SJIF IMPACT FACTOR (2015): 5.416 CRDEEP Journals
International Journal of Environmental Sciences Meja & Geta Vol. 6 No. 4 ISSN: 2277-1948
International Journal of Environmental Sciences. Vol. 6 No. 4. 2017. Pp. 94-100

Full Length Research Paper

Analyzing Farmers' Training Centers through Integrated Innovative Capacity Building and Technologies Transfer; A Case Study of Damot Gale District Woliata Zone Ethiopia

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Article history
Received: 10-08-2017
Revised: 12-08-2017
Accepted: 14-08-2017

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Abstract
The study was undertaken in Damote Gale district, Woliata Zone Ethiopia analyzing the capacity of farmer's training centers to transfer technology and innovative package in order to transform farmer's economy in general. The study was employed both quantitative and qualitative methods to analysis the performance of the farmer's training centers in the study area. The two major sources of data were primary and secondary sources throughopen & closed–ended questionnaire, observation, checklists prepared for focus group discussion and structured interview. The sampling techniques used, out of 29 villages 6 were selected purposively and 126 households were selected by using stratified sampling method, basedon agro-ecology.The data analysis was both quantitatively and qualitatively with the purpose of describing different numerical evidences and by making use of frequency distribution tables, percentages and pie charts.The finding implied thatnone of the farmer's training centers were damaged and out of function, but when we observe the inside facilities, most of the villages do not have living house for development agents, electricity and television as fully as required. Together with this, appropriate teaching materials, metrology, workshop, field equipment's and electricity do not exist. The observed villages also do not have market and clinic. Accordingly Beef cattle rising from animal science 43 (34.1%) respondents, improved seed and fertilizer application from plant science 42 (33.3%) farmers and in soil and water conservation 42(33.3%) farmers have chosen to train with it in the future time.

Keywords: *Community's participation, Technology transfer, training materials*

Introduction

There is no blue print as to how best to develop functional FTCs (farmer's training centres) that are able to make a difference to productivity, profitability and sustainability in smallholder agriculture. A need is considered as a gap between *"what is"* and *"what should be"*, and is an essential element required for change. Capacity for change or reform by key individuals has a number of prerequisites. The CNA (capacity need assessment) process will focus on awareness, understanding, skills and attitudes/aspirations. It is the human resources that this assessment process focuses on, but in so doing it is also important to consider technology and resources in the broader assessment of capacity. In considering the above elements, boundaries (scope or focus) need to be set and confirmed so that key capacities required for change are identified and prioritized. (Stephen, 2009)
Basic education is the key with which individuals can unlock the full range of their talents and realize their creative potentials. It gives disadvantaged people the tools they need to move from exclusion to full participation in their society. Basic education also empowers entire nations because educated citizens and workers have the skills to make democratic institutions function effectively to meet the demands for a more sophisticated work force for a cleaner environment, and to meet their obligations as parents and citizens"(UNESCO, 1997: as cited in Seya, 2005).

Ethiopia has some 10 million small holder family farms that produce over 95% of agricultural output. Agriculture provides employment to 80% of the economically active population. On average the sector contributes nearly 50% of GDP. Within agriculture, about 64% of value added comes from crops, 23% from livestock and 13% from forestry. Agriculture constitutes mainly cereals (83%) pulses (12%) and oil seeds (5%). Ethiopia has the largest livestock population in Africa. Crop and livestock management is dominated by traditional systems. Approximately, 37% of farmers are estimated to use inorganic fertilizer. Improved seeds (mainly wheat and maize) are used by approximately 13% of farmers. Cereal yields at around 1151kg on an average are reasonable but productivity per labor unit is very low. Poverty and hunger in Ethiopia are pervasive. Some 22% of the rural population is classified as poor. Nearly two-third of adult is illiterate, of which 68% of them are women. Women continue to suffer periodically from the disastrous consequences in almost all aspects of life (World Bank, 2003 as cited in Vince, 2005).

FTC training provision process has been a key initiative working to strengthen the district's extension system and implementers would be expected to take note of the benefits and lessons from this programin their implementation. Support to agricultural

extension (including livestock-related extension) consists of capacity building for subject matter specialists, support to Farmers Training Centers (FTCs), and farmer innovation fund and extension research- farmer linkage. The project's research support to farmer innovation is very much in line with the food security principle. The main objective of this study is to assess the status of FTCs and food security in relation to its structure and function to see the translation of government strategies, into practice. Specifically to assess the present status of FTCs in the Damote gale district; identifying opportunities and constraints in effective functioning of FTCs in the study area; to know farmers opinion towards the mandatory services provided by FTCs.

Materials and Methods

Description of the study area

Damote Gale district is one of the 12 districts in woliata zone in Southern Nations, Nationalities and Peoples Region (SNNPR). The district is bordered on the south by Sodo Zuria district on the west by the Boloso Sore district on the north, northwest& northeast by Hadiya zone Misraki Badawacho district, on the east and south east by the Duguna Fango district. The administrative centre of Damote Gale district is Boditi City. Based on 2017 sample survey data the Zone has a total population of 157,612averagely, out of which 76,966are men and 80,646are women. The total area of Woliata Zone is 235.5square kilometers (BoFED, 2017).

Data Collection Methods

The study was descriptive that employed both quantitative and qualitative methods to analysis the performance of the FTCs in the study area. The two major sources of data were primary and secondary sources. Some relevant data were obtained by making use of open & closed–ended questionnaire, observation, checklists prepared for focus group discussion (FGD) and structured interview. The major reasons for relying upon primary and secondary types of data were to make easy the broad nature of the concept of farmer's training centers objectives.

Sampling Techniques

The study employed different sampling procedures. Based on the data collection instruments the respondents explained their view. The districts agriculture and natural resources development office and expertswere involved as a key informant for interviewpurpose.The above technique was used intentionally in order to get detail data from the key informants on the issues in the study area. There are about 29 villages in the districts with 236 households in average (BoFED, 2017). Out of 29 villages 6 were selected purposively and 126 households were selected by using stratified sampling method. The stratification was basedon agro-ecology to identify the present status of the FTCs in the study area. The main reason relaying on the purposive selection was to collect reliable data from the study area easily and this was because, out of 29 FTCs in the district, the numbers of functional FTCs were 19 and again those with demonstrative land were only 10.Therefore, the selection of six villages FTCs 126 respondents made the research more strong and definable.

Finally, in order to supplement data obtained through questionnaires and key informant interviews, focus group discussions were held in different groups purposively. Two focus group discussions in each of the sixsampled villages totally twelve focus group discussions were conducted in the study area. Each focus group discussions contained 6 households from different age groups were purposively selected from the study area.

Data Analysis Methods

The data analysis was both quantitatively and qualitatively with the purpose of describing different numerical evidences in the study. The data analysis process was also made by making use of frequency distribution tables, percentages and pie charts.The raw data that were collected from both primary and secondary sources were subsequently be edited and tallied manually and entered in to computer software program of MS-excel.

Results and discussion

Present Status of Farmer's Training Centers

As the focus group discussants and interviewees indicated that the number of FTC found in the district reaches to 29, among these 10 of them were fully not functional. This was because of incompleteness of their construction and unfulfilled basic inside materials and equipment's. Accordingly 10 FTCs were functioning at this time. Types of disciplines given in the district are animal science, natural resource and plant science. The basic objectives of the FTCs are to give training in the above fields, to transfer new technologies in agricultural technologies and to expand demonstration sites in agricultural fields. Although there are no clearly put curriculum in the FTC site and not yet designed, the center is managed and controlled by regional, zonal, and district agricultural offices. About the body who is giving the training in the FTC ,was reported as most of the time the development agent and the district agricultural office experts were said responsible but the villages administration is also participating some times. However, some of the farmers who have been trained in the FTC have stated that the training was boring and need to be given in practice in addition to giving in the class. They have also put that some of the development workers who are responsible for teaching do have skill and attitudinal problems while selecting and treating the farmers for different supports in the study area.

Organizational and Structural Status of Farmer's Training Centers

Currently there are a total of 17 functional FTCs in Damot Gale district. From the total FTCs, six (6) were selected purposively as the villages are selected for the data collection for the visiting purpose assuming the rest of the FTC are represented by these . It was already known that from the total of 29 FTCs 19 FTCs were not considered because they are not fully completed and are not functioning. The data collectors have observed all of the six FTCs in the villageswith prepared

questioners for clarification. The observed FTCs were found in, Buge, Wandara gale, WandaraBoloso, Konasa pulassa,Balako yisha and Adde koyesha. The minimum distance of FTC from the district town is 4.125 km and the maximum distance is 14.82 km from the district city Bodditi. Almost all of the FTCs were constructed with the base using stone and the wall and roof were constructed by wood and mud with corrugated iron respectively. The construction design of observed FTCs is not the same. Each FTC has one class room, one store and one office. Except few FTCs, most of them have a toilet. From the observed six villages of the district (Table 1), none of the FTC are damaged and out of function but when we observe the inside facilities, most of the villages do not have living house for DA, electricity and television as fully as required. Together with this, appropriate teaching materials, metrology, workshop, field equipment's and electricity do not exist. The observed villages also do not have market and clinic. Training materials may be categorized into two main types**,** i.e., printed and non-printed materials. Some of the examples are blackboard, flipchart, leaflets, models, samples, etc. Among the observed FTC all have fulfilled noting for the teaching- learning process. Because of lack of electricity computer and television service do not exist.

In table 2 most farmers in the study villages have indicated their preference of training in the fields of agriculture in the future time. Accordingly Beef cattle rising from animal science 43 (34.1%) respondents, improved seed and fertilizer application from plant science 42 (33.3%) farmers and in soil and water conservation 42(33.3%) farmers have chosen to train with it in the future time. From 3, we can see that most of the training modules are there but few like Improved stove, Biogas production and utilization, Market oriented production, Credit service, Family planning and HIV are almost do not exist. The others are not found in appropriate quality and quantity.

Challenges to the Farmer's Training Centers Participants

As the focus group discussants indicated that since the start, FTC training participation of the farmers reaches high percentage form the respondents taken in the sixvillages of the study area. The method of giving the training, time and season, the method of selection for the participants and the facilities existing is however, have problems. Most of the training methods given are in class and are using chalk and black board the farmers stay long in class being much tiered of seating in the class. There are no audiovisual aids or field demonstration methods. The season of the training is also during summer season that do not consider the working time of the farmers. According to the directive (MoARD, 2007), offered on implementation of FTC-based modular training, the training programme is organized as areas of training: FTC-based modular training is proposed in three broad areas of Animal sciences, Plant Sciences & Natural Resources Management taking up entire processes from production to marketing. The training is designed based on a given marketable crops or livestock's commodity with comparative advantages in specific agro-ecological zones of our country. The rural development strategy divides the country into three main agro-ecological zones, which include regions with adequate rainfall, moisture stress areas and pastoral areas. However, 67 (53.26 %) have stated the method of teaching should be in FTC class, training on demonstration field, visiting the model farmers and as group discussion in sequential order. From Table.5 we see that first teaching in class 59 (46.8%) then visiting the model farmers 14 (11.1%) to practice in demonstration site. This was the interest of the respondents as 45 (35.8%) focusing to 1st and 2nd when put as a sequence 45(35.8%). So this table shows the future preference of the farmers for the training method to be followed 1st in class, then visit model farm then practice in the demonstration site, finally to discuss as group on the result.Based on the qualitative data the extension agents, supervisors and district extension experts, the extension activities which were carried out by most of the FTCs in the study area were, provision of extension services, short term training, advisory services, market information and modular training. The interesting thing that the researcher has observed in Buge village FTC is that, the weekly market information which was posted on the notice board, in the compound of the centre for farmers by extension agents. Wandara Gale and Wandara Boloso FTCs have a notice board in their compound which was provided by district to them.

Based on the information of Buge village FTC coordinator, modular training for 60 farmers for two months in 2015 have given fruitfully. However, after they have taught for about 2 months without completing the program, they were forced to stop the training program by the direction given to them from the top management body of district agriculture office. The reason given to them was that, the FTCs have not fulfilled the necessary teaching materials and facilities. In Adde koyisha and Balla koyisha FTCs extension agents have given training two times for a separate batch of farmers and they were not able to complete the program for both batches, due to drop out of trainees and absenteeism. Except Konasa Pullasa FTC none of them could offer the any courses for the farmers. All of the trainees were male and the recommendation or standard given for one FTC was 60 to train in one intake. The training was given by most FTCs for two days in a week and for 4 hours daily by deciding the appropriate time with the trainees. The courses commonly offered at the centres were crop production, horticulture, animal husbandry, crop protection, irrigation and natural resource in the study area Damote Gale of Agriculture and Rural Development office expert interviewee indicated that, themodular training as a short term curriculum-based training in which training course materials are compiled in modules and provided for farmers to enable them acquire knowledge and skill of specific agricultural production methods. The main goal of the modular training is to enable farmers produce quality products and become competent in markets. This could be enhanced through skill-oriented farmers. On top of this, the role of extension as the district office head mentioned, more critical for commercial oriented farmers than for subsistence farmers. When farmers produce primarily for the market (both domestic and export markets), quality and standard of the produce become much more important than during subsistence production, since competitiveness depends partly on quality of produce. However, FTCs in the district were not established accordingly to help farmers and capacitate them and able to produce for the market rather than simply counting the number FTCs. On the other hand, the purpose of FTC is to make a linkage with Institutions that give different services for farmers through FTC. And also different institutions in agricultural sector including rural micro-finance credit institutions, cooperatives, research centers, health clinics, schools, private traders and entrepreneurs can contribute to give technical, financial and institutional assistance. Institutions have important roles for farming communities. They deliver rules and regulations that can help to understand the cultural setup of people and strengthen community-based organizations (Bekele, 2010).

Criteria for trainee's selection

As the qualitative data indicated that, FTCs have their own criteria for selecting their trainees in the study area. What is common to FTCs were being poor and having the interest and potential to be self- employed after completion of training programs. It is also mentioned that in FTCs, those that are willing and could be models for others are selected and trained in the study area. Monitoring of modular training is being conducted continuously by FTC village's level extension unit and district level experts to make sure that, the required actions and practices are proceeding according to the plan. FTCs level extension unit consists of village's chairman, village's manager, development agents, and representatives of women, youth and other two model farmers and are responsible for planning and implementation of villages level development activities including management of FTCs functioning in the study area.

Table 1 . Infrastructure and facilities of FTC in the study Villages of the district

Materials and facilities	**Buge**		**Wandara gale**		**WandaraBoloso**		**Konasapulassa**		**Balakoyisha**		**Addekoyesha**	
	Do these facilities exist?		**Do these facilities exist?**		**Do these facilities exist?**		**Do these facilities exist?**					
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Class	√		√		√		√		√		√	
Office	√		√		√		√		√		√	
Seating chair	√		√		√		√		√		√	
Table for DA	√		√		√		√		√		√	
House for DA		√		√		√		√		√		√
Toilet for FTC	√		√		√			√		√	√	
Store		√	√			√		√		√		√
Workshop		√		√		√		√		√		√
Metrology		√		√		√		√		√		√
Black board	√		√		√		√		√		√	
Market		√		√		√		√		√		√
Clinic		√		√		√		√		√		√
Beehives		√		√		√		√		√	√	
Demonstration site	√		√			√		√		√	√	
Teaching aids		√		√		√		√		√		√
Field tools	√		√			√	√		√		√	
Chair for Trainers		√	√		√			√		√		√
Shelf		√	√		√			√		√		√
Electricity		√		√		√		√		√		√
Television		√		√		√		√		√		√
Others												

Source: own survey, 2017

Table 2. Showing respondent farmer's choice in the areas of training preference

Training preference	**Training preferences of the farmers in different fields**							
In Animal science		Dairy cattle	Beef cattle	Poultry	Bee keeping	sheep or goat	In All	Total
	F	23	43	21	14	18	7	126
	%	18.3	34.1	16.7	11	14.3	5.5	100
In Plant science		**In fruits production**	**In Vegetables Production**	**In improved seeds & Fertilizers**	**In coffee production**	**In root crops**	**In All**	
	F	21	20	42	17	14	12	126
	%	16.7	15.9	33.3	13.5	11.1	9.5	100
In Natural resource science		**In soil and water conservation**	**In Agro forestry**	**In Nursery**	**In Irrigation**	**In Terracing**	**In All**	
	F	42	33	23	15	13	-	126
	%	33.3	26.2	18.3	11.9	10.3	-	100

Source own survey, 2017; F=frequency of respondents, % percentage of respondents

Table 3. Table showing the existing modules in the selected kebeles FTC of the district

Training course	Is the module in Buge		Is the module in Wandara Gale		Is the module in Wandaraboloso		Is the module in Konasapulasa		Is the module in Balakoyisha		Is the module in Addekoyisha	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Compost preparation	√		√		√	√			√			
Manure preparation	√		√		√		√		√			
Use of improved seed	√		√		√		√		√			
Use of inorganic fertilizer application	√		√		√		√		√			
Weed and pest management practice	√		√		√		√		√			
Tillage practices	√		√	-	√			-	√			
Fruit husbandry	√		√		√			-	√			
Row planting	√		√		√			-	√			
Crop calendar	√		√		√		√		√			
Storage facilities	√		√		√		√		√			
Irrigation water management practice	√		√		√			-	√			
Forage husbandry	√		√		√		√		√			
Cattle fattening	√		√		√		√		√			
Sheep and goat fattening	√			-	√		√		√			
Animal housing	√			-	√			-	√			
Dairy Production	√		√		√		√		√			
Poultry production	√		√		√			-	√			
Beef production	√		√		√			-	√			
Modern beehive	√		√		√			-	√			
Zero grazing	√		√		√			-	√			
AI service	√		√		√		√		√			
Soil water conservation	√		√		√		√		√			
Forest protection and management	√		√		√		√		√			
Nursery	√		√		√		√		√			
Improved stove		-		-		-		-		-		
Biogas production and utilization		-		-		-		-		-		
Market oriented		-		-		-		-		-		

production												
Credit service		-		-		-	√			-		
Family planning and HIV		-		-		-	√			-		
Other (specify)		-		-		-				-		

Source: own survey, 2017

Table 4. The teaching tool used by the FTC as indicated by the respondents

Methods of teaching used as claimed By respondents	**Respondents**	
	F	**%**
Using books or handouts	4	3.3
Using pictures, posters and leaflets	5	3.97
Using fertilizer, improved seed or seedlings and soil sample,	15	11.9
Using video and photographs	-	-
Using black board and chalk	29	23.6
Using field equipment's	5	3.97
All methods except, Using video and photographs	67	53.26
Total	126	100

Source own survey, 2017; F=frequency of respondents, % percentage of respondents

Table 5. The methods of teaching employed (used) in the FTC so far is as shown below

	F	**%**
By teaching inside FTC class	59	46.8
By visiting model farmers	14	11.1
By practicing in demonstration farm sites	8	6.3
1st and 2nd methods	45	35.8
Total	126	100

Source own survey, 2017; F=frequency of respondents, % percentage of respondents

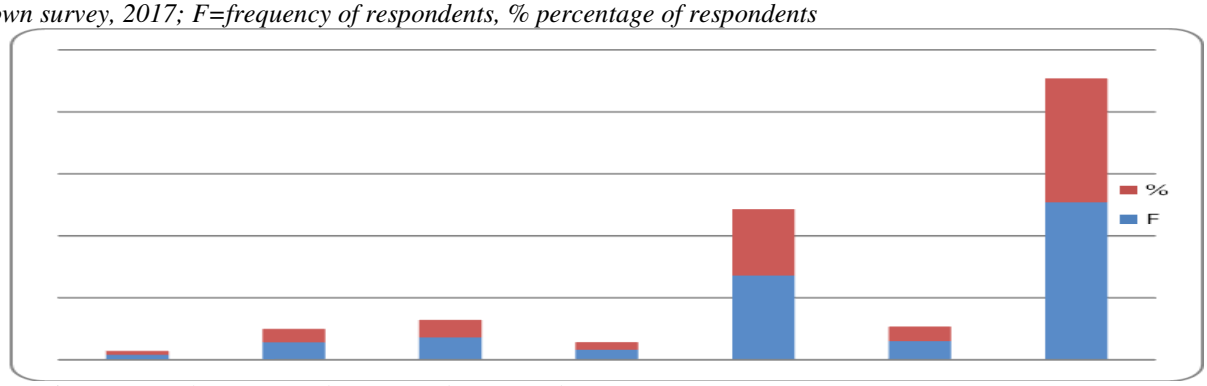

Fig 1. Constraints on Development workers as put by respondents

Perception of the Communities in the Farmer's Training Centers

The extension-teaching methods are the tools and techniques used to create situations in which communication can take place between the rural people and the extension workers. They are the methods of extending new knowledge and skills to the rural people by drawing their attention towards them, arousing their interest and helping them to have a successful of the new practice. A proper understanding of these methods and their selection for a particular type of work are necessary (kirishi, 2009). As the interviewees indicated that FTCs were basic institutions through which the agricultural products and other related activities progress have been catalyzed in the study area. The local community had not been involved in any initial discussions in the importance of training taken in the improvement of agricultural activities. In many cases, what was a very common perception to bypass the local peoples at the initial stages, was because of the under assumptions of the district agricultural office experts think as it was the only stage for the higher government officials and professionals. However, as time goes, this type of thinking has given up and the local people become the main stakeholders who play the greatest role in the improvement of production and productivities in the study area.

Accordingly, as the majority of respondents mentioned that, the local peoples in cooperation with development agents, village's leaders and district experts have been agreed to plan and implement the training process in FTCs in their area. These also indicated that the capacity to the local people in order to criticize what is not good for their area and made the local government more responsive to the local people need and more effective in the service delivery. Nevertheless, the report obtained from the villages chairman showed that the community based planning is being considered as the strategy for overcoming the key problems

faced by the local people with their active participation, the key problem faced by the communities in the FTCs include: unequal resources allocation for all the FTCs in the district level, inefficient resources like skillful development agents , inadequate institutional capacity at village level, lack of good governance and information gap in training schedule in the study area. Effective farmers training programs in the district level were very important to transfer improved and latest technologies in the study area. According to field survey, the training programs almost terminated due to different factors. One of the major factors was the training program, incomplete training house constrictions and the demonstration and practical fields.

Conclusion

The number of FTC found in the district reaches to 29, among these 10 of them were not fully functional. This was because of incompleteness of their construction and unfulfilled basic inside materials and equipment's. Accordingly 10 FTC are functioning at this time. The types of disciplines given in the district are animal science, natural resource and plant science. The basic objectives of the FTCs are to give training in the above fields, to transfer new technologies in agricultural technologies and to expand demonstration sites in agricultural fields. Although there are no clearly put curriculum in the FTC site and not yet designed, the center is managed and controlled by regional, zonal, and district agricultural offices. About the body who is giving the training in the FTC ,was reported as most of the time the development agent and the district agricultural office experts were said responsible but the villages administration is also participating some times. However, some of the farmers who have been trained in the FTC have stated that the training was boring and need to be given in practice in addition to giving in the class.The method of giving the training, time and season, the method of selection for the participants and the facilities existing is however, have problems.

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