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Constraints Faced by Development Agents in North-Western Ethiopia

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ABSTRACT

In Ethiopia, agricultural extension and advisory services are expected to play crucial role in improving the agricultural sector in general and the livelihood of small-scale farmers in particular. However, it faced various constraints. The objective of this study was to examine constraints faced by development agents. Data collected from 250 development agents working in Amhara region was the empirical basis of this study. The study result showed that development agents in all zones have the role of selecting and deciding who should take part in the agricultural extension packages. Moreover, their service provision is inclined to middle income farmers. The most important source of extension information for them is the trainings provided by the woreda agricultural offices and they mostly contact farmers on weekly basis. The study also revealed that a number of factors constrain their agricultural extension activities. Out of the eighteen constraints identified to affect the performance of development agents, six of them were found to be most important. These constraints in their order of importance are lack of entrepreneurship related trainings; lack of finance and other inputs to run farmer training centers; agriculture office enforcement of development agents to serve as a general practitioner; lack of transport, stationery and office equipments; and burden of administrative and other non-extension works. Therefore, government should address these constraints to make the agricultural extension activities of development agents efficient through availing start-up fund, means of transport and communication, arranging business related soft-skill trainings and relieving development agents from non-extension workloads.

Key words: Development agents, training, general practitioner, agricultural extension packages

INTRODUCTION

Ethiopia is among the nations around the globe with serious challenges of agricultural development and food security (Spielman *et al.*, 2010). The country is predominantly agrarian and agriculture plays an important role in the national economy accounting about 45% of the total GDP, employing and supporting about 84 percent of the total population and accounting about 90% of the exports, but its productivity is very low (Nigussie and Alemayehu, 2013). Despite the sector significance in its economy, the country has been food self-insufficient since the last four decades. As a response to this gap the government had initiated and implemented different agricultural projects and extension approaches (Belay and Abebaw, 2004).

Agricultural extension and advisory services play an imperative role in agricultural development and can contribute to improving the livelihood of farmers and other residents in rural areas (Umeta *et al.*, 2011). Cognizant of this fact, agricultural extension services were first introduced in 1953 by the Alemaya University (recently renamed as Haramaya University). Extension services were later provided to a larger number of farmers in the 1960s under the

Comprehensive Integrated Package Projects (Chilalo Agricultural Development Unit, Wolaita Agricultural Unit and Ada District Development Project). In the 1980s, the extension system changed into a Training and Visit (T and V) style system that was favored by the international donor community at the time. The Participatory Demonstration and Training Extension System (PADETES) worked with this T and V approach to specifically promote improved seed and chemical fertilizer succeeded in convincing the government to expand its coverage under the National Agricultural Extension Intervention Program (NAEIP) in 1995. These extension programs (PADETES/NAEIP) had been sought to reach to some 9 million small-scale farmers by 2007/08 (Belay, 2002; Spielman *et al.*, 2010).

In addition, the government of Ethiopia has developed the Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) in 2005/2006 to accelerate the transformation of agriculture from subsistence to a more market-oriented sector. In this plan, the government emphasized the vital role of development agents during the implementation period. The new five-year plan, the Growth and Transformation Plan (GTP), which was launched in 2010 did also emphasize that agriculture will continue to lead the country's economy in the coming five years. The plan also predicts that this sector will have a share of about 35% on the GDP of the country in 2015 (Haile and Abebaw, 2012).

As part of its commitment to improve the agricultural extension system over the past six years, the number of development agents increased by about four-fold, from approximately 15,000 development agents during the PADETES/NAEIP period to over 60,000 now-a-days. This rapid expansion has been followed by the construction of farmer training centers in each kebele to offer demand-responsive extension and short-term training services. Each farmer training center is meant to be staffed with three extension personnel with a range of technical skills (animal science, plant science, natural resource management) (Davis *et al.*, 2010; Haile and Abebaw, 2012).

Even though the government has the aspiration of improving the extension system, it has faced various problems including: lack of seed financing and operating funds, no budget for communication, poor technical and business skills and low linkage among stakeholders (Davis *et al.*, 2010). Therefore, this study is conducted with the attempt to analyze the main constraints faced by development agents in Amhara region, Ethiopia.

MATERIALS AND METHODS

The analysis of this study is based on the survey made in the north-western Ethiopia between January and February 2013. The survey used descriptive survey design and it employed a questionnaire with close-ended and open-ended type of questions. The data were collected from 250 sample development agents (165 male and 85 female) who are serving in ten zones of the Amhara region. Systematic random sampling technique was used to select the respondents. Table 1 provides the regional distribution and the sample. Data were entered and analyzed using SPSS v. 17.

Measurement: Four focus groups were used to identify the constraints faced by the development agents in their extension work. In this discussion it was attempted to incorporate development agents with different professional backgrounds (plant science, animal science, natural resource management and rural development); and they were encouraged to list down the constraints. These identified constraints were included in the final data collection. Considering their responses, eighteen constraints were selected and they were asked to indicate the extent of their agreement to each constraint using a Likert-type five points continuum as 'strongly agree', 'agree', 'neutral',

Table 1: Sampling distribution of sample respondents by zone

Zone	Frequency of respondents		Total
	Male	Female	
Awi	12	4	16
East Gojjam	34	19	53
North Gonder	30	24	54
North Shoa	7	7	14
North Wollo	6	1	7
Oromia	3	2	5
South Gonder	22	11	33
South Wollo	13	6	19
West Gojjam	32	10	42
Wag Hemira	6	1	7
Total	165	85	250

‘disagree’ and ‘strongly disagree’; and weights assigned for these responses were 5, 4, 3, 2 and 1, respectively. Thus, scores of the respondents for eighteen items could range from 1 to 90. The reliability of this section was estimated by calculating Cronbach’s alpha coefficient which was 0.798. Constraint Index (CI) was developed to arrange the items in rank order by using the following formula:

$$\text{Constraint Index (CI)} = (\text{PRSA} \times 5) + (\text{PRA} \times 4) + (\text{PRN} \times 3) + (\text{PRDA} \times 2) + (\text{PRSDA} \times 1)$$

Where:

- PRSA = Percentage of respondents who strongly agree
- PRA = Percentage of respondents who agree
- PRN = Percentage of respondents who are neutral
- PRDA = Percentage of respondents who disagree
- PRSDA = Percentage of respondents who strongly disagree

Constraint Index (CI) in respect of any item could range from 100 to 500; 100 indicating strong disagreement while 500 indicating strong agreement.

RESULTS AND DISCUSSION

Profile of development agents: The survey covered both male and female respondents composing 66 and 34 percent of the sample, respectively as presented in Table 2. This simple percentage could imply one important point that the participation of women in extension work showed some improvement from the past, but still remaining with a lot to narrow the gap.

Table 2 further shows the distribution of the respondents’ educational background in that, 58.4 % of the respondents had diploma from agricultural colleges, whereas the rest of them have received bachelor degree from agricultural colleges and universities indifferent disciplines in agriculture. From this it could be witnessed the government commitment in upgrading the development agents’ educational status. Among the development agents interviewed, the highest percentage (31.6%) had been trained in plant science, 30.4% in animal science, 22.8% in natural resource management and 15.2% in rural development. One important factor in extension work is the agents’ background in farming. In this connection, 72.4% of the respondents had rural background as indicated in Table 2. As the majority of the respondents have a rural background,

Table 2: Demographic characteristics of the sampled development agents

Characteristics	Percentage
Sex of respondent	
Female	34
Male	66
Level of Education	
Degree	41.6
Diploma	58.4
Background	
Rural	72.4
Urban	27.6

Table 3: Age, income and services provided by the development agents

Characteristics	Minimum	Maximum	Mean
Age of respondent	23	50	29.98
Number of years serving as development agent	2	25	7.42
Monthly salary (in ETB [*])	1114	3776	1737.78
Household size	1	8	2.81
Number of households to be served per kebele	150	6000	967.54
Number of development agents in each kebele	1	5	2.71
Number of villages per kebele	2	40	8.66

^{*} Ethiopian Birr

it is believed that they have first-hand experience and understanding of farmers' problems and management constraints as compared to their contrary.

Table 3 shows the age, income and services provided by the development agents. The mean age of the development agents is 29.98 years with the minimum and maximum age of 23 and 50, respectively. On average, the respondents had served for 7.42 years as development agents with the shortest being two years and the longest 25 years. But around 70% of the respondents served for less than 9 years. Given the length of time the development agents served it is reasonable to assume that they could provide informed judgment on the constraints faced in their field work.

On the other hand, the average monthly salary of the respondents is Birr 1,737.78 ranging between a minimum and maximum value of 1,114 and 3,776, respectively. With this income they are expected to support on average 2.81 household members or individuals. In each kebele there are around 2.71 development agents who are expected to serve averagely about 968 households who reside in around 9 villages. These numbers although crude are indicative of the challenge development agents' face in providing extension services to the farming households. Furthermore, the assignment of development agents in each kebele also didn't consider the number of households, wideness and terrain difficulty of the kebeles.

Development agent's agricultural extension information source: Development agents seek information with regard to their extension activities on a regular basis. This information is not only required for their knowledge, but also to satisfy the expectation of their clientele (Farooq *et al.*, 2010). As demonstrated in Table 4, the majority (about 77.2%) of the respondents used the trainings given by the woreda agriculture office to educate themselves and as source of information on new agricultural technologies/practices; while about 12 percent of the respondent's use extension manuals and trainings given by the woreda agriculture office as an important information sources. On the contrary, the most important source of agricultural extension

Table 4: Distribution of sampled development agents by extension information source, by zone

Information source	Percentage of respondents										Total
	Aw	East Gojjam	North Gonder	North Shoa	North Wollo	Oromia	South Gonder	South Wollo	West Gojjam	Wag Hemira	
Extension manuals	-	7.5	3.7	-	-	-	9.1	-	7.1	-	4.8
Radio	-	-	-	-	-	-	-	-	2.4	-	0.4
Trainings given by agricultural office	87.5	81.1	72.2	71.4	85.7	60.0	78.8	73.7	73.8	100	77.2
Extension manuals+Trainings given by agricultural office	12.5	7.5	18.5	21.4	14.3	20.0	9.1	10.5	9.5	-	12.0
Radio+Trainings given by agricultural office	-	-	3.7	-	-	20.0	3.0	10.5	4.8	-	3.2
Extension manuals+Trainings given by agriculture office+Radio	-	3.8	1.9	-	-	-	-	5.3	2.4	-	2.0
Extension manuals+Trainings given by agriculture office+TV+Radio+Research institute	-	-	-	7.1	-	-	-	-	-	-	0.4

Table 5: Distribution of sampled development agents by their farmer visit frequency, by zone

	Percentage of respondents										Total
	Aw	East Gojjam	North Gonder	North Shoa	North Wollo	Oromia	South Gonder	South Wollo	West Gojjam	Wag Hemira	
Daily	6.3	13.2	13.0	7.1	-	-	6.1	5.3	19.0	-	10.8
Weekly	50.0	41.5	48.1	28.6	42.9	40.0	66.7	42.1	52.4	71.4	48.8
Once in two weeks	31.3	17.0	13.0	28.6	-	40.0	15.2	15.8	11.9	14.3	16.4
Monthly	6.3	1.9	5.6	7.1	14.3	-	-	10.5	2.4	-	4.0
When I have time	-	24.5	16.7	21.4	42.9	20.0	9.1	21.1	9.5	-	16.0
When they look for service	6.3	-	1.9	-	-	-	3.0	5.3	4.8	-	2.4
Weekly+When I have time	-	1.9	-	-	-	-	-	-	-	14.3	0.8
When I have time+When they look for service	-	-	1.9	7.1	-	-	-	-	-	-	0.8

information, that is, extension manuals has been mentioned by only 5% of respondents. From this it can be inferred that the agricultural extension service given by development agents to the smallholder farmers in the Amhara region mostly relies on information obtained from the training provided by the woreda agricultural offices. Therefore, the regional agricultural bureau has to give special emphasis on the quality of the training provided to the development agents as it is serving as the most important source of extension information for development agents.

Development agents visit frequency: Respondents were asked about the frequency of their visit to give agricultural technical advisor services to their clients. The result provided in Table 5 shows that the majority of the respondents (around 49%) indicated that they visited the farmers on weekly basis followed by visit once in two weeks (16.4%) period; and when time is comfortable is mentioned by 16% of the respondents.

Development agents contact with farmers: The development agents are expected to provide extension service for all types of farmers in their assignment areas. But the study result in Table 6 indicates that the development agents tend to work more closely with middle income

Table 6: Distribution of sampled development agents by their view on which type of farmers are they mostly in contact, by zone

Framer status	Percentage of respondents									
	Awii	East Gojjam	North Gonder	North Shoa	North Wollo	Oromia	South Gonder	South Wollo	West Gojjam	Wag Hemira
Poor	18.8	28.3	46.3	28.6	42.9	40.0	24.24	63.2	33.3	71.4
Medium	56.3	49.1	31.5	57.1	42.9	40.0	51.52	26.3	57.1	14.3
Rich	6.3	3.8	7.4	-	-	-	12.12	-	2.4	-
Poor+Medium	6.3	5.7	5.6	14.3	-	20.0	9.09	10.5	-	-
Medium+Rich	6.3	-	1.9	-	-	-	-	-	-	-
Poor+Rich	6.3	13.2	7.4	-	14.3	-	3.03	-	7.1	14.3

farmers in all zones of the region, with the exception coming from South Wollo, Wag Hemira and North Gonder. In these three zones about 63, 71 and 46%, respectively, of respondents reported that they give more emphasis in their agricultural extension works to poor farmers. This could imply that the rich farmers did not get enough attention from development agents or did not look for service. In relation to this one respondent reflected during the focus group discussion that:

- “The rich farmers seem that they do not want our agricultural extension service in that when we extend our service to them they are mostly reluctant or not as such responsive. This, I think, is due to the fact that they didn’t witness any development agent that brings significant change on farmers’ livelihood”

Selection of farmers to participate in agricultural extension packages: The respondents were asked to point out how the farmers who participated in different agricultural extension packages were selected in their respective kebeles and their responses are set out in Table 7. More than half of the respondents (53.2%) reported that they themselves have selected the farmers to participate in the different agricultural extension packages. This suggests that development agents are the crucial actors in identifying agricultural extension clients and supplying technical inputs to them. The other important stakeholder in selecting farmers that could participate in agricultural extension packages was the development group (organizational arrangement consisting of 20 to 30 households and it started after the initiation of natural resource management works through public mobilization). In addition, farmer’s own initiative to participate was also found to be important. The role played by kebele chairpersons in selecting farmers to participate in agricultural extension packages was third to be mentioned. Therefore, from this it could be implied that there is an improvement in participating the intended users of the services in extension planning which in past times was very minimal or no inputs at all.

Constraints faced by development agents: Agricultural extension activities in Ethiopia are operating under many constraints and complex problems to meet the demands of farmers (Alemayehu, 2009). The summarized data in Table 8 shows that the development agents included in the survey face different kinds of constraints in providing their agricultural extension services. The Constraint Index (CI) constructed showed that among the top six constraints identified ‘lack of training on entrepreneurship, market research, credit use and its procedures’ (CI = 432.4) was the important. This could be due to the fact that the respondents didn’t get these skills during their stay in higher education. This could in turn be because the curriculums of agricultural colleges

Table 7: Distribution of sampled development agents by their view on who selects farmers to participate in extension packages
Frequency and percentage of respondents

	Awi		East Gojjam		North Gonder		North Shoa		North Wollo		Oromia		South Gonder		South Wollo		West Gojjam		Wag Hemira		Total	
	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
Farmers (F)	-	-	4	22.2	7	38.9	-	-	-	-	-	-	3	16.7	-	-	4	22.2	-	-	18	7.2
Kebele Manager (KM)	-	-	2	33.3	-	-	-	-	1	16.7	-	-	-	-	3	50.0	-	-	-	-	6	2.4
Kebele Chairperson (KC)	-	-	5	23.8	5	23.8	3	14.3	-	-	-	-	4	19.0	1	4.8	3	14.3	-	-	21	8.4
Development Agent (DA)	9	6.8	31	23.3	26	19.5	6	4.5	6	4.5	3	2.3	17	12.8	9	6.8	21	15.8	5	3.8	133	52
Development Group (DG)	2	6.7	2	6.7	9	30.0	4	13.3	-	-	1	3.3	4	13.3	1	3.3	7	23.3	-	-	30	12
DA+DG	2	14.3	2	14.3	1	7.1	1	7.1	-	-	1	7.1	3	21.4	1	7.1	2	14.3	1	7.1	14	5.6
KC+DA+DG	1	25.0	2	50.0	-	-	-	-	-	-	-	-	-	-	-	-	1	25.0	-	-	4	1.6
KM+DA+DG	-	-	-	-	-	-	-	-	-	-	-	-	1	100	-	-	-	-	-	-	1	0.4
F+KC+DA+DG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	100	0.4
KM+DG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	100	-	-	1	0.4
KC+DA	2	12.5	4	25.0	5	31.3	-	-	-	-	-	-	-	-	3	18.8	2	12.5	-	-	16	6.4
F+DA+DG	-	-	-	-	-	-	-	-	-	-	-	-	1	100	-	-	-	-	-	-	1	0.4
F+KC+DA	-	-	-	-	1	50.0	-	-	-	-	-	-	-	-	-	-	1	50.0	-	-	2	0.8
KM+KC+DA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	100	-	-	-	-	1	0.4
KM+KC+DA+DG	-	-	1	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.4

Fr.: Frequency

Table 8: Perceived constraints to effective extension and advisory activities

Constraints	CI	SD	RO
Lack of area based suitable packages and recommendations or 'one-size-fits-all' approach	391.2	1.038	8
Burden of administrative and other works outside the extension service	405.2	1.141	6
Enforcement of the office to serve as a general practitioner as natural resource, plant science and animal science expert	416	1.136	3
Gap between the number of development agents and the number of farmers to be served	369.2	1.263	12
Lack of practical skills on the part of development agents	318.4	1.329	18
Limited experience on the use of extension communication methods	345.6	1.229	14
Lack of appropriate extension manuals	334	1.199	16
High price of agricultural inputs (Fertilizer, improved seed, insecticide, pesticide, etc.)	392.4	1.150	7
Lack of agricultural input supply (Fertilizer, improved seed, insecticide, pesticide, etc.)	358.8	1.190	13
Untimely/late delivery of the agricultural inputs	374.8	1.150	11
Lack of credit for purchase of agricultural inputs	336.4	1.258	15
Lack of transport, stationery and office equipments	409.6	1.122	5
Lack of means and budget for communication	414	1.061	4
Support not forthcoming from district experts	332	1.265	17
Uneducated farmers who are resistant to adopt new technologies	384.4	1.121	10
Lack of finance and other inputs to make farmer training centers income source and demonstration sites	423.6	1.024	2
Lack of training on entrepreneurship, market research, credit use and procedures	432.4	.808	1
Lack of infrastructures (telephone, post office, road, electricity, etc.)in the kebele	386.4	1.150	9

*SD: Standard Deviation, RO: Rank Order, CI: Constrain Index

and universities gave less focus to such matters and also the trainings given by the agricultural office mostly focuses on the technology only. This justification is further reinforced by Davis *et al.* (2010) in that the current curricula in Ethiopia focus more on technical skills but it should be supplemented with business, management and analytical skills so that the extension clientele will get the required comprehensive service.

The second constraint cited was 'lack of finance and other inputs to make farmer training centers income source and demonstration sites' (CI=423.6). The farmer training centers were constructed as demonstration and training farms for new technologies, farming systems, crops, livestock, or other enterprises; and generate income to sustain themselves in the long run. But as indicated by the respondents this view has got serious constraints in the available infrastructure and operating finance. Similar finding has been documented by Davis *et al.* (2010) in that the lack of adequate operating funds for farmer training centers is a major and continuing constraint that substantially reduces the extension and training programs in Ethiopia.

Currently, the government of Ethiopia is in need of general agriculture experts, because majority of the farmers in the country are living with limited resources and interested in carrying out holistic and integrated agricultural activities, which may not require an input from specialist experts (Alemayehu, 2009). However, agricultural colleges and universities are organized in strict disciplinary lines (Davis *et al.*, 2007). In contrast to this view, development agents included in this survey listed 'enforcement of the agriculture office to serve as a general practitioner as natural resource management, plant science and animal science expert' (CI=416) as the third constraint. Although the development agents were not trained as a generalist, the agricultural office expected them to serve as general practitioner in their mandate area. This creates inefficiency on the part of their services provision, according to respondents.

'Lack of means and budget for communication' (CI = 414) and 'lack of transport, stationery and office equipments' (CI = 409.6) were cited as important constraints. Almost all of the kebeles have very small or no budget and tools for communication, transport, stationery and office equipments; and these force the development agents to use their own mobile, stationery and other materials for the extension work. In connection with this one development agent said during the focus group discussion that:

- "I thought sometimes as I am expected to finance the government work from my own pocket because I, almost all the time, use my personal mobile phone, transport and stationery pocket budget to facilitate the work"

As reported by the respondents these issues created pressure on their livelihood and limit their ability to access market information and get help on technical matters from woreda experts. In addition to this large number of respondents noted that shortage or complete lack of transportation facilities limits the capacity of development agents to travel to the different villages of the kebele. This finding is in agreement with the work of Gebremedhin *et al.* (2006).

One of the factors that negatively affected the success of agricultural extension activity in Ethiopia was that the development agents were usually expected to be involved in various non-extension activities (Belay and Abebaw, 2004), including credit distribution and collection of repayments, forecasting of input demands and delivery and kebele administration and adjudication. In this respect the 'burden of administrative and other works outside the extension service' (CI=405.2) was the sixth to be listed as an important constraint in this survey. From this it can be easily stipulated that the development agents do not have complete freedom to support service seeking smallholder farmers as they wish because of the non-extension overloads. The remaining 12 items of constraints had the Constraint Index (CI) above 300.

CONCLUSION AND RECOMMENDATIONS

Development agents are critical actors in the agricultural sector of Ethiopia through the provision of extension advisory service. This study examined the different constraints faced by development agents in Amhara region.

The study revealed that the development agent is expected to serve on average about 968 farm households which is really high number to cover as frequently as possible. So that the respondents reported that they visit their clientele mostly on a weekly basis. For the provision of their service they used the training given by the woreda agricultural office as a source of information and the selection of participant farmers in agricultural extension packages mostly is done by the development agents.

The study further indicated that lack of training on entrepreneurship, market research, credit use and its procedures; lack of finance and other inputs to make farmer training centers income source and demonstration sites; enforcement of the agriculture office to serve as a general practitioner as natural resource management, plant science and animal science expert; lack of transport, stationery and office equipments; and burden of administrative and other non-extension works were the most important constraints facing development agents extension advisory career. Based on the findings of the study it is imperative to come up with the following recommendations:

- Tailor made soft skill developing trainings on entrepreneurship, market research, credit use and its procedures should be provided

- The government should avail start-up funding at farmer training center level to realize demonstration farms
- Increase the number of development agents per kebele based on the number of farming households to be served and difficulty of terrain
- Revise the curriculum of the agricultural colleges and universities in a way they produce general practitioners
- Availing means of transport (example, motorbike), communication, stationery and office equipments at the farmer training center level
- Development agents should be relieved from administrative and non-extension works so that they will focus on their extension advisory services

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