An Assessment of Men and Women Farmers' Accessibility to Governmental Agriculture Extension Program A Case of Arghakhanchi District, Nepal

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LIST OF ABBREVIATIONS

ASC	Agriculture Service Centre
DADO	District Agriculture Development Office
DOA	Department of Agriculture
DOAE	Directorate of Agriculture Extension
FAO	Food and Agriculture Organisation
FG	Farmers Group
GDP	Gross Domestic Production
IPM	Integrated Pest Management
JT	Junior Technician
JTA	Junior Technical Assistant
MOAC	Ministry of Agriculture and Cooperative
NGO	Non-government organization
VDC	Village Development Committee
DANIDA	Danish International Development Agency
IPM	Integrated Pest Management
PPD	Plant Protection Directorate

ABSTRACT

The study assesses whether the governmental agriculture extension program was accessible equitably for both men and women farmers. The study was conducted in Dhikura VDC of the Arghakhanchi district of Nepal. The study consisted of the sample of fifteen women farmers and fifteen men farmers. Household survey, interview and gender analysis approach(group exercise) were the main means of collecting primary data along with desk study for secondary data. In the study agriculture group were found to be formed in the initiation of local political leader instead of extension workers. Women farmers joined the agriculture group with the purpose of getting credits and incentives such as seed kit whereas men farmers' purpose was to get other extension services such as trainings. Farmers were found to get social as well as economic benefits from the group such as sharing ideas, acquiring new knowledge and increasing family income. The study showed higher coverage of women farmers in agriculture groups but there was less women's participation in overall governmental extension program than men farmers in some exceptions such as Integrated Pest Management (IMP) Farmer's Field School. It was found that women had the whole working day with dual roles in farm activities as well as household activities. It suggested that to increase women farmers' access to extension activities, the extension should be focused to reduce women's work load for example to promote low cost handy machinery for example paddle rice thresher. Similarly, the result also showed the differences in extent of men and women farmers' involvement in making decisions in various farming activities and household activities. The findings suggested that women can participate in the activities which can address the subject area that was directly dependent upon women's decision for example such as for crop storage, poultry rearing.The result showed many indirect ways of communication through which farmers received advices on agricultural matters such as from extension workers, husband/wife, neighbor/friend and relatives. On the other hand, more than fifty percent of women were not found to be visited by any extension workers. Farmers (both men and women) were not found to be satisfied with the current extension services delivery system because the most of the time extension workers were not present in the field level extension offices, timing of the activities were not suitable and message content were out of interest. Number of field level extension offices and extension agents was also found to be inadequate. In fact, agriculture extension program activities were not women friendly. Although women farmer preferred the female extension workers but all the extension workers employed in the field were only men, which was the considerable factor making women farmers hesitant to take part in extension program. Frequency of contacts made to women farmers was less as compared to men farmers. Also, the result revealed the fact that woman farmers were not encouraged to participate in extension activities by heavy household work load or due to taking care of children along with inappropriate timing, venue and message topic, lack of incentive for women constrained women farmers from participating in the extension program. Moreover, the study findings showed overall agriculture extension services in the district were not adequate and not delivered equitably instead it was lopsided towards male farmers. This study suggests that the agriculture extension program should address the specific needs, preferences and interest of the men and women farmers for its equitable accessibility.

CHAPTER ONE:INTRODUCTION

1.1 Background

Nepal is a country of great geographic diversity rangingfrom 60 and 8,848 meters above sea levels.It borders with India to the east, west,and south, and the Tibet Region of Republic of China to the north. Ecologically, the countryis divided into three regions: the high mountain region including the Himalayas at 8,848 metersabove sea level onthe north; the mid-hill region inthe Mahabharat range; and the Terai plain ranging between 60 and 610 meters on thesouth.This topographical diversity is also accompanied by climatic diversity of rangingbetween those of the extremely cold tundra to those of the hot humid tropics.In fact, agriculture is the Nepal's principal economic activity, employing over 65.5% of the population and contributing38% of gross domestic production (MOAC, 2008).

According to current national census survey 2010 (FAO, 2011), still 26 percent of the total population is below the absolute poverty line in Nepal. More than 80% of the total Nepalese population is living in rural area among which about 80% are dependent on agriculture sector for their livelihood. Due to difficulties in transportation and non-competitive market,especially in remote hilly areas, food problem is complicated. Inabilityto effectively use investment and physical facilities, inadequate supply and inadequate use of basic agriculturalmaterials like chemical fertilizers, improved seeds, irrigation andcredit; the weakness of market mechanisms, higher risk in production ineffectiveness of agricultural extension services;and lack ofagricultural research in required sectors are seen as major problems areas of Nepal for low agricultural productivity in rural hilly region.Endemic rural poverty and food insecurity are critical issues, especially among tribal people living in isolated rural areas. More than76% of the labour force is involved in agriculture andwomen contribute almost 60% of the agricultural labour force(Bista, 2004). Small and marginal farmers operate 90% of the 2.7 million agriculture holdings; the average size of these holdings is less than one hectaredue to the extreme land fragmentation. Rice, maize and wheat followed by potato are the main food crops of Nepal. The lowland Terai region produces an agricultural surplus, part of which supplies the food-deficient hilly areas. Because of Nepal's dependence on agriculture with rainfall, the magnitude of the annual monsoon rain strongly influences economic growth.

In rural livelihood, especially in smallholder agriculture, women play the major role contributing substantially to agriculture, both in terms of labour input and decision making. Women constitute the larger proportion of the agricultural labour force. Their control over resources, services and benefits, however remains small.However, for the increased agriculture productivity, women's involvement in agriculture extension program is required. In fact, an attempt to promote women's participation in agriculture developmentextension program was not done in Nepal before Sixth Five Year Plan (1980-85). Full participation of women in agriculture extension program was identified as a necessity in Seventh Five Year Plan (1985-1990). As a result, plan was implemented by appointing women coordinator in ministry of agriculture and allocating 10 percent women quotas for the women farmer in training, seminar and tour program (Basnyat, 1990). Moreover, importance of gender mainstreaming in the agricultural development was felt in the Eight Five Year Plan (1992-1997). In this plan 25 percent of women's participation in agriculture extension program was compulsory. It was increased by 35 percent in the Ninth Five Year Plan (1997-2002). Similarly, the Tenth Plan (2002-2007) intended to have 40 percent women's participation in the agricultural programs. Also, the National Agriculture Policy (2004) proposed to increase women participation in governmental agriculture extension programs by 50% (Joshi and Koirala, 2005). Policies have been formulated of providing first hand information about agriculture technologies and management to women farmers (MOAC, 2000).

Agriculture extension is a mechanism through which information on new technologies, better farming practices and better management is transmitted to farmers (Gebremedhin, 2006).

Agriculture extension delivers information either in the embodied form as inputs or equipments (improved seeds or machinery) or it may be new research product such as improved crop varieties, to skills and techniques about using particular inputs (timing and doseof use of fertilizer) (Byerlee, 1998). Agriculture extension teaches farmers how much quantity of what inputs to use to produce high, where and how to seek market, how to store etc so that farmers can benefit by increasing their farm efficiency (Anandajayasekeram et al, 2005). In fact, extension programs make easier for farmer in adopting technologies.In Nepal, Agriculture Extension Policy (2004) has been formulated for the promotion of agriculture development.

1.2 Problem statement

Effective extension involves adequate and timely access of the message by farmers to relevant advices with appropriate incentives to adopt the new technology (Anderson and Feder, 2004). Government as well as other organizations such as NGOs and privet organizations are delivering extension services in Nepal. Since 1950, Nepal has been practicing many extension models and approaches such as Conventional, Training and Visit, Block Production, Tuki, Farming System Research, Farmers Field School etcetera (DOAE, 2010). After several experiments of different models, Government of Nepal has adopted conventional system of extension services from 1998 which has the working modality with farmers groups (FGs). In this approach, the farmer leader in particular is trained and utilized to diffuse the technologies to his neighbors (Basnyat, 1990). It is reported that current extension system in Nepal has not addressed the needs and priorities of different clients (men-women) farmers, small, big, marginal, different ethnic and indigenous) existing in the farming community since it works in a general approach to deliver the services without considering the type of clients (FAO, 2010). However, there is notsufficient study on how the governmental extension program is delivered, whether current agriculture extension delivery system is accessible for both men and women farmer and what the problems are hindering women farmers to participate in the extension programin Nepal.

1.3 Objective of the study

Objective of this study was to identify the ways for improving women farmers' access in agriculture extension program of District Agriculture Development Organization.

1.4 Research questions

Main research questions of the study are:

1. How the agriculture extension programs are delivered to men and women farmer?
2. What are the constraints that prevent women farmers' participation in agriculture extension program?

Sub research questions are as follow:

1. What is the situation of men and women in decision making of agricultural activities?
2. What is the situation of men and women farmers' participation in different types of extension program provided by DADO?
3. How the agriculture groups are formed?
4. What are the purposes of men and women farmers to be involved in the agriculture group?
5. What are the benefits after being member in agriculture group?
6. What are the sources of receiving agricultural advices for men and women farmers?
7. How often the agricultural advices from extension agents are received by men and women farmers in a year?

8. What is the satisfaction level of the men and women farmers over current extension services provided?
9. What was the gender preference over extension worker?
10. What are the problems women facing to participate in the extension program?
11. What are the most preferred topics of the extension message for men and women farmers?

1.5 Limitations of the study

This study was mostly based on the perception of the farmers. Therefore, farmers' bias might be there. It was rainy season andthe farmers were busy in rice planting. So, arranging time with them wasdifficult.The study was confined on only one village development committee (VDC). However, there were 42 VDCs and 1 municipality in the district.

CHAPTER TWO: LITERATURE REVIEW

2.1 Farming systems in Nepal

Nepalese agriculture is formed by diversified farming systemdepending in the differences in agro-ecological topography (the high mountain, the middle hill and the terai). Altitude and climatic condition influence in the variation of farming system and crops. Most of the households depend on the agriculture and other activities such as livestock productions and forest products. Rice wheat and maize are the major cereal crops in Nepal. Rice based cropping system along with wheat and maize are dominant in the terai and middle hills of Nepal whereas minor crops such as millet, barley and buckwheat are grown in high mountains. Likewise tea, ginger, coffee, and cardamom major cash crop in the middle hills. Similarly temperate fruits such as apple, citrus and tropical and subtropical fruits (mango, pineapple, guava) are grown in the high mountain, the middle hills and the terai. Vegetable is grown as kitchen garden in all types of agro ecology(FAO, 2000).

With more and more men leaving rural hilly areas in search for lucrative jobs in cities and abroad, women are left to cultivate the land and sustain their families. The reasons behind male labour migration are almost same in Nepal as in other parts of the developing world. Poverty, limited employment opportunities, deteriorating agricultural productivity, and armed conflict are some of the reasons behind national and international labour migration. There are many villages in Nepal where labour migration has been established as a culture of a community; that is, going abroad for work for awhile and returning with some money and experience of living in a different geographical location (Bhattarai, 2006).This increasing trend of male labour migration from rural farming communities has created a vacuum in the field of agriculture labour which resulted more burdens on rural women to perform farming activities. A study undertaken by the Asian Institute of Technology in 1999, with the technical assistance grant from IFAD, in three villages in Kavrepalanchok District of Nepal found that male migration doubled women's physical work burden (Azad, 1999). From gender perspective, male labour migration has made the Nepalese agriculture almost dependent on women. Although majority of the women in rural areas are compelled to operate almost all of the farm activities, stillploughing is considered as men's job whereas carrying compost to the field is women's job. In absence of men member in the household, women have to hire the labor from outsider which is economically burden. However, women's involvement is higher in the production of major crops such as rice, maize and wheat; and time spent by women in the farming such as in sowing, transplanting, weeding, harvesting is higher than that of men (Joshi, 2000).

2.2 Agriculture extension

The goals of extension include the transferring of knowledge from researchers to farmers, advising farmers in theirdecision making and educating farmers on how to make better decisions, enabling farmers toclarify their own goals and possibilities, and stimulating desirable agricultural developments (Vander Ban and Hawkins, 1996). Although, impact of extension on farm performance depends on how the extension services are delivered in what circumstances of the farmers. To be effective extension system, it should be adequate and timely access by farmers to relevant advice with appropriate incentives to adopt the new technology according to farmers' socio-economic and agro-ecological circumstances (Anderson and Feder, 2004). Adoption can be influenced by educating farmers about such things as improved varieties, cropping techniques, optimal input use, prices and market conditions, more efficient methods of production management, storage, nutrition, etc. To do so, extension agents must be capable of more than just communicating messages to farmers. They must be able to comprehend an often complex situation, have the technical ability to spot and possibly diagnose problems, and possess insightful economic-management skills in order to advise on more efficient use of resources. However, the

availability of improved technology, access to "modem" inputs and resources, and profitability at an acceptable level of risk are among the critical factors in the adoption process (Anderson and Feder, 2003).

In India, Training and Visit (T and V) system had greatly increased the number of contacts between farmers and extension workers since extension workers were the important source of knowledge about new farming practices and technologies. Moreover, it led to increase significantly the output of the cereal crop because it made extension worker available most of the time to the farmer so that farmers could get advices and improved the ability to respond to the local problems (Feder and Slade, 1986).

Extension messages cannot be effective unless they reach the clientand at present the messages are tending not to reach women farmers. Evidence from a wide range of African countries demonstrates thatcommunication with women farmers is generally enhanced when female extensionagents are used (Evans. 1989). This is true even in countries with relativelyfew social barriers to male-female interaction. In Zimbabwe, for example,where women are legally equal in status to men, more women were found toparticipate in extension when female agents were used (Skapa, 1988).

Nepalese society being male dominated, men farmer participation is found more in extension services than women farmer. Design, the ways and the approaches of the extension service delivery system is not also women friendly for example lack of child care in residential training. The needs and interest of women farmer is neglected while planning the extension program. The government had rarely initiated to take into account of addressing women's issue in the extension. Women farmer feel easy to communicate with female extension worker but most of the field extension workers are male. There is very less contacts made with women farmers. Although, women's group is formed more than men's group, final beneficiary from extension program are men(Subedi, 2008).

2.3Agriculture extension system in Nepal

The training and visit extension system
Government of Nepal introduced the Training and Visit (T and V) Extension System for the period of 1975-1989 in assistance with the World Bank. It was adopted to expand extension coverage, to train farmers and extension workers and to pass on technical recommendations in a time-bound schedule of visits to contact farmers. But this system could not be developed sustainably since it was donor funded and after the closer of the fund the system also collapsed.

The block production program
The Block Production Program (BBP) was adopted in 1982 with the aim that production and productivity can be increased when complete packages of production practices are integrated and concentrated in a particular commodity in the contiguous agricultural area called the "block". But this approach also could not stay long run since it was cost high financially and in human resources compared to the nationwide conventional approach. It was criticized as it could not help the poor farmers who lacked the prerequisites of resources to participate in the program.

The Tuki extension system
The Tuki system of agriculture extension system was implemented in 1977 for the project Swiss-assisted Integrated Hill Development Project (IHDP). It recruited the volunteers (the Tukis) after an intensive 15-days long progressive farmers training. The Tukis were the extension agents who disseminate, trainee, demonstrate new technology to his neighbors.

Farming system research and extension approach
This approach viewedresearch and extension in the whole farming system perspective, so that croppingsystem research could be done. Farmers would know the interdependenciesbetween components and could relate to physical, biological and socio-economicfactors.

Integrated rural development approach
This approach was based on theintegration and coordinated management of resources for rural development.Technology support was however not adequate.

2.4Group approach in agriculture extension system

Government of Nepal started using group approach in extension service delivery system since 1988. In 1992, MOAC spelt out the policiesregarding the agricultural development which emphasis the involvement of farmersgroup in planning, implementation and evaluation of the program. Since then,several farmers' group are formed either gender wise that is, male farmers' group,female farmers' group, and mixed farmers' group or commodity specific groupssuch as vegetable grower group, fruit producer group, cereals producer group,fishery group, apiculture group, sericulture group and marketing groups. Use of group approach in extension was adopted in Nepal since it helped group learning, joint decision making and cost effective. Farmers need to organize in groups called as Farmers' Groups (FGs) for getting government services. There is a variation in size, composition andactivities of the group. The size of groups varies from group to group, location andgroup activities. Usually there are 10- 25 farmers in each group. The compositions ofthe groups are like women farmers group, men farmers group and mixed farmergroup depending up on type of task performed.Extension workers come to the groups and conduct monthly meetings. Extension worker contact FGs to select candidates among farmers for the trainings, demonstrations, tours and other extension activities. These groups become cooperatives as formal institutions to operate business and to access benefits provided to cooperatives by governments. The objectives of the farmer groups approaches are: (i) to establish selfreliant groups of rural men and women to articulate their needs, problems andpriorities, (ii) to increase the income of farm people by drawing them in to marketeconomy through commercialization of their production system, and (iii) to increasethe farmer's involvement in decision making in planning, implementation andevaluation for agricultural development in the country (AREP, 1997).

2.5Gender of extension worker

Gender of the extension worker influences the participation of women farmers in extension program. Even though men farmers are more aware of and participated more in the extension activities organized by agents than women farmers, the study shows that women farmers who are supervised by female agents have more access to extension services than women farmers who work with male agents. Specially women farmers, who had females for extension agents had relatively higher levels of awareness and participation of the extension activities organize, adoption of and technical knowledge of recommended technologies/practices and satisfaction with the quality of agents' services and credibility. These differential effects of female and male agents on women's access to extension are significant to deliver the extension services to women farmers, especially (Lahai et al, 1999).

2.6Constraints of women's accessibility in extension program

Women have many constrains such as time, mobility, budget so that they cannot access in extension program. Therefore, they have less access to information, technology, land, inputs and credit(Saito and Weidemann, 1990). In the past agricultural extension strategies focused only on increasing production of cash crops which provided training, information, and access to inputs and services to only male farmers. This male bias can be in farmer training centers, which have been established to provide residential training on technical subjects. Most do not provide separate washing and sleeping accommodations for men and women and do not provide facilities for the care of babies or young children, factors which may prevent women from attending the centers. Second, women's daily workloads do not usually allow them to be absent from home for residential training; even attending short courses may cause insuperable problems in arranging substitute care for children or the home(Pradhan, 2009). And third, even where attendance of women is quite high as a proportion of the total, women are given instruction mainly in home economics and craft subjects, not technical agriculture (Subedi, 2008). Further, in the overwhelming majority of countries, extension services have been staffed predominantly by men. Only in countries such as the Philippines have women field staff been deployed in sufficient numbers and with sufficient resources to become effective agents of change among women farmers.There is a lack of awareness of these constraints. Most policy makers, extension agents who are not directly affected by the problems and needs of women farmers, are not sufficiently aware of them. A number of initiatives are needed to improve awareness. These include collecting necessary information, gender training to staff, redesigning surveys and questionnaires, and generating feedback on progress (FAO, 1992).

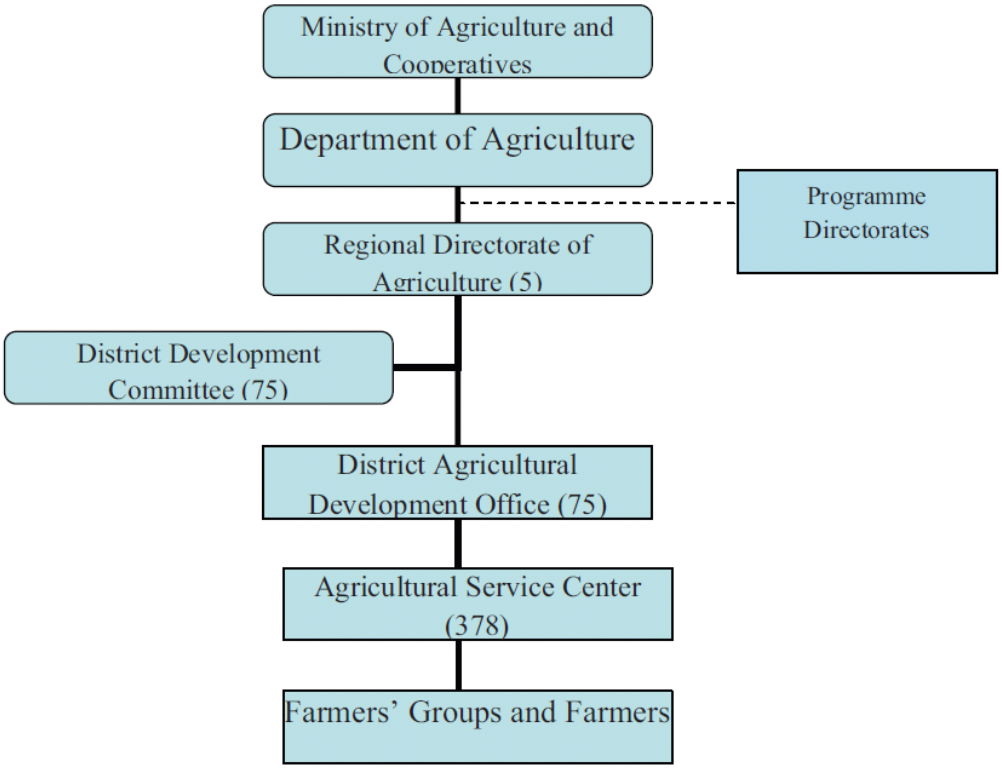
2.7 Improving women's access to extension

Agricultural extension strategies traditionally have focused on increasing production of cash crops by providing men with training, information, and access to inputs and services (Jiggins et al, 1996). This male bias is illustrated in farmer training centers, which have been established to provide residential training on technical subjects. Most do not provide separate washing and sleeping accommodations for men and women and do not provide facilities for the care of babies or young children, factors which may prevent women from attending the centers. Second, women's daily workloads do not usually allow them to be absent from home for residential training; even attending short courses may cause insuperable problems in arranging substitute care for children or the home. And third, even where attendance of women is quite high as a proportion of the total, women are given instruction mainly in home economics and craft subjects, not technical agriculture. Further, in the overwhelming majority of countries, extension services have been staffed predominantly by men. Only in countries such as the Philippines have women field staff been deployed in sufficient numbers and with sufficient resources to become effective agents of change among women farmers.The introduction of the training and visit system emphasized the selection of *contact farmers* as a mechanism for passing on information to other ("follower") farmers in their area. The recommended selection criteria, such as title to land, literacy, or cooperative membership, as well as male extension staff's assumptions about women's roles in farming, have largely excluded women's involvement. In some countries, individual contact has been complemented by *group contact,* especially, but not only, has where it may be difficult for male change had agents to have any typed of contact with individual women other than their own relatives.

2.8Organizational structure of the extension service delivery system in Nepal

Ministry of Agriculture and Cooperatives (MOAC) is the national level governmental organization who makes agriculture related national plan, policy and strategies. Department of Agriculture (DOA) is its one branch which provides extension services for the crop development. It consists of different Program Directorates such as-Agriculture Extension, Crop Development, Fruit Development, Vegetable development etcetera. There are five regional directorates at different regions for the supervision and technical support to district agriculture development offices (DADOs). But DADOs are controlled by District Development Committee for administrative matter according to Local Self Governance Act 1999 after devolution of agriculture extension. DADOs are responsible for delivering extension services to farmers in the districts. 75 DADOs are established in the country for the governmental agriculture extension services delivery. Field level extension offices are also established by DADOs in the name of Agriculture Service Center. Extension workers in the ASC form the farmers groups, deliver technical guidance and make close contacts with the farmers. In Arghakhanchi district, there were total of 14 extension agents in the District Agriculture Development Office where not a single female as an extension worker. Organizational structure of the agricultural extension system in Nepal has been shown in figure 2.1.

Figure2.1Organizational structure of the agricultural extension system in Nepal

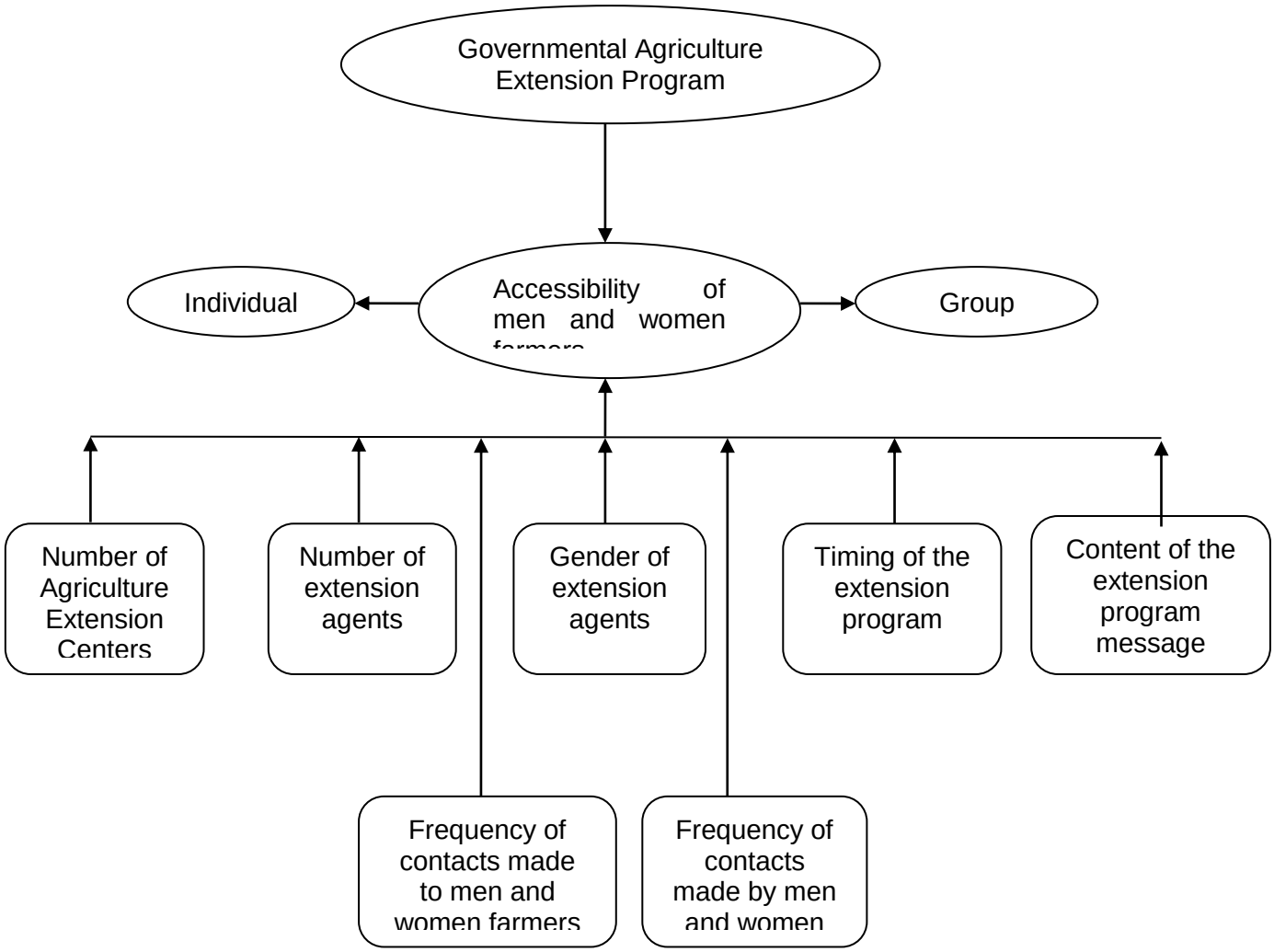


(Source: FAO, 2010)

2.9Conceptual framework

The study is based on the conceptual framework outlined in a figure 2.2. The framework tells about the determining factors to access to agriculture extension program. To what extent the agriculture extension program is available to as many people as possible is important issue for the assessment of accessibility. Agriculture extension program has not been able to reach to women farmers as compared to men farmers. There are many factors to determine whether extension is accessible to both (men and women farmers) in equal level. In fact, the program has been developed in a way that ignores different requirements of women farmers while planning and thus the services are out of reach to women farmers. Men and women farmer's accessibility to government agriculture extension program depends on various factors. Accessibility determining factors are:number of Agriculture Service Centers,number of extension agents, gender of extension agents, timing of extension program, content of extension program message, frequency of contacts made to men and women farmers and frequency of contacts made by men and women (flow chart as below). Farmers can access to the services by individual or in group.

Figure 2.2 Conceptual framework



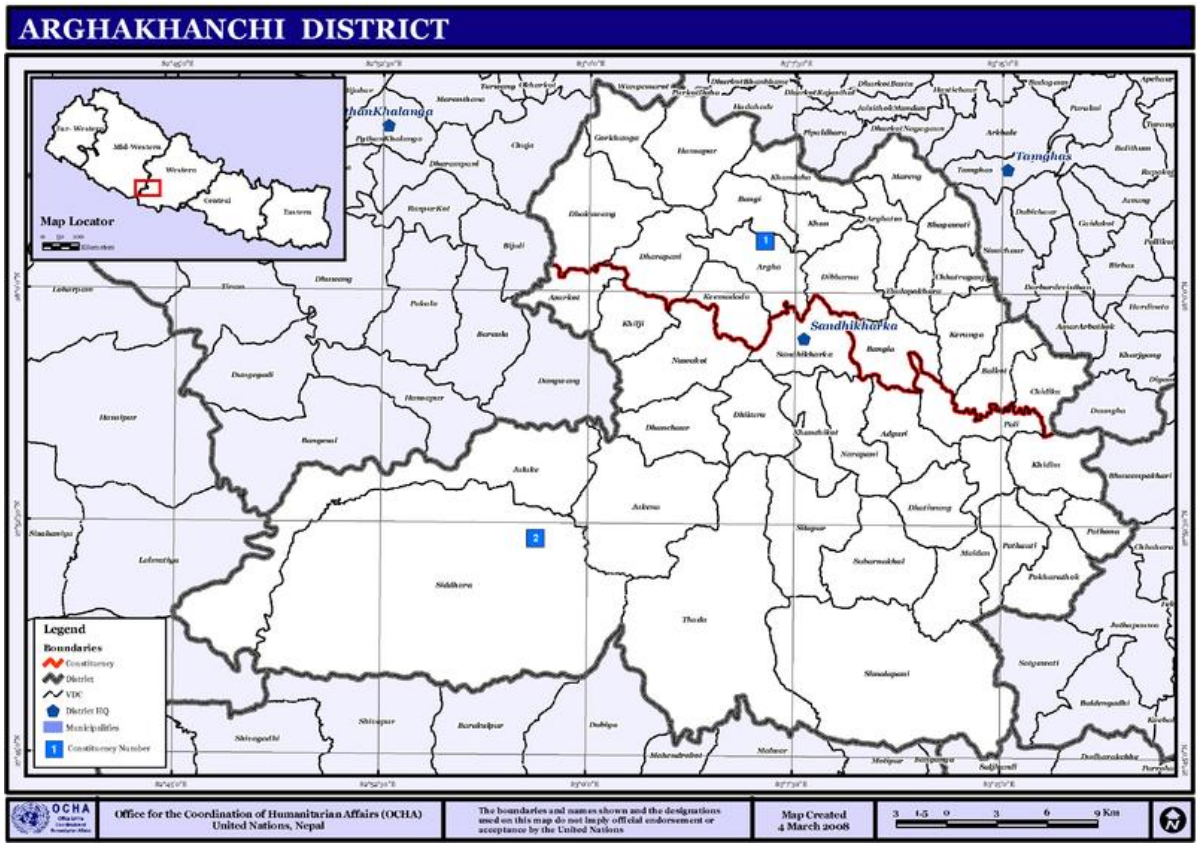
CHAPTER THREE: METHODOLOGY

3.1 Research site

Arghakhanchi district is one of the hilly districts in central region of Nepal. It lies between $27^0$45' to $28^0$6' north latitude and $80^0$45' to $83^0$23' east longitude. The district's elevation ranged from 305 to 2514 meters above sea level. Average annual rainfall is 2200 mm. There are 42 Village Development Committee[1] (VDCs) in the district.Situation of population in Arghakhanchi district is given in table 3.1. Situation of land utilization in Arghakhanchi district is given in table 3.2.

In research site the farming system is subsistence type and rain fed agriculture. Agriculture is only the way of life. However, nearby road side some of the farmers started the commercial high external input agriculture like vegetables which give more profit than cereals. Most of the farmers in the area planted same types of crops in same seasons. Rice is the main staple crop followed by maize, wheat, millets, and other seasonal and off seasonal vegetables. Livelihood sustainability of the farmers in that area is more difficult only with farm activities. So, most of the male are migrated to the city area and to the foreign countries like India and gulf countries in the lean period. As well as, the new generation is not willing to continue agriculture due more preferences ongoing aboard. All most all the agriculture is dependent on rain due to the lack of irrigation facility.

Figure 3.1 Map of the Arghakhanchi district



(Source: Office of the Coordination of Humanitarian Affairs, 2008.)

1=A **village development committee (VDC)**in Nepal is the lower administrative part of its local development ministry. Each district has several VDCs.A VDC is further divided into wards; the number depending on the population of the district, the average is nine wards

Table 3.1 Population status of Arghakhanchi district according to 2001 census

Description	Population
Female	112054
Male	98980
Total	209034
Total households	40807
Average population per house	5.12
Population growth rate	2.45
Population density per square kilometer	175.22
Agriculture dependent population	194401 (93%)

(Source: DADO annual report, 2010)

Table 3.2 Situation of land utilization in Arghakhanchi district

Description	Area in hectares
Total land	1,19,300
Total cultivated land	45,712
Cultivated land	27,986
Not cultivated land	17,736
Irrigated land (twelve months)	3,019
Seasonal irrigated land (three months)	5,495
Forest	66,800

(Source: DADO annual report, 2010)

3.2 District Agriculture Development Office (DADO), Arghakhanchi district

DADO Arghakhanchi isgovernmental extension organization under Department of Agriculture. It is a district level office with field level Agriculture Service Centers (ASCs). District AgricultureDevelopment Office (DADO) Arghakhanchi is located in western development region. It provides service farmers and rural people for increasing production and productivity throughimproved agricultural technologies obtained from the research institutions.DADO is fully responsible for overall planning and implementation extension program in the district. In order to carry out program activities at field levels field levelextension workers (JT/JTAs) are deployed at Agriculture Service Center in thedistrict. Different subject matter specialist (SMS) including chief of the DADO ispositioned on district head quarter to formulate district level plan and monitoring andevaluation of on-ongoing program. It consists of the 4 technical sections: Extension,Horticulture, Plant-protection and Planning headed by Gazette class III officer andthe one Administrative section headed by Non-Gazette class Iststaff. It has 7 Agricultural Service Centers with 40 technical and 13 support staffs. Chief of theDADO has overall responsibilities of the programs and office managementas well as authorized to expense the annual program\ Administrative budget when he/she gets authority from Director of General. The JT \ JTAs are working in the village level directly in close contact with the farming people. They are mostly responsible forcompleting the assigned tasks from the beginning to the end. They are the fieldworkers but do not have special power of decision making.The Vision, Mission, Goal and Objectives of DADO Arghakhanchi are as follows:

Vision

Broad based effective and sustainable agricultural development

Mission

To promote knowledge based farming by transferring modern agricultural Technologies through group approach, mass-media communication, partnership andcontract-out approach and developing effective linkages between research andextension system.

Goal

To transform the subsistence based agriculture into commercialization and itsdiversification for food security and poverty reduction.

Objectives

- To motivate farmers to adopt improved practices and technologies, andinformation related to agriculture, agri-marketing, agri- business and cooperatives
- Increasing the production and productivity of the crops through extension ofimproved technologies and sending the problems identified by the farmers to theconcerned office.
- Increasing income of the farmers and generating employment throughcommercialization and diversification of the crops.
- Increasing production and productivity of raw materials for agro-based industries.

Mechanism of working of the DADO

DADO follows the same goals, objectives and strategies of the DOA for extensionservice delivery. Department of agriculture provides guidelines and DADO preparesprogram for the district by consultation DDC and local level institution such asfarmers groups, Co-operatives, districts regional members of DDC according to theguidelines received from DOA. So, the DADO's extension programs have beenadopted bottom up approach. The District Agriculture Development Committee underthe chairmanship of DDC chairman has formed under the decentralization act 2004to look overall agricultural development in the district. This District AgricultureDevelopment Committee Co-ordinates DADO with other line agencies in district. Atgrass root level ASC disseminates technology and execute the programs. In the ASC, JT and JTAs are assigned to implement the agriculture program at field levels.They contact with individual, group and farming community in order to make programplanning and execution of the program. Besides, there are some other organizations also providing extension services to the farmers in the districts. DADO covers the whole of the Arghakhanchi district, where it extends technologies relating to Cereal crops, Vegetables, Fruits, Apiculture, Fisheries and Seri-cultures to the farmers groups rather than to individual farmers. For-example: they may provide a group with demonstration materials and tell them how they should be used. The group with then, decide which of its member should demonstrate the use of the materials. One of DADO's main functions is to maintain linkages with research, input suppliers and International/Non GovernmentalOrganizations (I). The linkages mechanisms, especially with NGO's (I) and PO's were not clear, except when extension personals participated in research outreach sites.

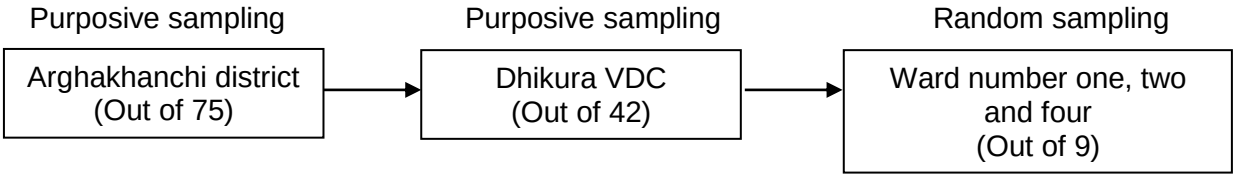
Ongoing services of DADO

- Developing agricultural technologies to the farmers groups which are certified by the National Agriculture Research Center (NARC) for the domain relating to Cereal crops, Vegetables Fruits, Apiculture, Sericulture and Fisheries.
- Conducting Training, Tours, Visit, Farmers' day and Demonstration of different crop varieties.
- Organizing crop exhibitions, once in a year at DADO head-quarter or ASC, including almost all the commodities and also individual crop competition program.
- Organizing the farmers in group (crop-specific) and then, strengthening towards co-operatives.
- Distributing Minikits (seed- kits) of the different improved crop varieties with free of cost to the groups.
- Distributing agricultural inputs like: Beehive, Sprayers, agricultural dairies to the farmers with 20% subsidies.
- Woman development program for example Training, Tour and Minikitsdistribution of different improved crop varieties. Etc

(Source: Annual report of DADO Arghakhanchi, 2010)

3.3Site selection technique

Arghakhanchi district was selected purposively because it was researcher's home place where socio-economic, culture and situation of agriculture was familiar for researcher. Another reason was logistic supports and humanresources were received from family, relatives, and friends to carry out the field study in limited time with minimum budget. Dhikura VDC was selected as a research site purposively because it was the nearestASC located village. Since ASC was located in the village, it was assumed that farmers were aware of extension activities and could answer of the research questions. Among nine wards in the village, one, two and four wards[2] were selected randomly. Site selection strategy has been shown in the following scheme.



3.4Research units

Major research units were the male and female farmers. Total number of research units was thirty. Out of the thirty farmers, fifteen were female and remaining fifteen were male farmers. Farmers were selected randomly, for this; name list of the farmers for ward number 1, 2 and 4 of the Dhikura VDC was obtained separately for men and women from the VDC office. Then fifteen list from women and fifteen from men farmers list by lottery method. Both male and female farmers were included in the study to know needs, interest and responses of two different genders.

3.5Data collection procedure

The study was based on both primary and secondary data. Primary data were collected by researcher himself on July 2011. The methods used for collecting primary data were group exercises (gender analysis approach), household survey and interview.

Two group exercises were conductedwith the mix group (both men and women farmer) and women only farmers.There were 17 individuals in mixgroup and 14 individuals in women only group. Women might feeluncomfortable to speak frankly in front of men in mix group, therefore women only group exercises was also conducted. Group exercise was conducted to get general views of men and women farmers over the subject. Gender analysis approach (activity profile, time use charts, decision making and preference) was used as a basis for the group exercise and questions such as who does what, how long, and who has decision over what activities, what was the most preferred topic of the extension etcetera were asked. Group exercise was recorded on the spot in the video so that it became easier to recap.Before recording, group members were asked for their consent. Video recording did not affect answering the question rather both men and women farmers were more motivated. It took 2-2.5 hours in one group discussion.

2=**A VDC** is further divided into wards; the number depending on the population of the district, the average is nine wards

Besides group exercises, household (HH) survey along with interview was also done to get in depth information. HHsurvey and interview with farmers was conducted with the help of semi-structuredquestionnaire. Both open and close ended questions were included in the questionnaire (appendix 2). It took about 1.5 hours for HH survey and interview. Also, interview wastaken withan Extension Officer from DADO, a women officer from District Women and Child Development Office to get agriculture extension situation and women's status respectively in the district.While secondary data were collected from scientific research journal articles, students' thesis report, reports from FAO, Ministry of Agriculture and Cooperatives, DADO and so on.

3.6Data processing and analysis

The information collected in Nepali was translated into English for easy analysis. Then, data were edited, classified and analyzed in descriptive statistics such as frequency, percentage and mean with the help of Microsoft excel. For easy visualization, quantitative data were further presented intable, pie-chart and graphs. Qualitative data weregrouped and ranked according to the similar responses.

CHAPTER FOUR:RESULTS AND DISCUSSION

A. Situation of extension service delivery system in the Arghakhanchi district

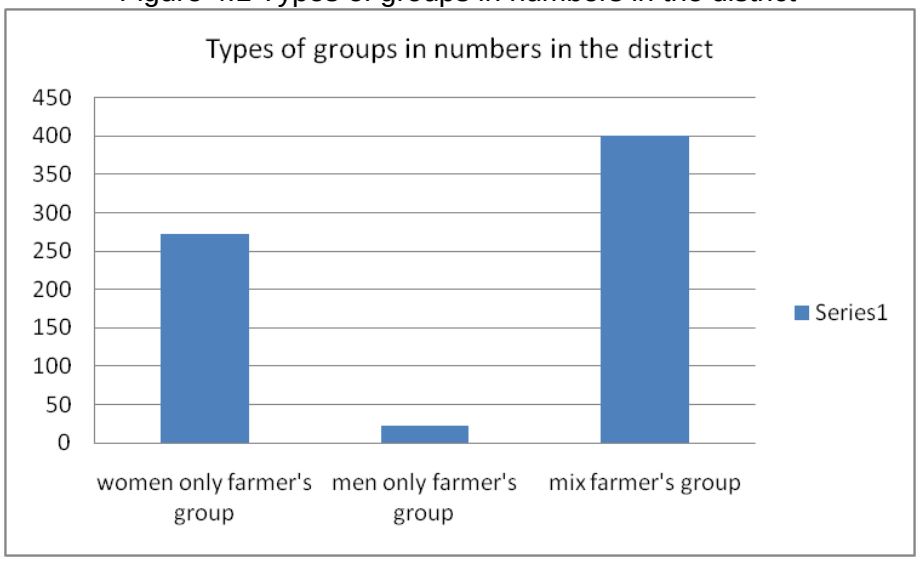
4.1 Field level agriculture extension office in the district

Agriculture Service Centre (ASC) is the field level extension office of the District Agriculture Development Office where farmers can approach and get the agricultural advices. Altogether six ASCs were found to beestablished in the district. One ASC was covering sevenVillage Development Committee (VDCs) (map is in annex 3) which means around 7000 households were looked after by one agriculture service center. Only two junior agriculture technicians (JT/JTA) were placed in each ASC. There were altogether 43 staffs including technical, administrative and support staffs in which only 14 were extension agents (extension officer, JT and JTAs) in District Agriculture Development office (DADO) and ASCs and all of them were male. The most disappointing fact was no female staffs were working as an agriculture technician/extension agent in district as well as in ASCs. It showed gender imbalance on the staff employment. This shows extension delivery system was less in favor of women farmers becausewomen farmers said they feel easy to contact with female extension worker than male extension worker. On the other hand, number of ASCs and technicians was far less. Also, transportation facility was poor in the VDCs and for the head quarter where DADO is situated. So in case iffarmers would like to visit ASC or DADO, theyhad to walk for one day to reach, which that was not convenient for farmers. Also, in case of worse weather like rain, floods, it further became difficult for farmers to access the office. Therefore, numbers of ASCs and its location are not convenient to all farmers in the district.

4.2 Number of farmer's group in the district in 2010

DADO was established in 1975,total 696 farmer's groups (for the period of 35 years) was formed in which more than 60 percent was women's involvement. Three types of groups were found in the districtsuch as women only groups, men only groups and mix group (men and women) in which more than fifty percent was mix group followed by women only group (40%) and the men only group (3%) (figure 4.1). As the total farmer's household is 40868 in the district, only 37% households were covered in farmer's group.

Figure 4.1 Types of groups in numbers in the district

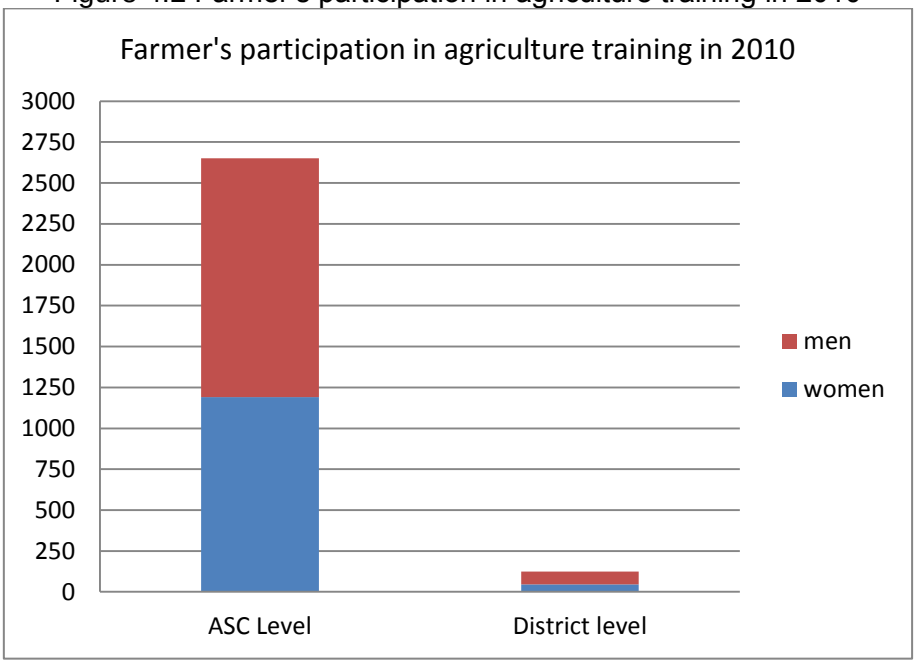


(Source: DADO annual report, 2010)

4.3 Extension activities and farmer's participation

DADO organized different kinds of agriculture activities in the districts such as training, demonstration, improved seed distribution, agriculture tools distribution, farmer's tour program, farmer's interaction meeting program and soil testing camp.Training was one of the common methods of extension used for the transfer of the knowledge and skill to the farmer. ASC level (field level one day session), district level (five days session) and regional level training (15 day's session) were held in 2010. Men and women farmers' participation was found to be equal in ASC level trainings whereas women participation was less than 40 percent in district level (figure 4.2). No women farmers participated in the regional level training where only 5 men farmers had participated in 2010 from Arghakhanchi district. Regional level training was conducted only once in 2010. According to the interview with senior agriculture extension officer, he said women did not like to participate in the district level training because women farmers had to spend long time to reach the training venueand the duration of the training also became long for them.It shows that district level trainingwas not of women farmers'preferred extension activity. Regional level training was even beyond women farmer's access.

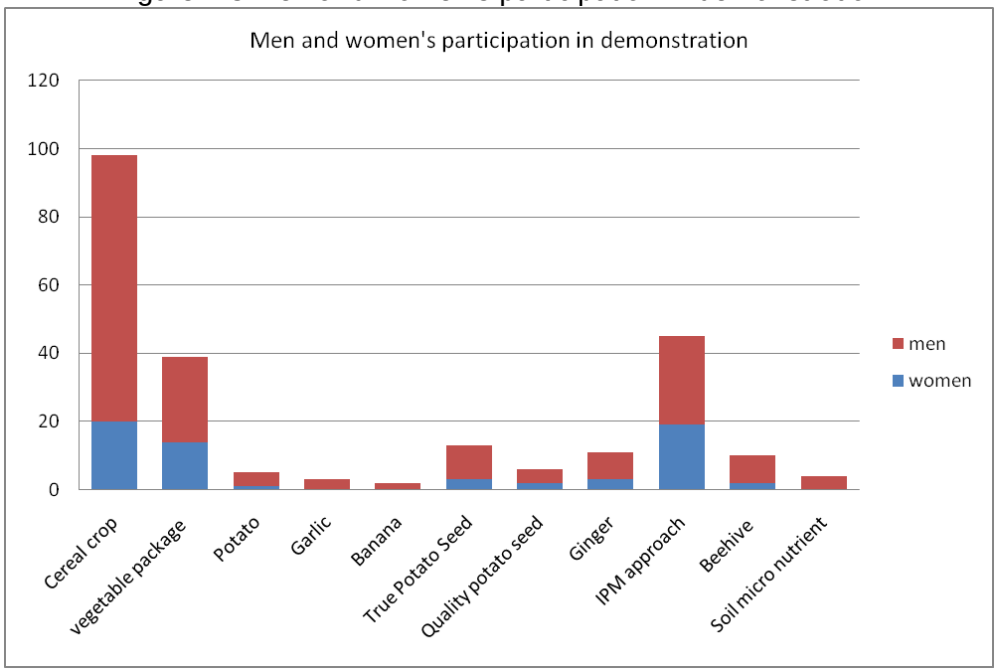
Figure 4.2 Farmer's participation in agriculture training in 2010



(Source: DADO annual report, 2010)

Agriculture related output/sample demonstration was done in farmers' field as an extension activity by DADO in which women farmers' participation was found to be very less in demonstration of all subjects except in demonstration for Integrated Pest Management(IPM) approach. More women farmers participated in IPM because government of Nepal has implemented second phase (2008-2013) National IPM program nationwide whichis targeting to involve more women farmers' participation (PPD, 2011).Also, it might have happened because of women's interest in pest management.In contrast to this, in the study of Paudel (2010) in Sindhuplachowk district of Nepal, men farmer's involvement was higher than women farmers in IPM farmer's field school because men were the heads of the households and did not need to take permission to attend as well as men were free from household chores whereas women had dual responsibility of domestic works as well as farming. Women's participation was absent in garlic, banana and soil micro-nutrient demonstration in Arghakhanchi district (figure 4.3).

Figure 4.3 Men and women's participation in demonstration

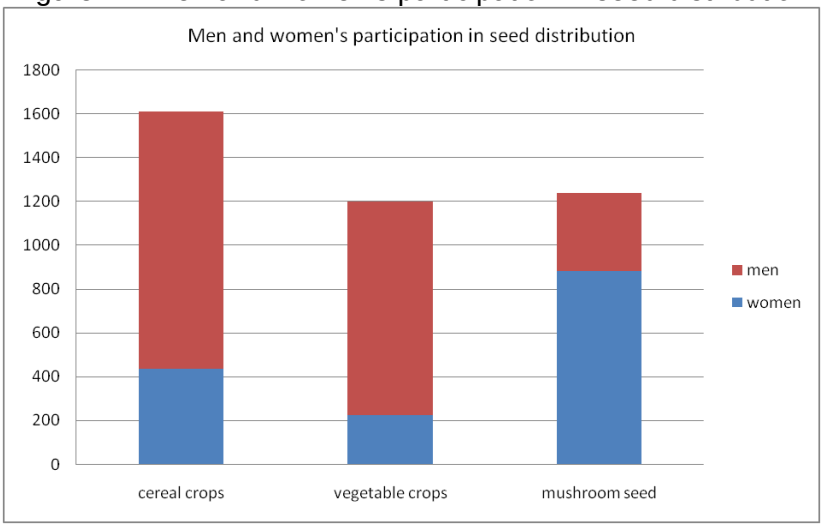


(Source: DADO annual report, 2010)

DADO distributed different types of improved seeds to farmers in which only 30% and 20% women could receive the cereal crops (rice, wheat and maize) and vegetable seed respectively(figure 4.4). In contrast, there were 70% women to receive mushroom seed. It showed more women involvement in small scale mushroom business. Currently women farmers are fascinated in mushroom farming because it is suitable for the women's life style. Women can accommodate mushroom cultivation in between their main work and it can be grown in own house in a small place and also it gave more income in short period of time (within in 3 months). DADO is also promoting mushroom cultivation as income generation activity for women which is hoped to help women farmers to reduce economic dependency over men counterpart(Manandhar, 2004). In fact, seeds of rice, maize, wheat, and seasonal vegetable were given to farmers as a trial in very less quantity (Own field work, 2011).Similarly, proportion of women farmers to receive agricultural tools (metal bin, pruning saw and pesticide sprayer) was also higher than men farmers. The pesticide sprayers were distributed only to women (figure 4.5)because it was DADO's initiative to encourage women in pest management as per the National IPM program. In fact, quantity of agricultural tools distributed by DADO was alsoveryless which could not reach many farmers in the district (Own field work, 2011).

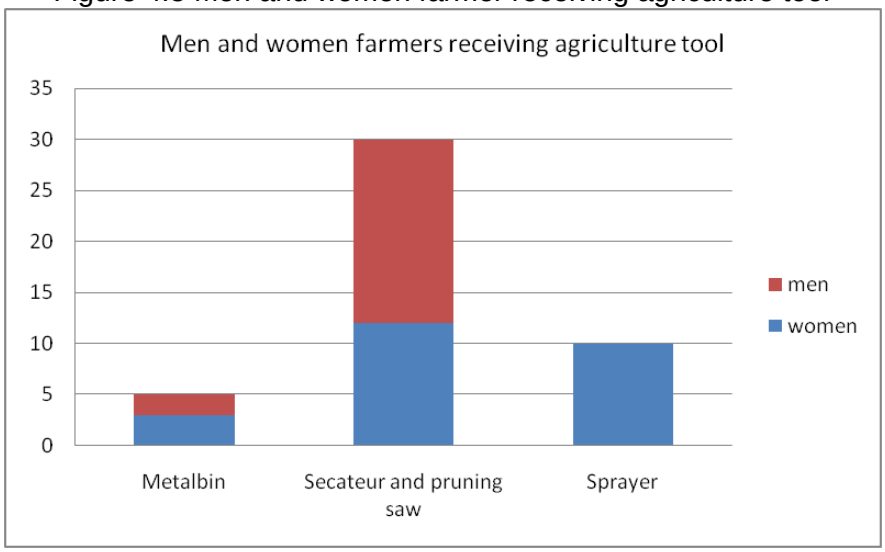
Farmers' tour program was organized for farmers once in 2010 in outstanding farm and agriculture research station outside the district. Women's participation in tour was only 16% (figure 4.6). In the study of Devkota (2006) in Chitwan district of Nepal, travel away from home such as in tour was dominated by male. In fact, women cannot go far for long days in a tour because of bound with household chores and women farmers are not given permission to go away from the home together with men as well (Devkota, 2006).

Figure 4.4 Men and women's participation in seed distribution



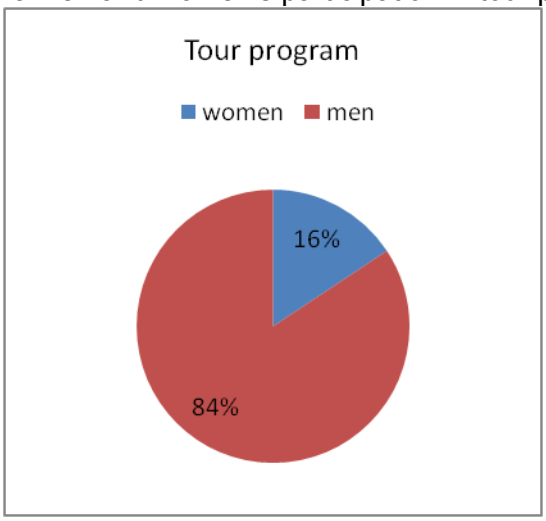
(Source: DADO annual report, 2010)

Figure 4.5 Men and women farmer receiving agriculture tool



(Source: DADO annual report, 2010)

Figure 4.6 Men and women's participation in tour program

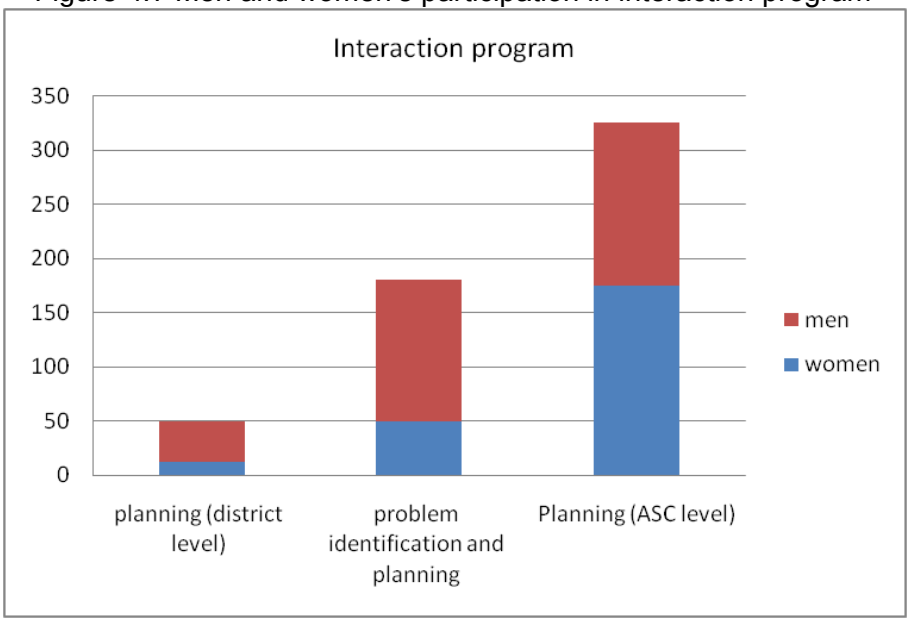


(Source: DADO annual report, 2010)

In 2010, DADO had organized 13 times ASC level farmer's interaction meeting program (for planning and agriculture problem identification) in which women farmer's participation was

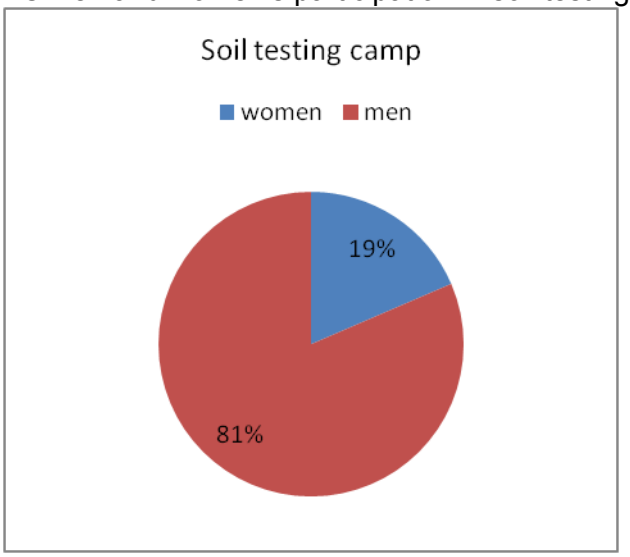
more than fifty percent.Interaction program is a kind of open discussion meeting of farmers together with extension workers and other stakeholders such as village political leader, teachers and leader farmers. But, district level farmer's interaction program for planning was held three times where women farmers' participation was only one quarter (figure 4.7). This result showed women participate more if the venue of the extension program is accessible for them because head quarter was far and ASC was near from their home. Also, soil testing camp was organized twice in the district in 2010 in which 135 households were covered. Only 19 percent women participated in the camp (figure 4.8).Women'sparticipated less in soil testing camp because the message topic was of women's less interest and need (according to discussion with women respondents).

Figure 4.7 Men and women's participation in interaction program



(Source: DADO annual report, 2010)

Figure 4.8 Men and women's participation in soil testing camp



(Source: DADO annual report, 2010)

B. Men and women farmer respondents

4.4 Gender and caste types of respondents

Among thirty farmers, there were three major caste[4] groups -Dalit (lower caste), Janajati (middle caste) and other (upper caste). Out of fifteen women Dalit, Janajati and Others were 4, 3 and 8 respectively. Similarly, out of fifteen men Dalit, Janajati and Others were 5, 6 and 4 respectively (table 4.1).Participation in various extension activities was different according to the caste group which has been shown in section 4.12. Among 15 women farmers, three women were found to be household head in which two women's husband had gone for foreign employment and one woman'shusband was died who is called as single woman.

Table 4.1 Gender and caste types of respondents.

Gender/Caste	women	men
Dalit	4	5
Janajati	3	6
Others	8	4

(Source: Own field work, 2011)

4.5 Men and women farmers in agriculture group

The respondents were belonged to the three separate agriculture groups. One was sole agriculture group for only for Dalit (both men and women) which was formed by NGO in former and later was registered as an agriculture group in ASC. Second was a women only group and third was of a mixed group type; all were mixed caste other than Dalit.

According to Extension Policy of Nepal (2007), farmers group has to be formed in the initiation of extension agents but it was found that agriculture groups were formed in the initiation of the local political leader, NGOs and leader malefarmer, and then later it was registered to Agriculture Service Center.As a reason for this, respondents said that, on the one hand, extension workers had missed their accountability and on the other hand farmers are influenced politically or by NGOto raise their own voice and unite in group/agriculture group for the accessibility to the agriculture services from DADO and ASC.In fact, majority of the respondents (80%) were involved in group by influence of the neighbors (as an example see box 1) and political party leader. But in Tiwari's (2009) study the farmers were found to be influenced by extension worker and he reported that DADO had annual targets of forming agriculture group, so JTs/JTAs came and made group. In fact, in a study of Subedi (2008), farmers' group formed at the initiation of farmers was active and effective than that of extension agents.

> "I was not in the group before but when my husband died, neighbors keep me in the group instead of him. In case I need a credit I can borrow from the group." PuspaRayamajhi, single woman, Dhikura VDC, ward number 4.

4=***The Nepalese caste system****, like the Indian caste system, is highly complex and continues the traditional system of social stratification of Nepal. The caste system defines social classes by a number of hierarchical endogamous groups. This custom is found in both the Hindu and Buddhist communities of Nepal; but not harsh in Buddhist communities. However, in Nepal people sometimes erroneously use word caste to mean their race or ethnicity.Nepalese society is clearly split into touchable and untouchables, have no marital relation with them, and do not allow them to enter their house. The low-caste people called as Dalits are deprived of utilizing most of the temples, funeral places, drinking water taps and wells, restaurants, shops and other public places.*

Major group activities were fund collection and mobilization, monthly meeting. About 20 percent of women farmers were found to be in executive position in Dalit agriculture group but they took help from men farmers for executing loan or payments and decisions making.This might be because of literacy sinceall women were found to be illiterate in Dalit group than other groups(table 4.2).And, women did those activities themselves in non Dalit groups.Socioeconomic characteristics such as name, age, caste and education level has been given in annex 1.

Table 4.2 Education level of respondents.

	Women			Men		
	Illiterate	Primary	Secondary	Illiterate	Primary	Secondary
Dalit	4	0	0	2	3	0
Janajati	1	2		4	2	0
Others	2	4	2	0	2	2

All women farmers were found having multiple group membership of other groups like saving credit, forest user groups, single women groups, water user groups, and other NGO based groups.It showed that women had developed network and can take help from the group in case of insurgency in their household. Multiple memberships had helped them to feel a security in their social. The same result was found in ofSubedi (2008). Most of the women were participating in saving credit groups. Saving credit groups helped women farmers to save the money and take loan at low interest rate.

Respondents had different preferences over different types of group. 13 (86%) female respondents preferred women only group than mixed group because they felt hesitation to talk in front of male members. But in contrast 11 (73%) male respondents preferred mixed group because male farmers would like to bring women in group and teach them to speak even in front of male members (table 4.3).

Table 4.3Men and women farmers' preference over different types of group.

Types of group	Women respondents N=15	Men respondents N=15
women only group	13	-
men only group	-	4
mixed group	2	11

(Source: Own field work, 2011)

Purposes of the respondents to be involved in anagriculture group were to get extension services such as the credit, seed, fertilizer, trainings. Same findings were found in the study of Tiwari (2009). Expectation of male and female farmer from agriculture group was different. Fewer men (4) than women expected credit from the group. Similarly, fewer women than men were interested in agriculture training (table 4.4).Therefore, it seems women farmer's expectation from agriculture group was more on acquiring seed and fertilizers than acquiring knowledge.

Table4.4 Purposes of men and women farmers to be in agriculture group.

Purposes	Women respondents N=15	Men respondents N=15
Credit	15	4
Seed	15	9
Fertilisers	15	9
Training	8	9

(Source: Own field work, 2011)Note: each value here is the number of respondents out of 15 respondents.

Being in agriculture group, more men took benefits than women farmers in acquiring new knowledge and sharing ideas. Agriculture group was beneficial for increasing family income for nearly 30% of respondents(table 4.5). An experience of a women farmer about benefits that happened after being in agriculture group is presented in box 1.

Table 4.5Benefits of being in agriculture group.

Benefits	Women respondents N=15	Men respondents N=15
Acquiring new knowledge	4	7
Sharing ideas	10	15
Increasing family income	5	5

(Source: Own field work, 2011)Note: each value here is the number of respondents out of 15 respondents.

Box 1Women farmer's view telling about benefit involving in agriculture group.

"Before I was not in an agriculture group, I had to ask for vegetables with neighbors. Neighbor was in agriculture group, she used to go to the training and bring vegetable seed kit and produced enough vegetable for her family. So, I also was attracted by that scheme. Now I am also started of producing vegetable and selling which I save money in "AamaSamuha" every month (mother group) I do not have to beg for vegetables with others." Ram Maya Magar, a women farmer, Dhikura VDC ward number 4.

4.6 Men and women farmers' involvement in farm and reproductive activities

Farmers were asked what kinds of activities were performed by whom. Table 4.6 gives overview of men and women farmers' involvement in agricultural as well reproductive activities in the study area. Women farmers' involvement was found more than men farmers in farm activities. Land ploughing was performed with the help of bullocks which was solely carried out by men. Social taboos have restriction for women to plough the field with bullocks in Nepal. But hoeing was performedmore by women. Applying chemical fertilizer was men's job whereas applying compost in the field was of women farmers' work. Women were not allowed to apply the chemical fertilizer because it was thought that women did not know dose and method of applying. Women were more involved in weeding, threshing and crop storing than men. But, seeding and transplanting for all crops such as for rice, wheat, maize, millet was performed more by women than men. On the other hand, harvesting and transporting the crops from the field to the home was performed equally by both men and women farmers. Food processing such as sorting, grading, milling and making homemade rice/wheat/maize wine was of women's job. On the other hand, all the household works such as cooking, collecting water, caring children was of only women's responsibility. In fact, average time spent over the farm and household works by women was more than two times of that of men (table 4.7). Even it was worse for single[5] women (see example in box 2). It shows women had long working whole day because they had to perform double roles in their day to day life. Therefore, women farmers had less time to attend extension activities. The finding suggested that to increase women farmers access to extension activities, the extension should be focused to reduce women's work load for example to promote low cost handy machinery for example paddle rice thresher, maize Sheller.

5= single woman is that woman whose husband is died or separated or divorced

Table 4.6 Involvement in farm and reproductive activities.

Farm activities	women	men
Seed bed preparation	*	*
Land ploughing	-	*
Hoeing	**	*
Seeding and transplanting	**	*
Application compost	**	*
Application of chemical fertilizer	-	*
Irrigation	*	**
Weeding	**	*
Application of pesticides	-	*
Harvesting	*	*
Transportation	*	*
Threshing/winnowing	**	*
Storing	**	*
Processing (grading, sorting, milling)	**	*
Marketing	-	*
Care of livestock	*	*
Care of poultry	*	-
Reproductive activities		
Cooking	*	-
Collecting fuel wood	*	*
Collecting water	*	-
Maintenance of house	*	-
Care of children	*	-

**/* = *relative involvement*
- = *no involvement*

(Source: Own field work, 2011)

Table 4.7 Average number of hours spent daily by men and women on farm and reproductive activities.

Type of activities	women	men
Farm activities	9	6
Reproductive activities	6	2
Total	15	8

(Source: Group exercise, 2011)

Box 2 an example of single women.

> "My husband died last year. I have three children aged 4, 6 and 10. Only elder one is daughter. Elder and middle ones go to school in the day. All the household work, taking care of the little one and farming activities are my own responsibility. I have to hire labor from outside for ploughing which adds extra economic burden for me. Sometimes, it is hard to get labor for hire when there is peak agriculture season, then I have to barter for labor with neighbors which increase my work burden, even I cannot take care of my children. If my husband was alive and with me, he would have done such work." PuspaRayamajhi, single woman, Dhikura VDC, ward number 4.

4.7 Women farmers in decisions making on farm and reproductive activities

It was found that women were involved in decision making in both home and farm related activities. According the data as received from the study (table 4.8); decision regarding selection of what to plant and where to plant remained on both men and women farmers equally. Whereas buying inputs, when and how to use fertilizers and pesticides was decided by only men. Finding loans for farm resources was also done by both men and women farmers, but in case amount if higher only men decide otherwise for small amount women can decide. Decision about hiring labor was also made by only men but in case of Janajati caste, it was done by women. Decisions regarding buying and selling of livestock (bigger animals such as goat, cow, bullocks, pigs) were done my men whereas that of poultry (chickens, hen, cock) were done my women. Similarly, what to keep for family use and storage, meals for family was decided by both but decisions depended more on women for this case. It was found that income management was done equally by men and women farmer. The result showed that differences in extent of women farmers' involvement in making decisions in farming activities have to be considered while planning and delivering for agriculture extension. The findings suggest that women can participate in the activities which can address the subject area that was directly dependent upon women's decision for example such as for crop storage, poultry rearing.

Table 4.8 Involvement of men and women in decision making in farm and household activities.

Decision making areas	Women	Men
Selection of planting site	*	*
Selection of planting crop	*	*
Buying inputs (seed, tools, fertilizer and pesticides)	-	*
When and how to use fertilizer	-	*
When and how to use pesticides	-	*
Selling crops and where to sell	-	*
Finding loans for farm resources	*	**
What to keep for family use and storage	**	*
Hiring labor	-	*
Buying and selling of livestock	-	*
Buying and selling of poultry	*	-
Income management	*	*
Education of the children	-	*
Meal for the family	**	*

***/* = relative involvement*

\- = no involvement

(Source: Own field work, 2011)

4.8Present sources of agricultural advices

Farmers get agricultural advices from different sources (table 4.9). Both men and women farmers received the advices most from their friends and neighbors. Connection of men farmers to extension worker was double than that of women farmers. Since the extension workers are male who were not aware of how to interact with the women farmers due to the lack of gender sensitiveness. Also women farmers said to feel hesitate to interact with them. Only one quarter of the women received the agricultural information from husbands but in case of men farmers, most of their wives shared with them. This finding did not agree with the saying of development planners that the information given to male farmers was not passed along to other farming members of the household(Saito and Weidemann, 1990). In fact, proportion of women farmers (9) was higher in not receiving any agriculture advices than men farmers (3). It shows women farmers have less access to agricultural extension.

Table 4.9 Different sources of agricultural advices.

	Women respondents N=15	Men respondents N=15
Extension workers	3	6
Husbands/wives	5	8
Neighbors/friends	6	10
Relatives	4	9
No advice received	9	3

(Source: Own field work, 2011)Note: each value here is the number of respondents out of 15 respondents.

4.9Frequency of advices received from extension agents

Extension agents are the major source of agricultural advices. But the results showed that more than fifty percent of women and nearly thirty percent of men were not visited from extension agents. Women are hesitant to make communication with outsider male; the case was further aggravated with the limited number of extension workers.Also, according to women respondents, they said less contacts was made and less advices was given to women farmers because extension workers being only male, who ignored women farmers. Summary of the frequency of advices received from extension agents has been shown in table 4.10.

Also, the respondents commented that no extension worker came to visit their groups. If there was any notice about training or any information for farmers, extension workers did not directly contact to the farmers or farmer's group. Instead those notices were posted on the notice board of the ASC office. Then those farmers whose came to ASC had first-hand information, otherwise other farmers were escaped from the information. Also, in case first hand contact had to make, JTA/JTs contacted to local political parties and were told to select the farmers to send for participation in extension program. Seventypercent of women responded that they were not involved in politics and said that they never receive any notice about agriculture program such as training or improved seed distribution.

Table 4.10Frequency of advices received from extension agents.

Time	Women respondents N=15	Men respondents N=15
One month ago	0	1
Two months ago	1	2
Six months ago	2	3
Six to twelve months ago	3	6
Not visited	9	3

(Source: Own field work, 2011)

4.10Tendency of the farmers to visit ASC

Farmers can also get agricultural advices by visiting ASCs. Around 50 percent women were found not visitedto ASC whereas most male farmers had visited the ASC (table 4.11). Those women who went to ASC were socially and economically upper level(like a teacher or Brahmin/Cheetri so called upper caste)or who had politically influenced in the village. The reason behind large proportion of women not visiting ASC was all the staffs in ASC were male so that women hesitated to talk with them and also women's mobility outside home was limited because of household burden.In fact, in the study in Nigeria, women's access to extension program was found to be higher who were supervised by women extension worker than men extension worker (Lahai*et al*, 1999).

The purpose for visiting the ASC was to ask for training, improved seed and fertilizer or to see the notice about any agriculture related activities.Overall tendency of the farmers visiting ASC was very less. Because, most of the time extension workers were not at ASC office and updated information was also not available.

Table 4.11 Frequency of men and women farmers visiting ASC.

Time	Women respondents N=15	Men respondents N=15
One month ago	0	1
Two months ago	2	4
Six months ago	3	7
Six to twelve months ago	3	2
Not visited	7	1

(Source: Own field work, 2011)

4.11Gender preference over extension agents

Women's access to extension advice depends on extension agents who advise farmers are male or female. The result showed all women respondents preferred female extension workers (table 4.12). Most on the men respondents did had preference over gender of extension workers. This was because women farmers felt shy and hesitatedto speak with male extension workers. Also, the women farmers said that male extension worker sometimesignored to women's questions. However, it seems that the cultural aspect of the women farmers was also found the determining factor influencing on the preferences for a female extension worker by the women farmers.

Table 4.12 Men and women farmers' gender preference of extension agents.

	Women respondents N=15	Men respondents N=15
male extension worker	0	1
female extension worker	15	4
no gender preference	0	10

(Source: Own field work, 2011)

4.12Participation in different types of extension activities

Respondents were asked if they participated in any extension activities done by DADO. Participation means here physical presence of respondents during the activity. Women farmers reported no one did participate in residential training, tour program and camp whereas men did participate in thoseall type activities. In activities where women participated, it was very little number as compared to men. Women said, to participate in the residential training first of all they did not get permission from home to participate because women were rarely allowed to stay outside of the home at night, secondly women had bound with household works (women did not get help from men counterparts in their absence for example if they leave a home for two days livestock will be hungry, no cooking in the kitchen, dirt everywhere) so they became unable to be absent at home for long time and thirdly women who have children if they willed, no childcare facility was provided for such women.

The study showed there was variation in participation of women according to caste groups as well. Out of 15 women, there were 4 dalitwomen in the study but only one dalit women had got chance to participate in interaction meeting. They rarely got information about the extension program. It shows Dalitswere still considered as a second class citizen who are socially excluded, untouchable and voiceless and excluded in the development process. Details are presented in table 4.13.

Table 4.13 Men and women farmers' participation in different extension activities.

Types of extension activities	Women respondents N=15			Men respondents N=15		
	Dalit	Janajati	Other	Dalit	Janajati	Other
Residential training	0	0	0	0	1	3
One day training	0	0	3	0	0	8
Demonstration	0	1	2	1	2	6
Kit distribution	0	2	3	0	0	5
Tour program	0	0	0	0	0	1
Camp	0	0	0	0	0	2
Interaction meeting	1	1	1	2	3	6

(Source: Own field work, 2011)Note: each value here is the number of respondents out of 15 respondents.

Although different types of extension activities have their own advantages, men and women farmers had different preferences. All men preferred residential training but no women preferred it. Menrespondents told that residential training was longer in time so they could learn more and also they could meet many new friends, and could spend some time out of house. In contrast, because of longer duration and had to spend night out of home, women did not liked the residential training. Women thought all the household works will be paused while participating in the residential training.Rather, one day training was in preference of women. All women liked home to home visit and kit distribution. The detail has been summarized in table (4.14).

Table 4.14 Preference of men and women farmers over different types of extension activities.

Different extension activities	Women respondents N=15	Men respondents N=15
Residential training	0	15
One day training	13	6
Tour and visit	3	9
Demonstrations	7	15
Camping	6	9
Interaction program	4	13
Home to home visit	15	11
Kit distribution	15	14

(Source: Own field work, 2011)Note: each value here is the number of respondents out of 15 respondents.

4.13Level of satisfaction with the quality of extension services

Farmers were asked if they were satisfied with the agriculture extension services provided by DADO. Allrespondents were unhappy with poor quality of extension services. The reasons of dissatisfaction for quality of extension services wereno people in office ASC when needed, not suitable timing of the activities, not useful content, not adequate quantity of the activities, use of highly technical languages, and inappropriate method and content both. Some examples were explained by farmers while talking with them. Two examples are presented in box below. Box3is an example of consequences of inappropriate subject of the training and box 4 is another example from farmer of expressing dissatisfaction for the timing and quantity of the kit distributed.

Box 3 An example of consequence of inappropriate subject of the extension.

One malefarmer, Deepak Khasu, from Dhikura VDC, ward number 2, Khanchikothad participated in a 15 days training on pig farming. It took one day by bus to reach training venue. After training, he came back to the village and started pig farming. Other farmers (5-6) also started same farming with advices of him. But, training did not become helpful to them since it could not make any change on their household economy. Because, there was lack of pork business in the village then farmers started barting among themselves for the pork. So producing only pork was of not worthy, it needed a developed market along. This is an example of inappropriate subject content of the training for that place. Agriculture business has characteristics of varied demand, supply, season, market according to different localities and different people. So, same kind of business would not be suitable for all places for all people. Therefore while providing training, it should comply with the location.

Box 4 Women farmer not satisfied with extension system (farmer's view).

"We sow the rice seed on the first week of July but DADO distributed improved rice seed on end of July. This was carelessness, they themselves are agriculture technicians but why are blind and what they think anything given is acceptable and suitable to us? Also, we do not believe on their seed, since last year distributed bean seed was not of so good yield and quality. Even the quantity is 8 to 9 seeds just for trial. JTA hand bag of seeds to village leader first then we farmers receive from him, maybe he does some mixing who knows?" Expressing dissatisfaction about the reality of extension services of DADO, MadhuPokhrel, female farmer, Dhikura VDC, ward number 2.

4.14Constraints in attending extension activities for women farmers

In the group exercise with women and men farmers, the problems of attending extension program activities for women were identified and ranked according to their importance. Not suitable timing and venue for extension training was considered the greatest problem followed by not suitable message topic for women farmer (table 4.15). Heavy household work load was also the constraint that prevented women farmer to attend the extension activities but it was not the prime reason since it was ranked last. It showsin case if extension activities are designed in the ways that address the needs and interest of women, it helps increase women's participation.

Table4.15 Ranking of the problems hindering women farmers to attend extension program.

Problem areas	Ranking
Not suitable time and venue for extension training classes/meetings	1st
Not interesting topic	2nd
Lack of incentives	3rd
Lack of time	4th
Lack of interest in training methods (lectures)	5th
Lack of information of the extension program	6th
Due to having young children	7th
Due to heavy household work	8th

(Source: Own field work, 2011)

"Last time, I was informed about training but it was in headquarter which was far, so I could not attend the training." PuspaRayamajhi, single women farmer, Dhikura VDC, ward number 1.

4.15Preferred topics of the extension message for men and women farmers

Subject of the extension program is the most important factor influencing farmer's participation. Hence, respondents were asked to identify the interested topic area of the extension program activities. Ranking of each topic was done separately for men and women respondents (table 4.16). It was interesting to see the differences in preferences of the topic between men and women farmers. Crop storage was ranked first by women which was ranked 7th by men. It showed women wanted to keep the crop for long lasting. In contrast, men ranked first for soil fertility whereas women ranked it last. It revealed that women's interest was more in household activities such as in crop storing, food processing rather than marketing, using fertilizers, soil fertility.

Table 4.16 Ranking of agricultural extension message topics preferred by women farmers.

Message contents	Women's ranking	Men's ranking
Crop storage	1st	7th
Weed control	2nd	8^{the}
Food processing	3rd	10^{the}
Care of poultry	4th	11^{the}
Care of livestock	5^{the}	5^{the}
Crop production	6^{the}	6^{the}
Pest control	7^{the}	4^{the}
Harvesting techniques	8^{the}	9^{the}
Selection and use of fertilizer	9^{the}	2nd
Marketing	10^{the}	3rd
Credit advice	11^{the}	4^{the}
Soil fertility	12th	1st

(Source: Own field work, 2011)

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

DADO has adopted farmer's group approach for delivery of the extension services, only 35% farmer households was covered in agriculture group in the district. The positive thing to see was about 60% women's participation in the agriculture group. Overall coverage of extension program by DADOwas less for women farmers than men farmers. The study showed women farmers' higher participation in ASC level training and interaction meeting program than district level. It happened so because governmental extension policy was implemented to cover compulsory at least fifty percent women farmers in the local level extension program which forced the male heads of the household to send their wives or female member of the household in the program.

Since, according to the national extension policy 2007, agriculture farmers group has to be formed in the initiation of the extension agents, but it was done in the initiation of local male political leader or leader farmer. The result shows that as a response to extension workers unaccountability, local political parties had initiated on their own to unite in the agriculture group to access the agriculture services from the government which is a good sign for the agriculture development.Moreover, neighbors, NGOsand local political parties were found to be the most influencing for women farmers to become member of the agriculture group. In the agriculture group, major activities done were found to be fund collection and mobilization, monthly meeting. Women farmers still needed to take help from men farmers for executing loan or payments and decisions making.

Women were found to have multiple group membership. It had helped women farmers to feel secure socially because they had well developed network and can take help from the group in case of insurgency in their household. Most of the women were participating in saving credit groups. Saving credit groups helped women farmers to save the money and take loan at low interest rate. In fact, all women farmers' purposes to be involved in agriculture group were to get credit, improved seeds and fertilizer from DADO whereas men farmerswere in agriculture group to get agriculture training. It showed men farmers' willingness to learn and acquire new knowledge in agriculture whereas absence of that sense in women farmers. On the other hand women farmers were in pressure for managing household economy which could have been helped by the credit and incentives. However, farmers took social as well as economic benefits from the group such as sharing ideas, acquiring new knowledge and increasing family income.

More than eighty percent of female farmer preferred women only group whereas male farmer liked mixed group because women felt hesitation to speak in front of male members while men wanted to bring women in front. It can be seen as a positive change in an attitude of men farmers for the women farmers that men farmers want women farmers to interact on the community programs.

It was found that women had the whole working day with dual roles in farm activities as well as household activities. It suggested that to increase women farmers' access to extension activities, the extension should be focused to reduce women's work load for example to promote low cost handy machinery for example paddle rice thresher. Similarly, the result also showed the differences in extent of men and women farmers' involvement in making decisions in various farming activities and household activities. Therefore, findings suggest that women can participate in the activities which can address the subject area that was directly dependent upon women's decision for example such as for crop storage, poultry rearing.

The result showed many indirectways of communication through which farmers received advice on agricultural matters such as from extension workers, husband/wife, neighbor/friend

and relatives. In fact connection of men farmers to extension worker was double than that of women farmers. It revealed the fact of lacking gender sensitivity in extension worker who did not think to meet and advice women farmers as well, and also women felt hesitation to interact with male extension workers since all the extension workers in the district were male. Therefore women farmers were found to prefer female extension worker than male extension worker. Also, more than fifty percent of women were not found to be visited by any extension worker because of ignoring women as a farmer orunsuitable the timing and methods of communication applied for giving extension messages for women farmers.In fact extension agents were not able to communicate properly with women farmers also,because of lack of adequate understanding about women's farming needs and problems and lack of proper training on how to work with women farmers. On the other hand, farmers' tendency to visit to ASC was also less because it was worthless to visit ASC since neither technicians were sitting in the office nor any updated information was available when they needed. In fact the study site was the place where ASC was nearby; the result makes easily to guess what could be the situation of other villages where neither extension worker nor ASC was accessible.

There was difference in participation of men and women farmers in different activities. Women's participation in residential training was found to zero. Because, first of all, women did not get permission to participate, in fact women were not allowed to stay outside of the home during the night. Also, women with children did not get the child care facility in the training which discouraged them to participate for long duration residential training. In contrast, women's participation was found to be higher than that of men in integrated pest management (IPM) farmer's field school because more women were targeted to involve by national IPM program by providing incentives such as tools and seeds; and also the message topic was of women's interest.Similarly, agriculture extension became successful to involve more women in mushroom cultivation since it became one of the interested small scale incomes generating activity which can be grown in small space inside the house so that women can manage time to take care mushroom in between their other household works. It showed that any extension activity that address women's needed and interested subject can make more women to participate. On the other hand, Dalits (socially excluded, untouchable and voiceless caste group) in both genders were found to have less participation in the extension program because they were rarely informed about the program, also the most of the dalit are illiterate; and economically they are backward and their social status is very low.

Preferences on various kinds of extension activities were also found to be different for men and women farmers. Women most preferred home to home visit and kit distribution because women did not have to go outside and can learn in companion with other household activities. On the other hand, men farmers preferred most the residential training because of its long duration type which had chance of learning more, also because men were not found to be bound in household works. This suggests that extension service providers should either invest on employing more extension agents to reach more women at once or use the methods in which message can reach vast number of farmers at the same time with low cost such as local radio programs, audio cassettes.

Farmers (both men and women) were not found to be satisfied with the current extension service delivery system. The main reasons for dissatisfaction were- most of the time extension workers were not present in the field level extension office (ASC), timing of the activities were not suitable, message content were not of farmer's interest and extension services were not adequate.

The result showed that women farmers were not encouraged to take part in extension activities because heavy household work load or due to taking care of children. However, inappropriate timing, venue and messaged topic of the extension along with no incentives for women were also considerable factors to constrainwomen for participating in the extension

program. Thecontent message of the extension program was the most important factor determining farmers' participation.In fact, interested topic area of the extension message was found to be different for women and men farmers. Women's most preferred topic areas were about crop storage, weed control and food processing whereas men's interested topic were soil fertility, selection and use of fertilizer and marketing.

Agriculture is the main economy of the farmers in Nepal. Moreover, women farmers are the important labor force. Farmers' livelihood can be enhanced with the improvement in agriculture. Agriculture can be enhanced with application of improved technology. Extension activities are the channels through which improved technology can be delivered in the hand of farmers. Government (DADO) is the primary responsible body for delivering agriculture extension services equitably for both men and women farmers. The study revealed that in spite of the social costumes and cultural factor men and women farmers have differences in preferences, need and interest over agriculture extension, but DADO was not able to satisfy and meet the different needs and interest of all the members of the farming community, especially women farmers. The study suggested that while developing extension program women's specific needs, preference and interest should be taken into account to improve women's accessibility to agriculture extension.

Recommendations

Based on the above study following recommendations have been made which will help extension organization to increase women farmers' participation in extension activities:

1. It is recommended to increase the number of ASCs for the higher coverage of farmers,
2. It is recommended to employ and increase female extension agents,
3. It is suggested to increase thenumber of women contact farmers or women only agriculture groups
4. Either separate extension services should be provided for women farmers or women friendly environment (such as child care facility, women trainer in the training, separate washing and sleeping accommodations) should be created during the extension programs
5. Male extension agents should be trained to know women's activities and their specific needs and problems
6. It is recommended to provide the messages through other ways, for example, radio, TV, video cassettes, which will help to reduce women farmer's constraints of time, illiteracy and mobility. Although there is a national level agricultural radio is broadcasted every day for half an hour and TV program is broadcasted only once a week, but farmers are only listening to FMs and also it is needed the local level such programs to address the exact problems of that location at that season,
7. It is recommended to improve the content of extension which are appropriate for women farmers (according to women's interest) for example women are (in this study) more interested to know about crop storage, extension message should be provided on this topic so that more women would be interested to participate.
8. It is important to guide extension workers on how to approach and work with women farmers
9. From the case of mushroom cultivation, it is suggested to emphasize extension activities for which there is an actual income-generation potential for women farmers and that is helpful in reducing work load.
10. It is needed to ensure the involvement and full participation of women from poorer, lower caste and less educated backgrounds.
11. It is suggested to invest more resources to village-based training rather than residential training.

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ANNEXES

Annex 1 Name of the respondents

Name	age	sex	caste	education
1. PuspaRayamajhi	34	female	other	Just liberate
2. DurgaBahadur Nepali	45	male	dalit	Just literate
3. Sunita BK	39	female	dalit	Just literate
4. Kamala Nepali	32	male	dalit	Just literate
5. Basanta Prasad Paudel	36	male	other	Higher secondary
6. Devkala Nepali	48	Female	dalit	Just literate
7. KusmaRayamajhi	53	Female	other	literate
8. TulashaGimire	38	female	other	literate
9. Radha B k	44	Female	Dalit	Just literate
10.JanakPariyar	43	male	Dalit	Just literacy
11. Harish Bhusal	45	male	other	literate
12. TikaRajkoti	38	male	janajati	literate
13. BaburamPariyar	40	male	Dalit	Just literate
14. Deepak Khasu	36	male	janajati	Higher secondary
15. LaxmanKhasu	28	male	Janajati	Higher secondary
16. RenbahadurRajkoti	32	male	Janajati	Higher secondary
17. Nun BahadurSaruMagar	49	male	Janajati	literate
18.KeshabSunar	37	male	Dalit	Just literacy
19. GyanBahadurRajkoti	51	male	Janajati	literate
20. Ram Prasad Pokheral	53	male	other	Higher secondary
21. Narayan Ghimire	38	male	other	secondary
22. MadhuPokheral	23	female	other	Lower secondary
23. BasantaThapa	28	female	janajathi	primary
24. NirmalaChidali	37	female	other	secondary
25. SharadaPokheral	35	female	other	Lower secondary
26. Kamala Khasu	28	female	Janajati	secondary
27. RammayaMagar	28	female	janajati	Lower secondary
28.NirmalaChudali	37	female	other	secondary
29. RadhaGhimire	48	female	other	literate
30.IndhuPokheral	27	female	other	secondary

Annex 2: Household survey questionnaire

A. Background information

1. Name:
2. Age:
3. Sex:
4. Caste:
5. Education: Illiterate/just literate/primary/secondary/higher

B. Agriculture group

1. Are you involved in agriculture group? yes/no
2. If yes, for what purpose are you in the group?
3. Who formed group? Gov/NGO/Privet
4. What are your major group activities?
5. What are their roles and contributions? Is this different for male and female?
6. Is there any woman in executive member?
7. How often do you have group meeting?
8. What are benefits you get from the group?
9. Do the extension workers also come in the group meeting? If yes how often and what they do?
10. Do they discuss about any agricultural related topic? How often does the office staff visit your village?
11. Whom do they approach in the village? (Village leader, male or female farmers, caste preference?)
12. Are you satisfied with their performance? If yes why, if not why not?
13. Has the service improved over the last ten years? If yes: how and why? If not: why not?
14. Do you often go to the DADO office? If yes: for what purpose. If not: why not?

C. Men and women farmers in agriculture (for group exercise)

1. Who does what?

Farm activities	women	men
Seed bed preparation		
Land ploughing		
Hoeing		
Seeding and transplanting		
Application compost		
Application of chemical fertilizer		
Irrigation		
Weeding		
Application of pesticides		
Harvesting		
Transportation		
Threshing/winnowing		
Storing		
Processing (grading, sorting, milling)		
Marketing		
Care of livestock		
Care of poultry		
Reproductive activities		
Cooking		
Collecting fuel wood		
Collecting water		
Maintenance of house		
Care of children		

2. Who does what for how long (in hours)?

Type of activities	women	men
Farm activities		
Reproductive activities		
Total		

3. Who has decisions over the following matter?

D. Agriculture information and agriculture extension services

1. How do you get agricultural information (technology, news) and how often?

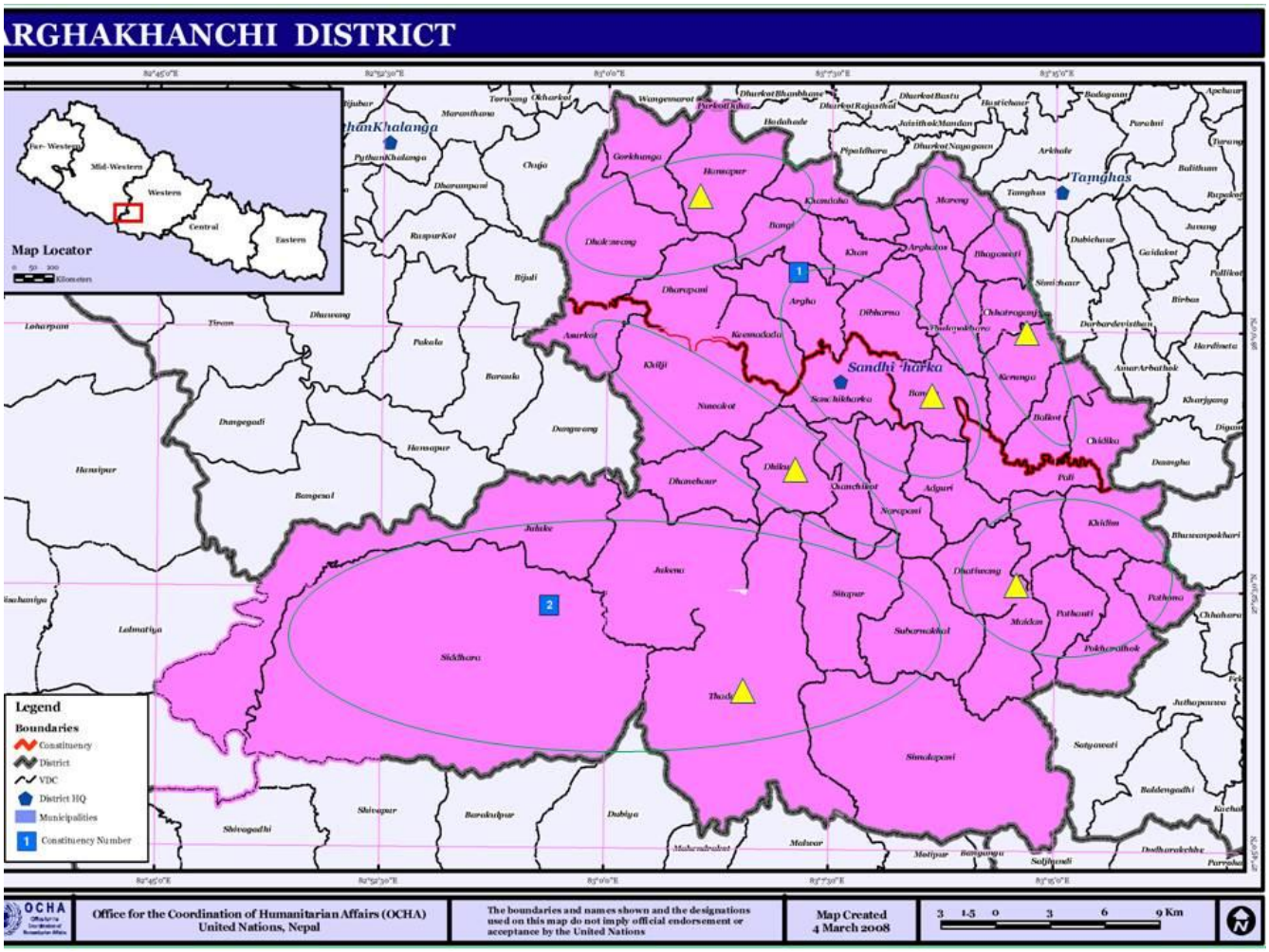
	women	men
Extension workers		
Husbands/wives		
Neighbors/friends		
Relatives		
No advice received		

2. Do you go to visit ASC? If yes how often?

Time	women	men
One month ago		
Two months ago		
Six months ago		
Six to twelve months ago		
Not visited		

3. Which gender do you prefer as extension agents?
4. What types of extension activities have you participated?
5. Which extension activities of the following do you prefer most?
6. Are you satisfied with the quality of extension services?
7. What do you think are the constraints that prevent women farmers from taking part to extension activities?

Annex 3 Number of ASCs and their coverage in the district VDCs



(Note: Total six yellow sign post within blue circles are the ASC. Blue circle represents the total VDCs covered by ASCs.)

Annex 4 Some pictures of the data collection

Researcher with women farmer to fill up the questionnaire

Researcher with men farmer to fill up the questionnaire

Interview with district an Extension Officer

Group exercise with mix farmers

Group exercise with women only farmers