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AGRICULTURAL VALUE CHAIN-ORIENTATED TRAINING NEEDS ASSESSMENT FOR FIELD EXTENSION PROFESSIONALS IN ETHIOPIA

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ABSTRACT

There is growing realisation that small-scale farmers can increase their incomes substantially if they process and add value to their produce. One reason why they do not engage in value addition is that extension services are not trained to provide advice beyond production. A training-needs survey was conducted in Ethiopia to determine what training was needed for an extension service to provide advice beyond production. The survey was done within the context of an ongoing in-service degree programme for mid-career extension professionals run by the Ministry of Agriculture and universities. Data were collected from a stakeholder workshop attended by 37 participants and through individual interviews of 69 employer representatives, 229 frontline extension workers and 300 small-scale farmers. This was followed by a national validation workshop attended by 75 stakeholder representatives. The survey identified four thematic areas to be included in the BSc programme: animal products processing, crop products processing, marketing and market analysis and small agri-business management. The demand from both farmers and employers was for a generalist extension worker capable of providing extension services covering the entire agricultural value chain. The survey also revealed the need for developing commodity-specific value-chain modules for training farmers and service providers. The survey resulted in a revised value chain-orientated curriculum and the production of a wide range of training modules. The results point to the need for extension organisations and training institutes to develop life-long learning programmes that allow re-tooling of extension practitioners and faculty staff to enable them to cope with new and emerging demands.

KEY WORDS: *MID-CAREER, PARTNERSHIP, STAKEHOLDER, MODULES, RETOOLING*

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INTRODUCTION AND OBJECTIVES

There is a growing realisation that small-scale farmers can increase their incomes substantially by processing and adding value to their produce. Like many countries in sub-Saharan Africa, part of the reason why Ethiopian farmers do not engage in value addition is that, historically, the extension services in the country have been focused on improving production and productivity (Gebremedhin *et al*., 2006). Extension services are structured for this production focus. University training also has a strong production orientation. As Sutz (2005) points out, universities are not isolated institutions. They are socially embedded and their guiding visions are influenced by local history and traditions. This situation is therefore self-reinforcing – the extension service's production focus influences training at universities, and training at universities determines what extension can do. The result is that extension services are not trained to provide advice beyond production. To break this cycle, employers usually need help to communicate their needs to universities. This is particularly true with public agricultural advisory systems, most of which believe 'things are generally OK as they are', and they take what they are given by universities.

The Government of Ethiopia has designed and adopted an Agricultural Development-led Industrialization Strategy to transform subsistence agriculture into a market-orientated system, where farmers are encouraged to produce for the market (Mandefro, 2009). At the same time, there is a realisation that the capacity of the extension services to provide market-related services is limited (Alemayehu, 2009). Given the crucial role of extension in driving the agricultural modernisation process, it is important that the service is competent to advise farmers on issues along the entire value chain.

The needs-assessment survey discussed in this paper was conducted as part of a curriculum review process of in-service BSc degree programmes for mid-career extension professionals supported by Sasakawa Africa Fund for Extension Education (SAFE) and Winrock International. The degree programmes are run at 16 universities and colleges in nine African countries as partnerships between employers (mostly ministries of agriculture) and universities. Employers identify the training needs of their extension staff; request universities to come up with custom-made training programmes; select suitable staff to attend the training; pay fees to the universities; provide all necessary support to students during their field projects; assign co-supervisors for students during their field projects; re-absorb the staff after completion of their studies; and participate in evaluating the training programmes (Knipscheer *et al*., 2002). On their part, the universities respond to the employers' needs by designing appropriate training programmes; selecting students from candidates nominated by the employers; providing accommodation for the students; assigning suitable staff to teach the programmes; supervising students during their field projects; providing employers with student progress reports during training; and conducting periodic reviews of the programme and improving it as necessary. This needs assessment was part of the review process.

The BSc programmes are unique in several aspects. They are demand-driven and based on identified needs. The curricula are streamlined to focus on the needs identified and therefore take a shorter time to complete than would a broader curriculum. They are designed to buttress the practical experience of extension professionals to improve their competence at work.

Perhaps the most important characteristic is their practical nature. The programmes provide practical, hands-on laboratories, problem-focused courses and field-based enterprise projects. Experiential learning ('learning by doing') is at the foundation of the programmes. As part of their training, the students (together with their employers, farmers and researchers) develop 'supervised enterprise project' (SEP) proposals relevant to their job as extensionists that they go back and implement in their work places for periods ranging from 6 to 9 months. The students implement the projects under the direct

supervision of the university and their employers who own the programmes. At the same time, the projects provide unique and rare opportunities for academic staff to assess the relevance and effectiveness of their teaching and to identify other opportunities for learning from real-life situations. The projects, also commonly known as 'supervised extension projects', provide a forum for bringing together the students, employers, farmers and the educational institutes.

In addition, teaching and learning is a sharing of a mixture of theoretical and practical experience between teaching staff and students. Instruction is structured to take advantage of the two-way exchange of experiences. Students learn with their jobs in mind and always try to see where the new knowledge and skills will fit into their professional career.

The specific objectives of the survey were to establish:

- the level of farmer participation in post-production activities;
- current post-production extension advice given;
- the training needed for an extension service to provide advice beyond production;
- the level at which the training should be provided – short courses, diploma or degree;
- the category of extension staff that would require this type of training;
- the level of demand in terms of numbers of staff that would require such training;
- the preferred mode of delivery – full-time, part-time or distance – for such training.

MATERIALS, METHODS AND DATA SOURCES

Two approaches were used in this study. First, a 3-day national stakeholder workshop was held to provide answers to the above questions. The workshop was attended by 37 participants drawn from universities, regional governments and the Federal Ministry of Agriculture. This was followed by a nationwide survey of key stakeholders, including employers, frontline extension workers and farmers. Questionnaires were designed for the different categories and then administered through individual interviews. Three universities (Bahir Dar, Haramaya and Hawassa) constituted three survey teams, one team per university, with each team conducting the survey in different regions of the country. In all, 69 employer representatives, 229 frontline extension workers and 300 farmers were interviewed, covering eight of the nine regions of the country. The frontline extension workers were diploma holders and potential candidates for the BSc programme. Descriptive statistics were used to analyse the data.

RESULTS AND DISCUSSION

Level of farmer participation in post-production activities

The survey revealed that farmer post-production activities were largely limited to storage and marketing (Table 1), with very little processing and value addition, and these were mainly of coffee, hides and spices.

Many farmers received advice on storage, while few received advice on processing and marketing. Apparently, farmers considered storage and marketing as the most problematic areas where

TABLE 1: FARMER PARTICIPATION IN POST-PRODUCTION ACTIVITIES AND EXTENSION ADVICE GIVEN (*n* = 300)

Activities	Farmers involved in post-production activities		Farmers getting extension advice	
	Frequency	Percentage	Frequency	Percentage
Storage	216	72	158	53
Marketing	209	70	81	27
Transportation	164	55	8	3
Processing	83	28	24	8
Packaging	24	1	1	0.3

TABLE 2: FARMERS' POST-PRODUCTION PROBLEM AREAS AND NEEDS FOR ADVICE (*n* = 300)

Area	Farmers' problem area		Farmers' need for advice	
	Frequency	Percentage	Frequency	Percentage
Storage	189	63	74	25
Marketing	146	49	86	29
Transportation	48	16	8	3
Processing	11	4	56	19
Packaging	3	1	12	4

TABLE 3: POST-PRODUCTION ADVICE GIVEN

Area	Field staff (*n* = 229)		Employer representatives (*n* = 69)	
	Frequency	Percentage	Frequency	Percentage
Storage	166	72	29	42
Marketing	131	57	10	14
Processing	53	23	17	25
Transportation	16	7	0	0
Packaging	0	0	0	0

they needed help, rather than processing and value addition (Table 2).

As farmers were not engaged in processing and value addition, they did not seem to be aware of opportunities that they were missing. They were more concerned about reducing storage losses and finding markets for their produce. This seemed to make sense as they could see and feel the losses when their harvests were destroyed in storage and when they could not sell their harvests. While only 4% indicated processing and value addition as a problematic area, 19% showed interest in getting advice in these areas – possibly as a result of awareness created by the survey process.

Current post-production extension advice

Responses from field extension staff and employer representatives confirmed what the farmers said (Table 3). The post-production advice provided by the extension services was mainly on storage and marketing, with very little on processing and value addition. Both cited lack of appropriate technologies (56%) as well as lack of knowledge and skills (37%) as the main reasons for this bias. Another reason given by both groups was lack of focus on value addition by the extension service (32%). Field extension staff also mentioned lack of demand from farmers (24%).

Training needed for an extension service to provide advice beyond production

The workshop identified four new thematic areas that the curriculum needed to address.

- Theme 1: Animal products processing (small-scale processing, storage, transportation, grading, packaging, safety, quality assurance).
- Theme 2: Crop products processing (small-scale processing, threshing, storage, transportation, grading, packaging, safety, quality assurance).
- Theme 3: Marketing and market analysis (analysis of comparative advantages, organising markets, negotiations, linkages, price factors, transportation).
- Theme 4: Small agri-business management (financial management, value-chain analysis, principles of value chain, entrepreneurship).

The survey basically confirmed the above but with less detail. The content areas that were highlighted

TABLE 4: LEVEL AT WHICH TRAINING SHOULD BE PROVIDED

Training level	Field staff (*n* = 229)		Employer representatives (*n* = 69)	
	Frequency	Percentage	Frequency	Percentage
On-the-job mentoring	6	3	8	12
Short term	41	18	20	29
Degree	178	78	37	54

TABLE 5: FIELD STAFF PREFERRED TRAINING FOCUS (*n* = 229)

Preferred training focus	Frequency	Percentage
Generalist	178	78
Post-production	27	12
Production	17	7
Other (economics, natural resource management	3	1

by survey respondents were: processing, preservation, storage, packaging and marketing.

The level at which the training should be provided

Both the workshop and the majority of the survey respondents wanted the training to be at degree level (Table 4). In addition, a significant proportion of employer representatives felt that the training should be given at other levels as well, such as on-the-job mentoring for immediate retooling and cost-effectiveness, and short-term courses for refreshing knowledge and skills. Fortunately, the universities were in the process of moving towards modularisation. This will enhance provision of training at different levels.

Categories of extension staff that require this type of training

The demand from employers was for a BSc extension programme designed to produce a generalist extension worker capable of providing extension services covering the entire value chain (see also Alemayehu, 2009). Employers argued that specialisation would not be appropriate, as small-scale farmers in Ethiopia were generalists engaged in a whole range of production essentially for subsistence with little surplus for the market. Survey data from the field staff indicated the same feeling (Table 5). This presented a huge challenge in producing an appropriate curriculum.

The government has wanted to move towards specialisation since the early 2000s. In 2000, the government established 25 agricultural technical vocational education training colleges (ATVETCs) to offer 2-year specialised diplomas in three main disciplines – crop production, livestock production and natural resources management. A few were also trained in animal health and development of co-operatives.

Over a short period of 5 years, the ATVETCs produced 72,000 graduates who were initially deployed in teams of three – comprising one specialist for each of crops, livestock and natural resources – per farmer training centre (FTC), of which there were 18,000 spread across the country. This increased the number of frontline extension workers 30-fold and the extension worker to farmers ratio 'decreased by 100 times' (Mandefro, 2009). The extension workers were supposed to provide extension services according to their area of specialisation to farmers around the FTC. At the time of the survey, however, policy was moving away from specialists to generalists.

Level of demand in terms of numbers of staff that require training

The pool for training was large – close to 70,000 diploma holders, most of whom were employed by the Ministry of Agriculture, in nine regional governments. The situation was made urgent by high attrition of the diploma graduates. Many were leaving the service as they could not see good career prospects in extension. Some had enrolled with private colleges to take distance education courses far removed from agriculture (e.g., law and accounting). The BSc programme for mid-career extension professionals was therefore seen as having potential to enhance the retention of the ATVETC graduates.

Preferred mode of delivery

The employers at the workshop called for alternative modes of delivery that would not take staff away from their work places for long periods of time. The workshop suggested two modes of delivery for the BSc programme: a full-time option and a part-time (or semi-distance) option, combining distance learning with some period of face-to-face instruction. While the survey showed a preference for full-time study, a significant proportion of employer representatives also opted for part-time study (Table 6).

Responsive curriculum

Based on the results of the needs assessment, a revised curriculum for the BSc programme with both full-time and part-time options was proposed and examined for its appropriateness by an independent reviewer. The proposed curriculum and the reviewer's comments were presented at a 2-day national stakeholder curriculum-review workshop attended by 75 participants. The workshop reviewed the proposal with respect to: relevance of the programme (objectives, graduate profile and target group or farmers' profile); relevance of the courses in addressing a value-chain-orientated agricultural extension; and feasibility of the mode of delivery. An inter-university panel of experts involving four national universities was assigned to finalise the curriculum revision based on the workshop and expert reviewer's recommendations. Table 7 shows the courses and the course structure for the full-time version of the programme. The semi-distance version of the programme involves 3 weeks of intensive teaching of certain courses in each semester followed by take-home modules and takes 4 years to complete.

The panel of experts was guided by two major considerations when producing courses and course content. The choices were made with the target group in mind. The majority of farmers and pastoralists in Ethiopia are resource-poor and operate with limited market orientation/interaction. This programme is aimed at helping the farmers move from a subsistence and food-production orientation to a market orientation. The farmers will need help to produce, process, manage, distribute and market commodities to the quality and quantity standards demanded by consumers. Critical consideration was made to scale-down sophisticated theories and concepts that were marginally useful for field extension work. The second major consideration was the value-chain orientation. Since opportunities, constraints and challenges along the value chain are commodity specific, the courses were designed along commodity value chains.

Since not everybody is going to go to university,

TABLE 6: PREFERRED MODE OF DELIVERY FOR THE BSC PROGRAMME

Mode of delivery	Field staff (*n* = 229)		Employer representatives (*n* = 69)	
	Frequency	Percentage	Frequency	Percentage
Full-time	151	66	36	52
Part-time	42	18	25	36
Distance	6	3	2	3

and not all the needs identified could be included in the curriculum, the universities are developing self-directed learning materials that cover a whole range of topics and commodity value chains identified during the survey. These will be used both at the universities and for field-level training of extension staff and farmers. University instructors are receiving training in instructional-materials development, agricultural value-chain concept and in specific commodity value chains to enable them to deal with the new demands.

CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

Agricultural knowledge and skills needs are constantly changing because of new opportunities arising from technological developments and changes in consumer demands. Extension services and training institutes therefore need to develop life-long learning programmes that allow internal retooling of extension practitioners and faculty staff to enable them to cope with new and emerging demands. Contrary to the 'ivory tower' phenomenon that used to characterise universities, universities now respond to well-articulated needs. As Mutimba *et al*. (2010) point out, the role of universities is to ensure that the wheels of agricultural production are well-oiled with the necessary knowledge and skills throughout the entire value chain. They should

TABLE 7: CURRICULUM STRUCTURE FOR A BSc PROGRAMME FOR EXTENSION PROFESSIONALS (FULL-TIME VERSION)

Year I Sem I	Year I Sem II	Year II Sem I	Year II Sem II	Year III Sem I
Communicative English (3)	Writing skills (3)	Computer applications (3)	Social psychology (2) [a]Co-operatives (3)[a]Off-campus SEP (SEP-III) (5)	Training for development (3)
Livestock production & product value addition (4)	Feed production & processing (2)	Communication & audio-visual techniques (3)	Social psychology (2) [a]Co-operatives (3)[a]Off-campus SEP (SEP-III) (5)	Agricultural information & communication management (2)
Poultry production & product value addition (2)	Crop production/ postharvest value addition (4)	Gender & youth in development (2)	Social psychology (2) [a]Co-operatives (3)[a]Off-campus SEP (SEP-III) (5)	Programme planning, monitoring & evaluation (3)
Apiculture & product value addition (1)	Horticultural crop production/ postharvest value addition (4)	Rural sociology (3)	Social psychology (2) [a]Co-operatives (3)[a]Off-campus SEP (SEP-III) (5)	Theories & practice of rural development (2)
Extension methods (3)	Quality assurance of agricultural products (2)	Agricultural economics & marketing (4)	Social psychology (2) [a]Co-operatives (3)[a]Off-campus SEP (SEP-III) (5)	Farming systems & livelihood analysis (3)
Value-chain approach in agriculture (2)	Research methods (2)	Agricultural project planning & analysis (2)	Social psychology (2) [a]Co-operatives (3)[a]Off-campus SEP (SEP-III) (5)	Entrepreneurship (3)
Statistics for social science (3)	Introduction to SEPs (SEP-I) (2)	Soil & water management (4)	Social psychology (2) [a]Co-operatives (3)[a]Off-campus SEP (SEP-III) (5)	Principles of human nutrition/ food science (3)
		Extension needs assessment & project proposal (SEP-II) (2)[b]	Social psychology (2) [a]Co-operatives (3)[a]Off-campus SEP (SEP-III) (5)	Off-campus SEP evaluation (SEP-IV) (1)

( ) Indicates course weighting in Credit Hours.
[a] These are take-home self-study courses during the 8-month field project.
[b] This is done during the vacation at the end of the first year.

therefore go beyond academic training and produce materials for field-level training of extension staff and farmers.

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