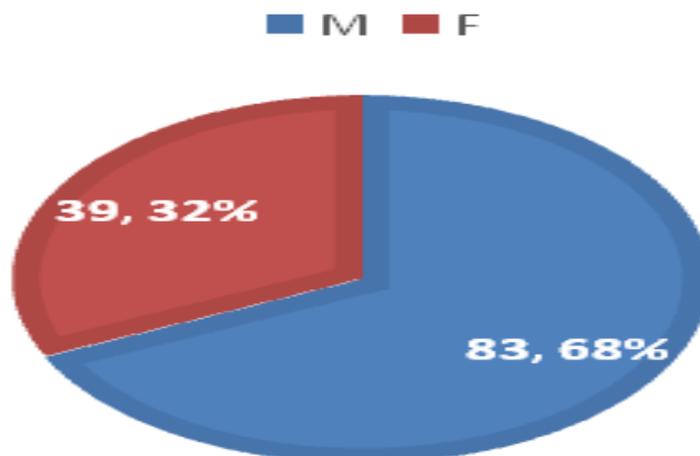
## **RESULTS AND DISCUSSION**

### **Gender and commodity balance of graduate research**

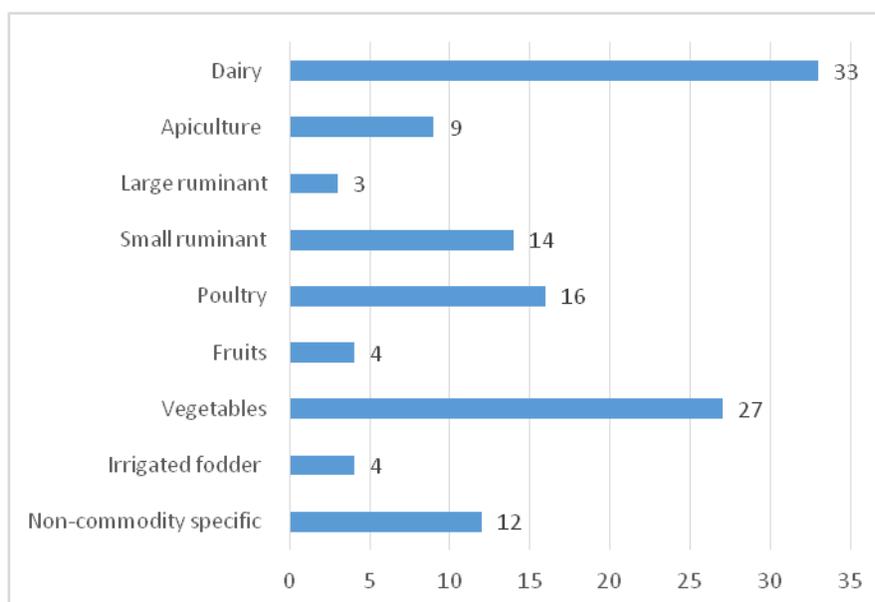
The LIVES project and its development partners set a target of fifty percent gender as well as commodity balance between livestock and irrigation agriculture commodities in the capacity development of public sector staff. As Figure 1 shows, 68% and 32% of the graduate fellows were male and female, respectively. There was low enrollment of female graduate fellows compared to male graduate fellows. This is mainly because there are fewer female agricultural experts as compared to male experts in the public research and extension system. The problem is particularly serious in the research system (Njenga *et al.*, 2011).

To address this challenge, LIVES engaged in continuous interaction with project partners to ensure that all their female staff are aware of the fellowship opportunities. The project also provided coaching support for female public staff in preparation for university entrance exams as well as mentoring in study skills, research methods and thesis writing. In some cases, diploma holder female extension staff have got the chance to join undergraduate programs.

When we see the commodity balance of LIVES graduate research, the majority of the graduate fellows conducted research in dairy, vegetable, poultry and small ruminant commodities (Figure 2). Only 3% and 2% of the graduate research focused on fruits and large ruminants, respectively. Fruit crops have received little research attention in Ethiopia, which is probably one of



**Figure 1:** Graduate research by gender



**Figure 2:** Number of graduate research by commodity

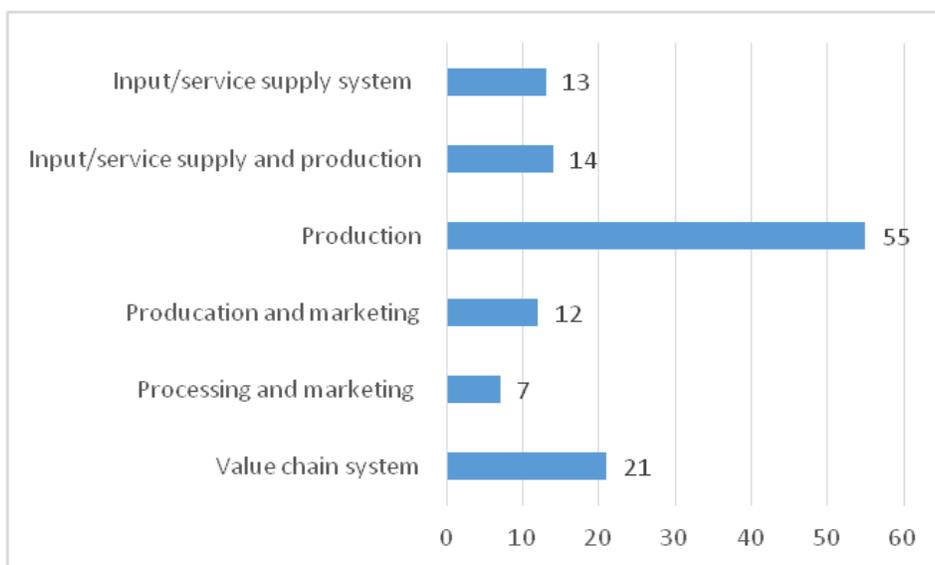
the reasons for the lack of improved technologies for fruit production, propagation, harvesting, and post-harvest management. Research on capacity development, knowledge management and gender is particularly limited. Only 9% of the graduate fellows undertook research in non-commodity specific or cross-cutting issues.

The results show that there is a gap in maintaining a balanced distribution of graduate research across specific livestock and irrigation commodities, implying the need to improve graduate research planning and targeting to minimize professional biases in the selection

and approval of graduate research topics. In some cases, graduate fellows worked in teams on different aspects of specific value chain commodities across regions using a common research methodology.

#### **Graduate research by value chain component**

As Figure 3 shows, despite the value chain-oriented graduate research agenda of LIVES project, 45% of the graduate research focused on the production component of the value chain system, followed by value chain



**Figure 3:** Number of graduate research by value chain component

system (17%) and input and service supply system (11%). Only 6% of the graduate research focused on processing and marketing issues of specific commodities.

The results show that graduate research is disciplinary-based, which is production oriented. Historically, higher education in Ethiopia has focused on training of graduates who basically have technical competencies in agricultural sciences. Agricultural development objectives have also remained production and productivity oriented, which involves technological solutions to agricultural challenges. Accordingly, higher education focuses on disciplinary training and research, with a strong production orientation. Research and extension services in Ethiopia have focused on improving agricultural production and productivity (Gebremedhin *et al.*, 2006). Hence, for the most part, extension service providers are not trained beyond the production component of the value chain system. This is probably one of the reasons why farmers do not engage in value chains.

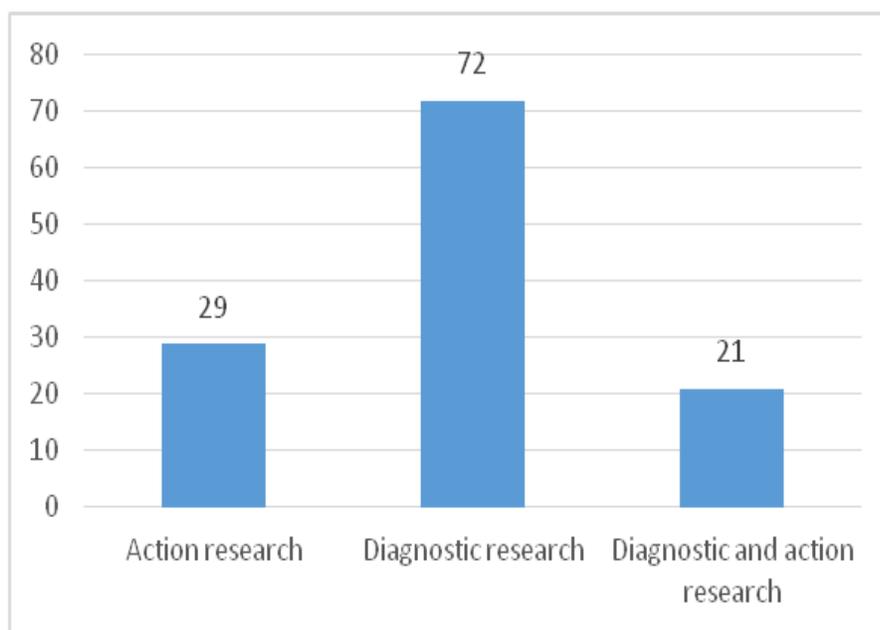
With commercialization of agriculture, however, smallholder farmers will face challenges to engage in markets. They will need extension and advisory services beyond production. This implies that graduate fellows are required to have a broader set of competencies and skills to facilitate market linkages and innovation along the value chain system. They need to adopt new understanding, skills and strategies to satisfy emerging knowledge and information needs of farmers (Swanson, Samy and Sofranko, 2003).

### Graduate research by type of study

Graduate research is a core component of LIVES research program, which aims to generate knowledge through action-oriented research and synthesis of project results and lessons to support scaling out of market oriented agricultural development. LIVES action-oriented research approach focused on diagnostic, action and impact studies designed to support planning, implementation and scaling out of specific value chain development interventions and approaches.

Diagnostic research is conducted to identify, describe and quantify value chain constraints and opportunities and to determine intervention requirements. It allows the project to better identify and design value chain development interventions. As implementation unfolds, the project moved on to conducting action research to generate qualitative and quantitative knowledge on the development process and performance of specific value chain development interventions and approaches. The action research helped document the effects of project interventions, refined intervention strategies, and identify context specific adoption factors that can be used to scale out successfully demonstrated value chain interventions. Impact research aims to generate qualitative and quantitative knowledge on the impact of value chain development interventions on the economic, social and environmental conditions of farm households.

As Figure 4 shows, during the initial phase of the project, diagnostic research was significant to assess value chain contexts, challenges and devise appropriate



**Figure 4:** Graduate research by type of study

interventions. However, as intervention unfolds, LIVES research focus has moved on to action research to generate knowledge that helped refine intervention strategies and document successful practices for scaling out.

### Co-supervisory and mentorship approach

The relationship between graduate fellows and supervisors is critical to the success of the learning and research experience. It takes a supervisor a lot of effort to raise qualified graduates, who become independent professional researchers and scholars in their fields (Chiappetta-Swanson and Watt, 2011; Kimani, 2014). In LIVES project, supervision and mentorship is a continuous engagement process of managing graduate research to a successful completion.

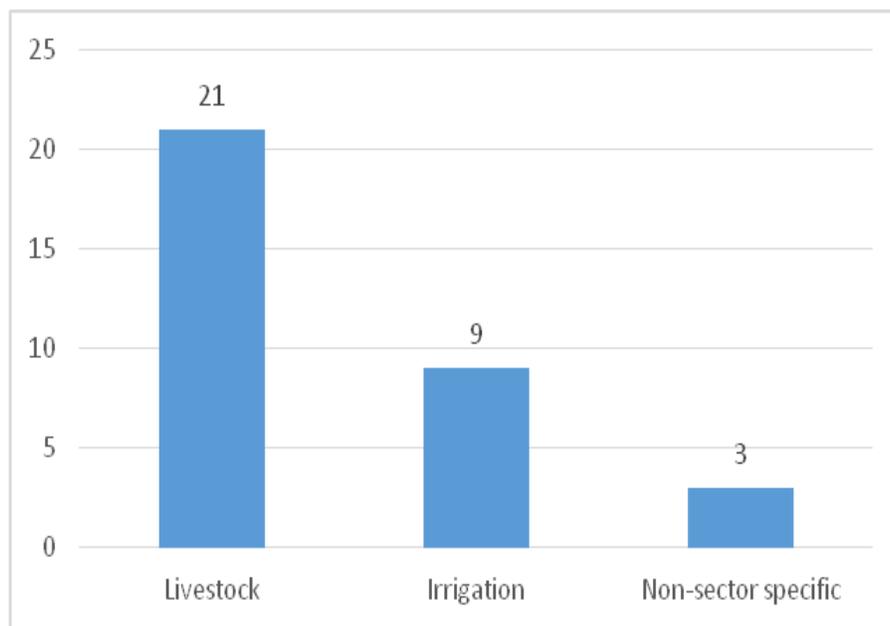
The LIVES project used a co-supervisory and mentorship approach to provide graduate fellows with a rich learning and research experience. Individual interviews with graduate fellows revealed that the joint supervisory and mentorship approach helped them get intellectual stimulation and support from different perspectives, adding value to the research process and quality. LIVES supervisors supported their graduate fellows at every stage, from formulation of the research project through to establishing methodologies and discussing results, to presentation and publication of research findings. The joint supervisory and mentorship approach also allowed LIVES to interact with university

supervisors and influence the research agenda of graduate programs.

### Publication and dissemination of graduate research results

Graduate research should provide partners with useful recommendations for addressing development challenges. LIVES organized graduate seminars at regional, zonal and district levels to allow project partners to provide feedback on graduate research proposals and thesis results as well as to ensure the relevance of graduate research in addressing value chain development challenges (Figure 5).

The project supported partners to establish agricultural knowledge centers to increase access to new information and knowledge and to promote learning and sharing culture of agricultural experts. Graduate fellows used the facilities of the knowledge centers to give seminars, setting the example for partners to use the knowledge center facilities for knowledge sharing purposes. LIVES also synthesized graduate theses by thematic issues and disseminated results in working papers as well as in the project's website to reach out to a wider development community. The publications were also kept in the agricultural knowledge centers.



**Figure 5:** Graduate seminars by value chain sector

## CONCLUSION AND RECOMMENDATIONS

In the LIVES project, graduate research has been instrumental in a number of ways. Besides developing the capacity of project partners to implement and scale out value chain development interventions and approaches, graduate research has helped document the effects of project interventions as implementation unfolds and then refine intervention strategies.

Individual interviews with graduate fellows showed that the joint supervisory and mentorship approach has been helpful as it provides them with rich learning and research experience as well as influence research agenda of graduate programs.

While project partners committed to achieve fifty percent gender balance in the selection of graduate fellows, achieving the target has been challenging, particularly in the research system. In the absence of qualified female candidates for graduate studies, the project advised research partners to provide short-term training opportunities for the female staff. Commodity wise, the majority of the graduate fellows conducted research in dairy, vegetable and poultry. Research on fruits and large ruminants was limited.

Analysis of graduate research by value chain stage shows that, despite the value chain oriented graduate research agenda of the project, the majority of the graduate research focused on the production component of the value chain system, implying that graduate programs had strong disciplinary orientation focusing on the production component of the value chain system. Graduate research on processing and marketing of

specific value chain commodities was particularly limited. There was also a gap in addressing service provision, gender and cross-cutting issues in value chain development.

Despite these gaps, however, the experience of the LIVES project in training and graduate research is exemplary on how to develop partnership between graduate programs and research and development projects to address critical capacity and research needs of research and development partners as well as to influence graduate training and research along the value chain system. Going forward, LIVES should maintain a balanced distribution of graduate research across specific value chain commodities and along the value chain system. LIVES also needs to better engage and align with graduate programs to integrate a value chain oriented research agenda into their research programs. Finally, LIVES should find a better mechanism to address the gender balance of graduate research in consultation with project partners, particularly in the public research system.

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