The Farmers Field School: An Approach for Women Empowerment
A case from Kaski District, Nepal.

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ACRONYMS

ADB	Asian Development Bank
AHTCS	Animal Health Training and Consultancy Service
CBS	Central Bureau of Statistic
CFUG	Community Forest Users Group
CIPM	Community Integrated Pest Management
DADO	District Agriculture Development Office
DDC	District Development Committee
FAO	Food and Agriculture Organisation
FFS	Farmers Field School
GDP	Gross Domestic Product
GO	Governmental Organisation
ICRC	International Committee of the Red Cross
INGO	International Non Governmental Organisation
IPM	Integrated Pest Management
IRC	International Rescue Committee
MOAC	Ministry of Agriculture
MOD	Management of Development
NAC	National Agriculture Census
NGO	Non Governmental Organisation
PPD	Plant Protection Directorate
PRSP	Poverty Reduction Strategy Paper
RPPL	Regional Plant Protection Lab
SIGAL	Social Inclusion, Gender and Rural Livelihood.
UN	United Nations
VDC	Village Development Committee
WDO	Women Development Office
WWF	World Wildlife Fund

ABSTRACT

The first Integrated Pest management (IPM) Farmers Field School (FFS) approach emerged in Asia in 1989 from Indonesia. The main purpose of the IPM/FFS is for agriculture education as well as the enhancement of decision making capacity of farmers. In Nepal IPM/FFS is started from 1998 after the outbreak of Brown Plant Hopper in Rice field. Due to the initial success of the programme, it has been widely spread all over the Nepal. Government of Nepal and many other different I/NGOs put innumerous efforts for the successful implementation of the programme. In Nepal, about 70% of the women are main contributors to household food security and 26% of the farm level decision making taken place by women. From the literature, it is found that out of the total participants in IPM/FFS, 60% are women. However, there has been limited research on the role of women and empowerment using the FFS approach in Nepal.

This study has been carried out in Kaski district of Nepal to find out the links between IPM/FFS and women empowerment. The main aim of this study is to determine how the IPM/FFS played role in women empowerment in relation to leadership development, decision making capacity, economic empowerment and seeking information and taking action to disseminate to others. The research was principally based on qualitative and quantitative method of data collection. The data was collected through structured and semi-structured interviews with women graduates in six IPM/FFS groups of Hemja, Pokhara, Lekhnath, and Sarangkot VDC of Kaski. Rather than, structured interview the information from the informal discussion with community people, IPM/FFS facilitator and own observations are also analysed and interpreted in the results.

From the literature, it is found that in Kaski district there are total of 32 IPM/FFS has been conducted till the date. A total of 882 (193 male and 679 female) participants are participated in IPM/FFS training till the date. In research area the major economic source of the households are agriculture and in combination with business and service. Participating in IPM/FFS the women graduates have gained both technical and social skills that has enhanced their abilities to manage and make decisions relating to farming activities at the household level. The finding shows that the leadership capacity of women graduates have been developed. As a result in most of the decision making positions there are more women. As well as the most of the women graduates have access to the other social groups and some of are in the vital positions. The decision making capacity of the women graduates within household like children's education, food management, use of income, purchase of agricultural inputs and saving has significantly increased. In the research area, it is found that the women graduates are more economically empowered. They have increased in access of loan with different financial institution and within group fund, access to the market, access to the groups and increase the level of saving. The women graduates became able to reduce the cost of production and increase the agricultural productions. After participating in IPM/FFS the planning and implementation capacity of women graduates have also developed.

According to the research findings, IPM/FFS has opened up a space for women to build up their self-confidence in presentation and mass dealing and also developed communication skills. It also helped them to create social recognition within the community. The IPM/FFS insisted women graduates for seeking information and disseminating to the other community members and non FFS participants of the society.

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CHAPTER ONE – INTRODUCTION

1.1 Introduction:

This study has been carried out as a final thesis research for the partial fulfilment of the course requirement of Master in Management of Development (MOD), specialization in Social Inclusion Gender and Livelihood at Van Hall Larenstein University of Applied Sciences in Wageningen. This research report gives insight into the main and sub research questions, aims and concepts of women empowerment. Within the empowerment framework this study find out basically, the development of leadership in women members of Farmers Field School groups and increased decision making capacity of women members within the household and the community group, seeking information and taking action to disseminate to the others and how the IPM/FFS plays role in economic empowerment of women graduates.

This research report consist a total of six chapters. First chapter of the study includes introduction and background of the study, statement of problem, objectives, rational, and limitation of the study. The second chapter gives overview of conceptual overview and literature review regarding the IPM/FFS and women empowerment. The third chapter covers methodology, research design, nature and source of data, data collection technique, selection of the study area, sampling procedure and method of data analysis. Chapter four describes the findings of the research. The chapter five is about the discussion of the findings and finally chapter six presents the concluding remarks and recommendations of the whole research work.

1.2 Background:

Nepal is a country of great geographic diversity with a landmass descending from loft Himalayan peaks to the green rice fields of the Indo-Gangetic plains. It borders with India to the east, west, and south, and the Tibet Region of the People's Republic of China to the north. Ecologically, the country is divided into three regions: the high mountain region, with the Himalayas peaking at 8,848 meters above sea level to the north; the mid-hill region, with altitudes ranging between 610 and 4,877 meters in the Mahabharat range and the Gangetic plains; and the Terai[1], ranging between 60 and 610 meters to the south. This topographical diversity is matched by climatic diversity, with climatic conditions ranging between those of the extremely cold tundra to those of the hot humid tropics. Agriculture remains Nepal's principal economic activity, employing over 65.5% of the population and providing 37.4% of GDP (MOAC, 2008).

According to the three years interim plan (NPC, 2008), still 31 percent of the total population is below the absolute poverty line. About 85.8 % of the total Nepalese population resides in rural area among which about 80% are heavily 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. Inability to effectively use investment and physical facilities, lack of intensive crops, inadequate supply and inadequate use of basic agricultural materials like chemical fertilizers, improved seeds, irrigation and credit; the weakness of market mechanisms, higher risk in production ineffectiveness of agricultural extension services; and lack of agricultural research in required sectors are seen as major problems in rural hilly areas of Nepal for low agricultural productivity resulting food deficit. Endemic rural poverty and food insecurity are critical issues, especially among tribal people living in isolated rural areas. More than 76% of the labour force is involved in agriculture and

[1] The southern region of Nepal runs parallel to the lower ranges of the Himalayas and stretches from the Yamuna River to the Brahmaputra River. Numerous springs at its northern edge form several streams, including the Ghaghara River, that intersect the region and give it its marshy character. Much of the area's marshland, once malarial, has been drained and put under cultivation.

women 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 hectare due to the extreme land fragmentation. Rice, maize and wheat are the main staple food crops of Nepal followed by potato. The lowland Terai region produces an agricultural surplus, part of which supplies the food-deficient hilly areas. Because of Nepal's dependence on agriculture, the magnitude of the annual monsoon rain strongly influences economic growth.

1.3 Women in Agriculture:

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 motives 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). According to the CBS (2001), 0.76 million people migrated to the foreign countries. This was about 3.2%of the country's total population and 6% of the total working population. Of this migrant population, 77% were working in India and the remaining 23% (173,126 people) were working in other countries and this trend was increasing.

The increasing trend of male labour migration from rural farming communities has created a vacuum in the field of agriculture labour resulting more burdens on rural women to perform farming activities. From gender perspective, male labour migration has made the Nepalese agriculture almost dependent on women. Now majority of the women in rural areas are compelled to operate almost all of the farm activities. 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. As I mentioned earlier, overall women contribute 60% of the labour and up to 26% of the farm level decisions in the agriculture and livestock sub-sector. The women are also found to be more knowledgeable than men in agriculture practices by involving as a labour and decision maker in agricultural practices.

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, finger 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.

Kaski district is located at the hilly region of the western development region of Nepal. In this district there are two municipalities where 52% of the population resides remaining 48% population living in rural areas (DADO, 2008). The average household land holding size is only 0.44 ha in this district (CBS, 2002 cited in DADO, 2008). Except in urban areas all people are depended on agriculture for their livelihood. In this district about 52% women population is highly involved in agricultural activities and almost all of them are with low socio-economic status. Although women have prime role in the decision making of agricultural activities such as what to plant, when to weed, when to harvest etc, at household level they are dominated by men and also at community level men take policy decisions.

After green revolution, development of agricultural techniques has steadily increased agricultural productivity and a remarkable shift in agricultural practices has occurred over the past century in response to new technologies. Despite its current achievements, the commercial industrial technologies that are used in agriculture today to feed the world are not inherently sustainable. They have not worked well to promote either self-sufficiency or food security in developing countries like Nepal. Feeding the world sustainably is out of question with current agricultural practice. Modern Agriculture may often cause environmental problems because it changes natural environments and produces harmful by-products. Modern agriculture can also cause a decrease in biodiversity and the consolidation of diverse biomass into few species. Intensive agriculture can create a surplus of nitrogen and phosphorus in rivers and lakes. Herbicides, fungicides, insecticides, and other biocides can hurt the environment. Soil erosion, deforestation, and the deletion of minerals in the soil are other unsustainable aspects of modern agriculture. As well, air pollution is caused by farm equipment and transportation powered by fossil fuels, as well as industrial input (fertilizers, pesticides etc.) and output (food, fuel, fibre) manufacturing/ processing. Modern agriculture practices often result in large amounts of nitrogen runoff from the heavy use of fertilizer, which pollutes watersheds. In addition to posing a threat to human health and disrupting aquatic ecosystems, this sometimes results in algal blooms which deplete the water oxygen resulting in dead fish. Pesticides runoff also causes many problems. Loss of topsoil, salinity of soil, and the ultimate reliance on petrochemicals are obviously, not renewable and clearly unsustainable. To cope with these problems like pest resurgence, pesticide resistance, irrational use of pesticides etc., the “Integrated Pest Management” has emerged as an important approach of pest and disease control strategy, which encourages applying measures that causes least disruption of agro-ecosystem (PPD, 2005).

According to Bajwa and Kogan (2002) "Integrated pest management (IPM) is an ecologically based pest control strategy that relies heavily on natural mortality factors such as natural enemies and weather and seeks out control tactics that disrupt these factors as little as possible. IPM uses pesticides, but only after systematic monitoring of pest populations and natural control factors indicates a need. Ideally, an integrated pest management program considers all available pest control actions, including no action, and evaluates the potential interaction among various control tactics, cultural practices, weather, other pests, and the crop to be protected.” Farmer Field School (FFS) was first practised Indonesia in 1989, which was on Integrated Pest Management of rice (Bartlett, 2005). The FFS is a group-based non-formal adult education method based on experimental learning and participatory training (Miagostovich, et al., 1999 cited by Simpson, 2002). The FFS learning technique enables participants to make their own decisions about crop management practices. According to Bartlett, (2004) the success of the Farmer Field School approach in Indonesia has led to the rapid spread of the methodology to other countries. By the end of the 90’s more than two million farmers across Asia had participated in IPM Field Schools.

Indonesian Minister of Agriculture on IPM has stated that “Integrated Pest Management (IPM) is an ecological approach where agriculture is viewed as a complex, living system in which humans interact with land, water, plants and other elements. IPM promotes sustainability by applying ecological management and discovery learning principles in the cultivation of field in an attempt to optimise the use of existing resources. Farmers become experts, and the central focus of the agricultural system. Farmers become active, independent, competent partners within agricultural development. Farmers are the main owners, implementer, and developers of IPM. Farmers determine their own needs and create solutions and practices appropriate to specific local conditions”.

In Nepal, Community Integrated Pest Management (CIPM) Farmer Field School (FFS) approach was started in 1998 with the financial support of FAO via Inter-regional Community IPM Program with its main focus on training trainers and conducting Farmer Field Schools

(Westendorp and Biggs, 2002). Due to its initial successes, the FAO continued its support to CIPM-FFS programmes to the government of Nepal. Besides the government different national and international NGOs also started to adopt CIPM-FFS method. The main focus of this programme was to conduct the FFS experiments, follow up actions led by farmer trainers; facilitators' training, strengthening FFS groups. FFS approach has been regarded as the best extension methodology by government, local authorities, and technicians as well as by farmers in Nepal (Bartlett, 2005). In 2004 the Support to National IPM-FFS Programme was launched for three years (2004-2007) with the financial support of Norwegian Government and technical support of FAO. One of the goals of this project was to empower farmers to increase production and productivity efficiently while protecting environment, conserving the biodiversity and avoiding health hazards for betterment of their livelihood.

The community IPM/FFS Programme centred approach and does involve not only pest management and minimising pesticide use, but also a wide range of other agricultural practices aimed at growing healthy crops (PAC Meeting, 2001). This approach is primarily based on a collective effort of a group and instrumentalist as a tool to promote farmers' "empowerment". Since it is a participatory problem-solving approach proven to bring a positive change to the agricultural sector in Nepal because it is a people, the participated farmers are encouraged to follow-up the activities even after the program period, which mount up the farmers' empowerment process especially of women. Discrimination on the basis of gender is still widespread in Nepal and it has a great impact on rural development. The productive role of women in agriculture management is not reflected in proper representation and decision making power. Neither in indigenous institutions nor in externally sponsored institutions. Women are only involved in the informal sphere of day to day activities and decision making. These roles of men and women are to be understood. In the Agricultural Perspective Plan (1997) it is clearly stated that the government wants to create an environment for equal participation of men and women in agricultural decision-making process and give equal access to agricultural inputs such as credit, extension service, training programmes.

From the beginning of IPM program women have participated in the programme at all levels, as farmers, trainers and managers. On reviewing the achievements of the programme IPM Nepal gradually came to realise that women cannot always participate in the training activities because of their workload and responsibilities of taking care of children, food and other reproductive work. The programme realizes the need to incorporate gender sensitive approaches in all the programme activities. Female participation in farmers' field schools (FFS) varies from 100% in some areas (e.g. Bhaktapur district) to 0% in Terai communities. Among the IPM trainers only 7% are female. The important role of women in agriculture in Nepal requires to be reflected in the IPM programme. Women should be able to participate in the training activities that are being organised in 50 districts in Nepal.

The term empowerment is probably the most widely used and abused slogan that have entered the development glossary in the past thirty years (Batliwala, 2007). Empowerment is the process of increasing the capacity of individuals or groups to make choices and to transform those choices into desired actions and outcomes (World Bank, 2009). The word "empowerment" means sharing power as equals (Lange, 1998). One cannot empower someone else. Although one may offer to share power or decision-making, the other party must stand as an equal and have the desire, skills and legal mandate to share that power. Most situations of shared power go unnoticed. They are the situations where groups partner with one another for a common goal. Some partnerships however, are particularly notable because they go across sectors, borders, disciplines or cultures. One outstanding example of shared power was the government and civil sector coalition to ban anti-personnel landmines in Canada (Seymoar, 2002).

Women empowerment is enabling women to acquire and possess power on resources in order to make them capable to decide on their own or to resist decisions that are made by others that affect their need and interest. A person may said to be powerful when s/he has a control over a large portion of power resources in society. The extent of possession of various resources such as personal recognition and wealth, land, skills, education, information, knowledge, social status, position hold, leadership and capabilities of mobilization can play major role in women empowerment.

The Farmer Field Schools (FFS) is a platform of common-interest people where, they are get together on a regular basis for identifying the issues and looking for the better solutions. The group may consist of women only or mixed together depending on cultural system and social issues (WWF, 2006). From the participation in group discussion, women members can develop their mass speaking capacity and group leadership skills. They will be more consciousness in developing their skills and knowledge in decision making with respect to the common interest of the individual member of the FFS groups. Somehow, the members bring change in control of resources, build-up self-confidence and the right to make decisions and determine choices. Moreover, women provide huge amounts of labour in agriculture and are mainly responsible for the production of food as well as other crops. So, women should be empowered to make decision on which crops to produce, how and when to be grown, decision on allocation of land for different crops. Women need to have access on control over the investment in agriculture inputs like seed, fertilizer, chemical and pesticides, and labour distribution that empower women to better articulate their needs to improve household food security.

The FFS has proven as an effective entry point of empowerment process at different levels. At individual level, farmers who have participated in FFS carry out careful observation and analysis to decide what practices to apply in their own fields. At group level, FFS members collectively plan and conduct experiments to learn about agro-ecology and test or adapt new practices. The FFS group organizes activities that benefit other community members, such as farmer-to-farmer training at community level.

Women empowerment from FFS helps to change the individuals to boost self-confidence and pride, as well social status and action taken in participation in FFS. Women farmers gain capacity in greater control over their lives. In respect to the social change the FFS graduates become able to tackle with challenges and obstacles by reflective critical thinking or collective action.

1.4 Statement of Problem:

IPM/FFS being a popular process of bottom-up planning and empowerment approach of agricultural extension which enables an effective platform for sharing of experiences and collectively solving agricultural problems (Braun and Duveskog, 2008). Nowadays, it is realized that this program is indeed, needed to implement in a massive scale in the case of community empowerment. Thus, the governmental organizations as well as I/NGOs are implementing the FFS intensively in all over the nation. The main aim of the implementation of this programme by different organizations is to build capacity and empower the FFS graduate farmers. The graduate farmers can also discuss on the local problems, design the experiment, generate the knowledge, evaluate the knowledge and ultimately solve the problems themselves.

Nevertheless, the numerous efforts have been made GOs and I/NGOs to implement FFS in the community as well as to evaluate its impact on problem solving and community empowerment. As I learnt from the literature, these days many developmental organizations have faced the dropout problem of farmers' groups and their inactiveness. In the developing countries like Nepal, many farmers' groups are formed during the implementation of the

programme and with the termination of the program most groups get collapsed before they become mature and self sustainable due to weak follow up program.

According to the literature, there are around 60% of the total participants are women in Integrated Pest Management/Farmers Field School. The involvements of women in IPM/FFS are more but most of the leading positions are occupied by men. However, there is not sufficient study has been carried out how the IPM/FFS empower women participants in relation to leadership development, decision making, economic dimensions and seeking information and diffusion to others. So, this study will focus on how IPM/FFS has helped to empower women in the following dimensions:

a. Organizational behaviour: women in leadership roles within the groups and households, active participation in group decision-making process.
b. Economic behaviour: access to group, loan and market, saving and employment opportunity and ownership of land.
c. Learning behaviour: seeking information and taking action to share or disseminate it with others.

1.5 Objective of the Research:

The general objective of this research is to assess the role of IPM/FFS on women empowerment by analyzing the leadership development, decision making capacity, economic empowerment of women and ability of seeking information and knowledge and how they are disseminating the information to the others.

1.6 Research Main Question:

In what ways IPM-FFS approach has empowered the women farmers at household and community level in the following dimensions?

1. Women in leadership roles, active participation in group decision-making.
2. Economic empowerment of the women IPM/FFS graduates.
3. Seeking information and taking action to share or disseminate it with others.

1.7 Sub Questions:

1.1 What is the effect of IPM-FFS on leadership development of women and how they perform the leadership role?
1.2 What is the role of FFS on decision making capacity of women in household and society?

2.1 In what ways the IPM FFS helps in economic empowerment of women graduates?

3.1 Does FFS approach increase women's capacity in seeking information and knowledge?
3.2 Does the IPM-FFS approach develop the capacity to disseminate knowledge and information sharing to the other farmers?

1.8 Rational of the Study:

IPM/FFS is a multidisciplinary research and a problem solving approach in the field level for sustainable agriculture in Nepal. So, agricultural policies and present extension system of Nepal have adopted IPM/FFS approach as an effective extension tools to bring positive change in the livelihood of rural farmers. IPM/FFS is regarded as the best extension approach adopted by government of Nepal, local authorities, and extension technicians as well as by farmers (PPD, 2005). IPM/FFS methodologies/tools empower farmers to increase production and productivity efficiently while protecting environment, conserving bio-diversity and avoiding health hazards for betterment of their livelihood. As well as in IPM/FFS, community people develop their learning skills and approach to acquire technical and other social skills. IPM/FFS helps to develop their capacity among farmers to enable them diagnose problems, identify solutions and develop plans for implementation with or without support from outside (Asiabaka, 2004).

The priority has been given to the IPM/FFS in tenth five year plan (2002-2007) to produce organic product with minimum use of pesticide and establish organic fertilizer based farming system. Strategically, the government has focused on the empowerment of farmers for environmental sustainability and food security in long term. As a result, IPM activities had been initiated in Nepal since1980s. But the programme was confined to individual research studies either in government farm stations or in farmers' field. These studies were carried out specifically on vegetables, fruits (citrus and apple), cotton and rice where mechanical, cultural and uses of sex attractants were applied in combination with pesticide in single package. In Nepal Community Integrated Pest Management (CIPM) Farmer Field School (FFS) programme was started with financial support of FAO via Inter-regional Community IPM Program with its main focus on training trainers and conducting Farmer Field Schools in 1998. Lots of money and many years have been spent on FFS to make it institutionalized through around 2,623 farmers' field schools (NIPM, nd).

IPM/FFS played a crucial role to disseminate IPM technology to increase the yield of crops. Based on farming system practices of Nepal, women are the frontline labour of agriculture farming. The data of Plant Protection Directorate shows that the number of women participant is higher than men (60% Female and 40% Male) in Farmers Field School. However, there is less number of studies has been done on impact of FFS on women. So, there is a need to find out how the IPM/FFS approach contributed to various aspects of livelihoods of the women farmers and its associated impact on empowerment. Therefore, the findings of this study will certainly be helpful to understand the leadership development in organizational level and household, and to what extent the decision making capacity of women have been changed in community level, household and organizational level. Besides this, this study explores the socio-cultural aspect of women situation after the IPM training. What type of positive impact of IPM–FFS could lead to the expansion of this approach to other parts of the country where as negative side could be improved during FFS. The findings of this research also help to develop plans how the social aspect could incorporate in the IPM/FFS interventions. Further, it will be a basis for further research.

1.9 Limitation of the Study:

This research report is prepared on the basis of the field study with data collected by interviewing the women graduates and on the basis of my own personal experience and observation at FFS graduates associated community level. Any negative attitude of the respondents towards the study, researcher and FFS program would have affected both quality and quantity of the data collected. However, I tried to reduce these biases and false data while designing the study, collecting data from the field and compiled as realistic as possible.

Because of limited time frame, I took only six FFS groups as sample from different locations and different crop species within the Kaski district and interviewed 5 women members from each group. Another limitation is that the researcher did not have any knowledge about the status of such groups before IPM/FFS. So, the researcher is compelled to analyse the results based on the information provided by respondents. Moreover, because of being a man reseacher it is culturally not accepted to contact and meet women in any time any where. Therefore, the findings of the study may be limited to the similar agro-ecological zone and socio-economic domains covered by the study like in Kaski district.

This research report will focus more on empowerment of women through IPM/FFS especially in four aspects like leadership development; participation in decision making, economic empowerments and the capacity of seeking information and taking action to disseminate to others. The very limited numbers of literatures are found on this specific topic. Therefore, I hope that this report will be focussed more on the findings of that particular area, groups and members itself.

CHAPTER TWO – THEORETICAL CONCEPT

2.1 Historical Background and of the emergence of IPM/FFS:

Farmer Field School (FFS) was first designed and managed by the UN Food and Agricultural Organization in Yogyakarta, Indonesia in 1989. Since then many innovations have occurred and changes to the basic theme and have been developed. FFSs were adapted for crops such as legumes, fruits, vegetables, and tuber crops, and other technical and social themes such as integrated crop management, community forestry, livestock, water conservation, HIV/AIDS, literacy, advocacy and democracy (CIP-UPWARD 2003 cited by Norton, W., et al., 2005). Central to the success of FFS programs is appropriate IPM and methodological training of the people who organize and facilitate the field schools. The three distinct stages in IPM development have been recognized.

The first stage consists of a combination of control methods including biological control, host plant resistance, cultural control and selective control. In a new definition, IPM is described as an Integrated Pest Control which is a pest management system that in the context of the associated environment and population dynamics of the pest species utilizes all suitable technique and methods in a compatible manner as possible and maintains the pest populations at levels below the economic injury. This stage ended at the same time when Green revolution thinking introduced with high technologies was introduced in Indonesia, after famine and crises had hit rice production.

The second stage started in the 1980's and crop protection was integrated with farm and natural resource management. The IPM definition became "The use of two or more tactics in a compatible manner to maintain the population of one or more pests at acceptable levels in the production of food and fibre while protection against hazards to humans, domestic animals, plants and environment"(Bajwa, W. and Kogan, M., 2002). This definition of IPM coincides with a similar programme the FAO's inter–country IPM Programme implemented in Asia by the Food and Agriculture Organization of the United Nations (FAO).

The third stage, the IPM project was integrated with natural and social science in the 1960s. It became clear that fixed instruction do not work since site–specific agro–ecological and socio-economical conditions determine what the best in certain situations is. Instead, farmers must be able to choose from a basket of technologies and should be active participants in developing site–specific solutions. Existing extension system, such as Training & Visit did not provide sufficient flexibility which was narrowed because they were based on the concept of transfer of technology. But IPM projects have more dynamic and holistic approach such as Farmer Field School developed in rice production in South East Asia. FFS is non-formal education in which IPM principles are implemented. In this approach group of female and male farmers meet weekly during full cropping season to conduct experiments and monitor and discuss crop management interventions. The key principle of FFS is based on the four IPM principles: a) grow healthy crop b) observe the field weekly c) conserve natural enemies d) farmer become expert in their own field. Between 25 and 30 farmers participate in a FFS. Participants learn together in small group of five to maximize participation. During FFS, farmers learn field observation methods. Weekly observations compare IPM plots with non-IPM treated plots. Plants are sampled from both plots and carefully observed while pest and natural enemy population sizes are monitored and recorded. Groups illustrate the situation in their field by drawing and presenting their 'Agro-Ecosystem Analysis' for plenary discussion The participating farmer then decide which crop management practices will be applied and closely monitor the impact. Conservation and utilization of local natural enemies and other beneficial organism play an important role in control of insect pests. Participants also look other pest, at nutrient and water management. Pesticides (selective and with a low toxicity) are applied only after field observation have

shown that they would supplement natural mortality and non chemical methods. Biological control method is also emphasis for the pest control.

The Farmer Field School is basically a school without walls where there are no standard recommendations or packages of technology offered (Asiabaka, 2004). In the FFS, farmers collect data in their experiment plots and decide on interventions based on their findings. Experiments are conducted to demonstrate interaction between pest populations, natural enemies and pesticide applications. Farmers find out for themselves that limited damage does not usually reduce yields and that spraying against several pests increase both production costs and the risk of further pest outbreaks. FFS visualization technique (drawing, crop calendar, role play etc) are used and much attention is paid to group dynamics. Through FFS, learning by doing with simple experimentation helps farmers further improve their understanding of functional relationships (e.g. pests-natural enemy population dynamics and crop damage-yield relationships). In this cyclical learning process, farmers develop the expertise that enables them to make their own crop management decisions (Berg, H., 2004).

The Nepalese Government's twenty year agricultural plan: Agriculture Perspective Plan (APP-1995-2015) has also wanted to promote IPM based FFS approach as the specific strategy for Plant Protection. The governments' Poverty Reduction Strategy Paper (PRSP), which constitutes the foundation for the Tenth Five Years Plan (2002-2007), emphasizes agro-ecosystem approach as one of the key strategies for promoting agriculture growth and development, with IPM as the national strategy for pest management. As a result, in every plan of the district agriculture development office they plan and implement IPM/FFS year by year. According to National IPM Programme up to now total 2623 IPM/FFS has been conducted by National IPM Programme and other National and International Non Governmental Organizations like CARE, TITAN, CARITAS, World Education, Winrock International, Helvetas. Total of 69,207 farmers have been trained by IPM/FFS, out of which 60% of the total participants were female and the remaining 30% were male participants. According to the information, total 304 women facilitators are still actively involving in conduction of IPM/FFS activities in the field.

2.2 Farmer Groups and FFS Groups:

Farmers group is defined in many ways by many institutions and individuals. Some of the definitions groups are:

The group is collection of individuals who have regular contact or meeting and frequent interaction, mutual influence, common feeling of camaraderie, and working together to achieve a common set of goals for the betterment of each individual.

Group is defined as "some people (minimum of five) who come together on a free and voluntary basis and with a spirit of co-operation expressed by mutual love and assistance, sister/brotherhood, justice and honesty; to work together for mutual social and economic benefit" (Bartle, 2009).

In farmers groups, at least 8-10 people come in a common place and perform certain roles to achieve the common goals of the entire members. To achieve the targeted goals the individual members develop their plan delegate responsibilities with each other work to gather as belonging of group. Groups exist for a variety of reasons and purposes and have different ways of going about satisfying their needs.

Group has the following characteristics**:**

- There is an involvement of two or more people in social interaction and they must be able to influence each other's beliefs and behaviours.

- The members of the group share common goals on certain goals-agreed goals objectives and targets.
- They have relatively stable group structure such as rules and roles that endure over time and across different social situations.
- They openly perceive and recognize themselves as being a group.

IPM/FFS is a group of people where individual members able to gain experience by involving from the beginning to the last of the crop activities. The Field School lasts for a full cropping season, meeting at least 12 times with an approximate length of four to five hours per meeting. Each meeting consists of a set pattern of activities: agro-ecosystem field observation, analysis and presentations; special topics; and group dynamics. The IPM Field School meets throughout the cropping season in order that participants can observe and analyse the dynamics of the crop field ecology across a full season.

IPM/FFS Group is a group of 25 to 30 farmers who involve in season long learning experience and participants set up field studies to test hypothesis during the whole learning period. This is a participatory learning process which develops ecological understanding that helps in ecosystem analysis.

2.3 Role of Farmer Field School to Farmers empowerment:

Group of farmers participates in the IPM/FFS and learns knowledge and skills related to technical and social aspect like facilitation skill and gender analysis. Then the farmers can carry out experiments more confidently on their own. From acquiring the knowledge and skills from the FFS the farmers can develop their skills in deciding the appropriate agricultural practices like selection of crop, variety etc. They will be able to identify and distinguish between beneficial and harmful insects and manage the harmful insect pest including other diseases without causing any negative impact to the ecology. As well as the farmers are able to identify, analyze and solve the social issues faced by their communities, including the cultural aspects of their crops such as planting, weeding, fertlization, irrigation, harvesting and management of harmful insect pest and diseases. Farmers can develop the idea and management practices about their crops which are less risky to human health and ecology. By participating in the FFS the farmer could develop leadership capacity, decision making capacity, networking, planning and organizational skills in their communities. As a result, in some areas of the Kaski district FFS graduates initiated to establish the self-help groups and establish cooperatives shop (Agro vet) to help communities in proper use of knowledge learnt in the FFS. Rather than, some of the farmers groups develop socialism and started to cultivate in communal land like growing of vegetable seedlings in common land and distribute each other later. For example, Hariyali IPM/FFS group of Kaski has practice of communal nursery management in one common land and distribute to the other group members.

The FFS graduates become more aware about the responsibilities and duties of governmental and non-governmental service providers and able to question regarding the services delivered by the service providers in their community. They are more curious to know more about the programme implemented in their community. After the FFS, farmers' group have started to conduct participatory planning and implemented several agricultural related activities, such as: vegetable farming, bee keeping, maintenance of irrigation canals etc. Some farmer communities just wanted to have another Farmers Field School, to facilitate participation of their neighbours or fellow farmers (PAC, 2001).

FFS approach as a platform for both learning and empowerment. After participating in IPM/FFS the farmers become able to select beneficial technologies for the community that can contribute to overall food production. One of the objectives of IPM/FFS is farmers' empowerment that helped farmers to move from the margin to more powerful position from

technical, political, market, and social forces (Pontius, et al., 2001). The FFS empower farmers via farmers groups, organizations, deal with market and empowerment through knowledge and experimentation. IPM/FFS graduates learn and can apply ecological principles for the better management of their crops within their own specific agro ecosystem; they would be master and apply critical thinking skills at both farm and community levels and they can develop leadership skills which they can apply in collaborative approaches to local ecosystem management.

2.5 Women Empowerment by FFS:

The term `Empowerment' is widely used in development work and defined by different person and different organisations in different ways. Empowerment is the process of raising awareness level and building capacity of individual or groups, which increases the participation and enhance decision-making power of individuals and may potentially lead to transformative action which will change opportunity structures to an inclusive and equalising direction. Here are some commonly used definitions of empowerments:

"Empowerment means that people, especially poorer people, are enabled to take more control over their lives, and secure a better livelihood with ownership and control of productive assets as one key element" (Chambers, 2003).

"Empowerment means individuals acquiring the power to think and act freely, exercise choice, and to fulfil their potential as full and equal members of society" (DFID, 2000 cited by Bartlett, 2004)

"Empowerment is the process of enhancing the capacity of individuals or groups to make choices and to transform those choices into desired actions and outcomes. Central to this process is actions which both build individual and collective assets, and improve the efficiency and fairness of the organizational and institutional context which govern the use of these assets" (World Bank, 2009).

"Empowerment is the process of awareness and capacity-building, which increases the participation and decision-making power of individuals and may potentially lead to transformative action which will change opportunity structures in an Inclusive and equalising direction" (Andersen, J. and Siim, B., 2004).

For this study I have selected Andersen and Siim's definition because it stated that the enhancement of awareness level individual, building capacity in all level like technical as well as social aspects, and the level of participation increases in decision making role and decision making capacity. As far as the empowerment is considered with IPM/FFS, it helps to enhance awareness level of the participants with experimental learning approach. By participating in IPM/FFS training the participants acquires technical and social knowledge and skill that built their capacity in mass dealing and building self-confidence in putting their ideas to the public. With the help of these acquired knowledge and skills the participants could develop their leadership role and decision making in organizational and household level.

In this study the empowerment of women IPM/FFS graduates are analysed based on the indicators given by Bartlett (2004), which are presented in his article of "entry points for empowerment" a report for CARE Bangladesh, in which the indicators are: first, organizational behaviour. This includes: women in leadership roles within the groups and households, active participation in group decision-making process; second, economic behaviour. This includes: access to group, loan and market, saving and employment opportunity and ownership of land. The third one is learning behaviour which covers: seeking information and taking action to share or disseminate it with others.

2.5.1 Leadership development:

According to Tuyen, (1997) the role of IPM/FFS is to develop the leadership. In IPM/FFS the majority of the participants are female. During the IPM/FFS different sub groups are divided and each subgroup is led by one member of the group. In each group obviously one women members lead the group. Every day each group presents something in front of the all participant members. By leading the sub groups the women leadership has developed and after the completion of IPM/FFS the women members are not hesitate to participate in the social activities in the community and taking the responsibility of leadership. In some IPM/FFS, the participants set the norms and separate quota for women's participation and leadership. The main reason for this is that they wanted to make the group inclusive and wanted to empower women members.

2.5.2 Decision making:

The ultimate goal of IPM/FFS is to improve decision making capacity of the graduates for better production and profits. By participating in the IPM/FFS the farmers can improve their analytical and decision-making skills, develop expertise in IPM, and end dependency on pesticides as the main or exclusive pest-control measure (Braun, 2000). In case of women member of the FFS group she could make a greater contribution to the household decision making (Bartlett, 2004) like child education, food management, use of household income and use of agriculture products. In Nepal men and women both are involved in decision-making in agriculture, whereby women decide what to do pre-planting, weeding and during harvesting and beyond (FAO, 2000).

During the training period, the discovery based learning methodologies used and that had developed experimental and analytical capacities of FFS farmers for making rational decisions under complex and changing circumstances. Each IPM/FFS participant learned improved crop management skills through group activities by attending around sessions. The purpose of this training is to have significant improvement in the knowledge and practices of the FFS farmers (Khan et al., 2004).

2.5.3 Economic empowerment:

The women's economic power enhances the wealth and well-being of nations. Increased income controlled by women gives them self-confidence, which helps them obtain a voice and vote in household decision making. For instance, women tend to use income clout for more equitable decisions about sons and daughters' diet, education and health.

The reduction of cost of production by FFS graduates, even increased yield and the reduced risk for farmers following the IPM principles imply that farmers are directly profiting from the programme. The participation in FFS-sessions, farmers contributes towards learning skills and making independent decisions for additional economic gains.

In this study, the economic empowerment of women graduates is measured on the basis of some indicators: Access to loan, access to group, access to market, land ownership, saving, employment opportunity and situation of dependent to their husband.

2.5.4 Women's access to knowledge and dissemination:

The IPM/FFS is a season long training of farmers involving participatory activities, hands-on analysis and decision making. Because it requires significant investments in time, trainers and other facilities, the approach can be an expensive way of diffusing new science-based knowledge and other information to farmers. Due to the involvement in the IPM/FFS Women members learn more about agriculture from the training as well as their neighbours, husbands, parents, the radio or the newspapers and to a very small extent from extension staff (Tuyen, 1997). One of the example stated by Saxena, R. and Saxena, A., (2007), Arjun Singh in India the master trainer of agriculture, and member of Chandrashekhar Samiti of

KVK organizes seasonal seminars and conducts learning session (both classroom and field based) for disseminating knowledge on innovative agriculture practices to the farmers.

According to Rola, A.C., *et al*., (2002) the IPM/FFS graduates are able to retain and disseminate acquired technical and social knowledge and experiences particularly through their informal communication channels are relatively cheap to use and maintain. The IPM/FFS graduates are actively and constantly involve in the interaction, particularly between neighbours and community members in almost daily encounters.

The interpersonal networks appear to be the predominant method by which farmers acquire knowledge such as regular visit to the service providers and extension personnel. There is a greater diffusion effects on the knowledge of graduates of FFS within the community. The FFS is one such approach that depends on informal local farmer's network to diffuse new knowledge and information to other farmers. In some IPM/FFS groups in Kaski there is considerable informal knowledge sharing takes place within the village, community people by organizing meeting and as well as family members in informal way.

CHAPTER THREE – METHODOLOGY

3.1 Selection of the Research area:

This study has been carried out in FFS groups in Kaski District of Nepal. Based on my previous experiences, the Kaski district has been selected for my research work. I could get assistance from my previous colleagues for working together and other logistic support from family members and different organisations to complete my research. The research was carried out using both quantitative and qualitative approach based on primary/secondary data and literature.

For this study, the survey method has been applied for the gathering of data from the field. Because of the motives of the research, the purposeful sampling method had been applied for selecting sample groups. The research has been carried out in two VDCs (Sarangkot and Hemja), one Municipality (Lekhnath) and one sub metropolitan city (Pokhara) of Kaski district. A total of thirty respondents from six IPM/FFS groups had been selected during the data collection and survey method using structured and semi structured questionnaire for the gathering of data with these selected respondents.

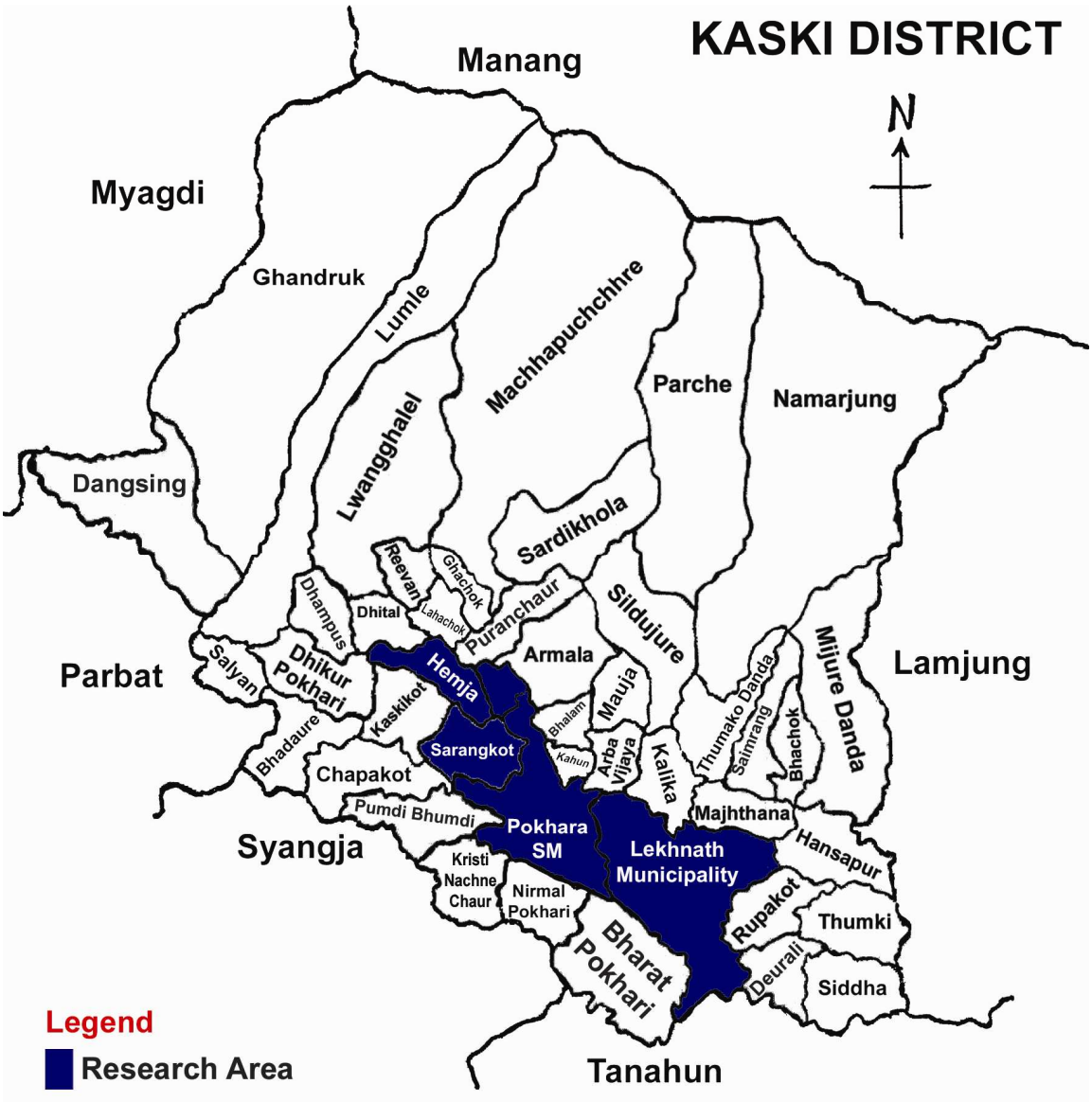

Fig. 3.1*: Map of Kaski District (Research Area)*

The reason behind the selection of site and the sample groups are due to the limited time frame and the busiest season for farmers and accessibility of the research area which are nearby the city area. The other reason is that the selected areas are the areas where more number of IPM/FFS had been conducted. Like in Hemja, there were 4-5 IPM/FFS had conducted in one village and that is also a potential area for seasonal and off-seasonal vegetable cultivation and easy access from the marketing point of view.

All the research work was done in 6 weeks during July to August 2009. Afterwards, the collected data was tabulated and analysed then the research issue was further examined and verified on how and to what extent the IPM/FFS played a role in women empowerment in the Nepalese farming communities.

Because of being a student of SIGAL course, I have selected women sector as my research topic. In Nepal due to patriarchal society system women get less chances of involvement in outdoor activities. There are less number of women involved in politics and developmental works. In Nepal, 70% of the agriculture labour contribution and 26% of the agriculture farm decision making has taking place by women. Out of the total participants in IPM/FFS, 60% of the participants are women. IPM/FFS approach helps to empower farmers. So, I eager to see how IPM/FFS approach empower farmers basically women in leadership development, decision making capacity at household level and group level, economic empowerment of women graduates by FFS and how this approach facilitate women in seeking information and taking action to diffuse to others.

3.2 Sampling of Farmer Groups and Individuals:

Sampling is part of statistical practice concerned with the selection of individual observations intended to gain knowledge about a population of concern, especially for the purposes of statistical inference. Each observation measures one or more properties of an observable entity enumerated to distinguish individuals. Survey weights often need to be applied to the data to adjust for the sample design. Results from probability theory and statistical theory are employed to guide practice. In business, sampling is widely used for gathering information about a population.

First I went to the District Agriculture Development Office (DADO) Kaski to collect data. According to the DADO Kaski, thirty two IPM/FFS had been conducted in different location in different crop species by DADO, RPPL and other Non Governmental organisation. Total of 678 women participants participated in the IPM/FFS out of 872 total participants (Annex - I). With the help of IPM/FFS facilitator six different IPM/FFS groups had been selected for the source of data. Even the facilitator helped me to select individual women graduates who I am going to interview. According to his recommendation I myself and some of my colleagues went to interview them. During my whole field period facilitator helped me to identify the individuals and home.

As for as setting the research unit, a total of thirty women FFS graduates were selected for this study from six different Farmers Field School groups. As from the data of DADO Kaski, in almost all groups the numbers of women participation were more (Annex II).

During the selection of farmers groups the time of the conduction of IPM/FFS (old and new groups) has been taking in the consideration. For the selection of individual respondent, according to the recommendation from DADO and RPPL the researcher took assistance from the IPM/FFS facilitator and DADO technician working in the particular area.

Table 3.1: IPM/FFS group and members selected for study.

SN	Name of the IPM/FFS	Address	Total No. of participants			No of part. for study.	FFS Date	Leadership In group
			F	M	Tot.			
1	Radhakrishna IPM Farmers Field School	Hemja-2, Kaski	24	1	25	5	12/2005	Female
2	Khapaudi IPM Farmers Field School.	Sarangkot -7 Kaski	24	3	27	5	01/2008	Male
3	Hemja Milan IPM Farmers Filed School.	Hemja – 4 Kaski	16	9	25	5	12/2005	Female
4	Sakneri IPM Farmers Field School.	Lekhnath – 3 Kaski	11	17	28	5	01/2009	Male
5	Hariyali IPM Farmers Field School.	Pokhara – 16 Kaski	32	0	32	5	01/2009	Female
6	Jaagrity IPM Farmers Field School.	Hemja, Kaski	19	2	21	5	02/2009	Female
		Total	126	32	158	30		

Source: Field Survey, 2009.

3.3 Data Collection and techniques:

Basically this research report was prepared based on primary source of information collected from the field. The secondary source of data also used in this report from DADO, RPPL and PPD publication, books, internets sources, journals, publications of related Ministry and organizations was also consulted. Besides this, own field observations, formal and informal discussion with community people, IPM/FFS facilitators and extension personnel is another source of data applied in the study.

3.3.1 Primary Data:

Primary source of information was collected by interviewing with the selected thirty women graduates (Annex II) using structured questionnaire (Annex III). Before starting the field works, the questionnaire was pre-tested to reduce the errors and verify the set questions in regards to the research objectives and issues of the research. The field observation, observation of ongoing IPM/FFS, information from the formal and informal discussion with facilitator, extension worker and community leader is another source of primary data. The field survey was carried out with the help of colleagues from Animal Health Training and Consultancy Service, IPM/FFS facilitator, staff of RPPL Kaski and DADO staff working in the field level.

3.3.2 Secondary Data:

The secondary information was collected from the books, publications of Plant Protection Directorate and District Agriculture Development Office, Publications of different NGOs, related leaflets, magazines and grey documents of farmers' groups have been used. The literature available in the internet is another source of secondary data and other some relevant materials regarding Nepal and IPM/FFS.

3.4 Data Analysis and tools used:

The collected first hand information is the main source of analysis of this research report. Data analysis is a process of gathering, modelling, and transforming data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making. Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science domains.

The collected primary data was compiled in a systematic way into a master sheet and data was tabulated. The data was arranged and classified based on the related information and

separated based on their nature. Both quantitative and qualitative approach of data analysis method have been applied and presented in the report. In some parts of the analysis, simple statistical tools like excel have been used as the frequency of the response was considered and presented in simple percentage, average, graphs, figures and comparative tables and the qualitative information is presented in descriptive way and analysis was interpreted into the findings.

CHAPTER FOUR – FINDINGS

4.1 Overall status of Farmer Groups in Kaski:

This study has been conducted to find out the empowerment status of the IPM/FFS groups in the Kaski District. According to the data of DADO (2008) Kaski, the existing farmers groups registered in DADO Kaski are 281. Out of which 44 groups are women groups, 3 groups are male groups and the remaining 234 groups are mixed. In total of 281 groups the male and female participation is 3359 and 3787 respectively.

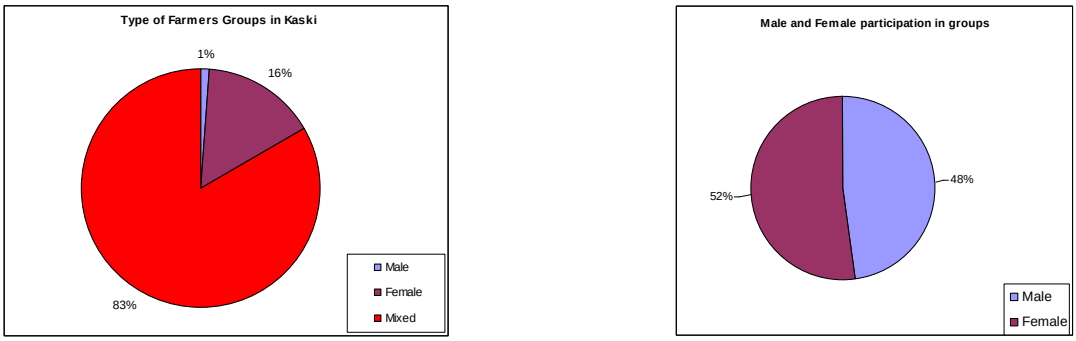

Fig. 4.1: Status of Farmer Groups in Kaski

DADO Progress 2008 claims that, out of 281 farmers groups, 227 farmers groups are active and the remaining 54 farmers groups are inactive. As far as the participation, there are 523 female members and 601 male members in executive committee of the farmers groups.

4.2 Status of Farmers Field School in Kaski:

According to the data from DADO Kaski, in January 2005 the first IPM/FFS was started in Kaski from the vegetable species cauliflower. Basically, the IPM/FFS conducting institutions in Kaski are DADO Kaski, Regional Plant Protection Lab Kaski and other non governmental organization working in Kaski district. The Non Governmental sectors' contribution to the development of IPM/FFS in Kaski is quite significant. Till now, all together 32 IPM/FFS have been conducted in different crop species within this 4 years period. By IPM/FFS program 10 VDCs, 1 municipality and 1 sub metropolitan city has been covered out of 42 VDCs, 1 municipality and 1 sub metropolitan city in Kaski district. A total of 882 farmers have graduated from IPM/FFS in Kaski till to date. Out of 882 graduates, 679 (77 %) of those are women whereas men graduates are 193 (23%) (Annex-I). Rice (spring and summer), vegetables (Tomato, Cucumber, Cauliflower and cabbage) and coffee are the crops on which IPM/FFS were conducted. During this 4 years period, 3 IPM/FFS facilitator have been developed from the FFS graduates in Kaski and they are actively involved in developing and conducting IPM/FFS training in the district.

4.3 Demographic characteristic of the respondents:

4.3.1 Caste and ethnicity of the respondent:

According to the DADO report (2008), in Kaski there are 83 different cast systems with the majority are the of Brahmin and Gurung population (DADO, 2008). In the research areas, the respondent dominant castes were also Brahmin and Chettri. Out of the 30 respondents 67% were Brahmin, 30% were Chettri and remaining 3% were Gurung (Table 4.1).

Table 4.1: Castes and Ethnicity of the Respondents.

SN	Caste	% of Participant	Frequency
1	Brahmin	67%	20
3	Chhetri	30%	9
3	Gurung	3%	1
4	Total	100%	30

Source: Field Data 2009.

4.3.2 Age group of the respondents:

In this study, 30 women FFS graduates were interviewed. The age variations of the respondents are ranging from 20-53 years. Out of the 30 respondents, the distribution of the respondents by age class shows that 13 women graduates were in the age group 20-30, 12 women graduates were in the age group of 31-40, 4 respondents were in the age group of 41-50 and the remaining 1 is in the age range of >50 years (Fig 4.2).

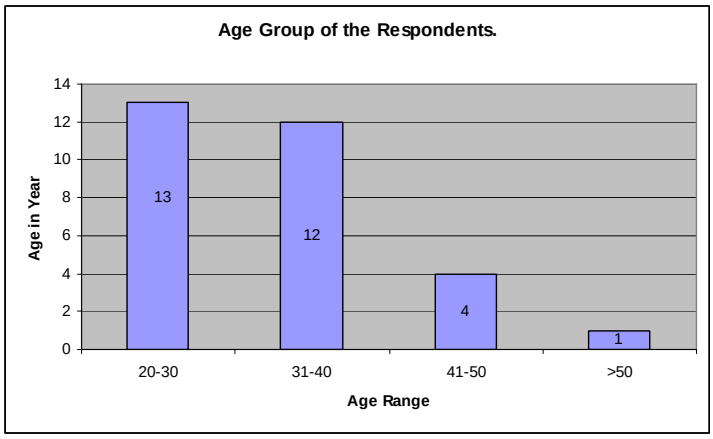

Fig. 4.2: Age group of the Respondents. (*Source: Field Survey, 2009*)

4.3.3 Educational level of the respondents:

Educational level is the more crucial part for the success and failure of the FFS training. In this study the findings about the educational status of the FFS graduates, all the participants were literate except one participant. Most of the respondents had completed secondary level education i.e. majority of the respondents attended primary level followed by 44 % whereas 38 % of respondents had attended secondary education and just literate (little know how) were 18 percent (Figure 4. 2). In relation to the age and the education level, younger aged respondents are literate and having sound educational levels however the older aged respondents are illiterate (Annex II).

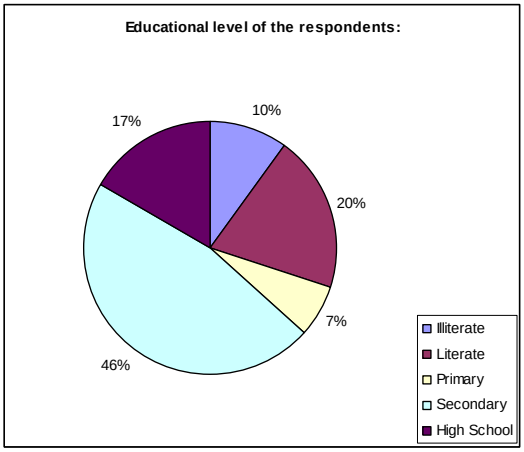

Fig. 4.3: Educational status of the respondent. (*Source: Field Survey, 2009*)

4.4 Socio economic status of group members:

Socio economic status is defines as individuals' or group's position within a hierarchical social structure. Socio economic status depends on a combination of variables, including occupation, education, income, wealth, and place of residence. Sociologists often use socio economic status as a means of predicting behaviour. In this study, the researcher considered socio economic status as a household size, land holding status, land ownership and other major economic source of the respondent family.

4.4.1 Household size of the respondents:

Household sizes determine the availability of labour input in the agriculture farm family. Family farms are the most sustainable form of organization for agriculture. In Kaski the average household size is 4.74 (DADO, 2008). However, the average household sizes of the respondents were 5. Out of total, 57% i.e. 17 respondent women had 2-5 members in the family while 43% i.e. 13 respondent women graduates had 5-10 members, which are shown in below Table 4.2:

Table 4.2: Household size of the respondents

SN	HH Size	Frequency	Percentage
1	<2	0	0
2	2-5	17	57
3	6-10	13	43
4	>10	0	0
	Total	30	100

Source: Field Data 2009

4.4.2 Land holding of the respondents:

The average landholding size of the Kaski district is 0.44 hectares per households (NAC, 2002 cited by DADO, 2008). The average landholding size of the study household was 5.23 Ropani[2]. The study indicated that the size of land holding differed with wealth categories. It was at 0 Ropani to maximum 24 Ropanies per family. According to the field survey 2009 the distribution of land in the study areas shows that, 0 to 5 Ropani land holding farm families were 16, 6 to 10 Ropani landholding farm families were 10, 11 to 15 Ropani landholding farm families were 3, 16 to 20 Ropanies of landholding family was non however, the one farm family has more than 20 Ropani land. The relationship between caste and landholding, generally in Nepal higher caste households and have more fertile land and other economic resources. (Pradhan and Shrestha, 2005). However, in research finding there are less landholding with higher caste like Brahmin and Chettri.

Table 4.3: Landholding size of the respondent families

SN	Landholding	Families	Percentage
1	0-5 Ropani	16	53%
2	6-10 Ropani	10	33%
3	11-15 Ropani	3	10%
4	16-20 Ropani	0	0%
5	>20 Ropani	1	3%
	Total	30	100%

Source: Field survey, 2009

4.4.3 Land ownership pattern of the respondents:

In Nepal, approximately 17 percent of the total land area is arable. Due to the cultural practices most of the men has land ownership in Nepal. Only women-headed households and the single women have land ownership. This study also shows that in majority of the household the landownership belongs to the men. Out of 30 respondents, 18 (60%) respondents had landownership in men, 4 (13%) respondent women had land ownership, 7 (23%) of respondents had land ownership with both men and women and only one (3%) family had no land ownership. These families carried out agriculture activities in contract/lease basis.

[2] The Ropani is a unit of measurement of area of a land, commonly used in Nepal, Bangladesh and India. The precise size of a Ropani appears to vary considerably. Sources have given measurements about 1 ropani = 500m² = 0.05 ha.

4.4.4 Major economic source of the respondents:

In this study, the major economic source is defined as the major source of household income. In the research area, there was a variety of the household income sources. In this study researcher had categorized only three types of household income sources i.e. solely agriculture, agriculture and service and agriculture and business. The field Survey 2009 shows that the major source of household income of the respondent is the combination of agriculture and service (Public and Private), i.e. 16 (53%) households, in 11 (37%) households are solely dependent upon agriculture for their household income and 3 (10%) household has a combination of agriculture and business as major household income.

In the research site, the Brahmin caste had agriculture and service as main source of household income, some of the Chhetri caste had agriculture and business and some of the Chhetri household had service also the source of income and the Gurung caste had both agriculture and private service as main source of household income source. Rather than this some of the household have remittance is another source of household income. The details are shown in Fig. 4.4.

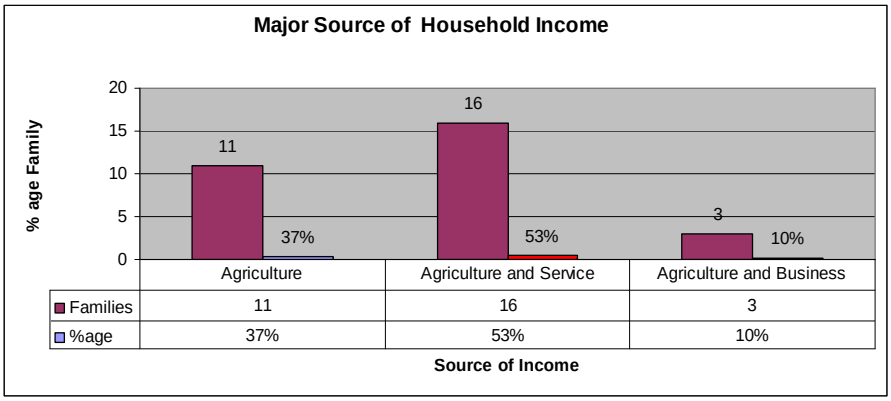

Fig. 4.4: Household Income sources of the respondents. (*Source: Field survey, 2009)*

4.5 Assessment of empowerment in FFS group member:

The study findings indicated that, by participating in the IPM/FFS the women graduates have gained both technical and social skills and the IPM/FFS has enhanced women's capacity to make decisions regarding the farming activities and the decisions at the household level. Total 23 (76%) women graduates out of 30 women respondents expressed that they have developed their self-confidence in planning and implementation of activities in the community. The leadership capacity has been developed by participating in the FFS training. Total 27 (90%) of the women graduates expressed that the IPM/FFS helped them to build strong social relation within the community and friendship among the alumni.

4.5.1 Women in leadership roles:

In this study, the leadership role considered as participation of women in executive committee of the FFS groups as well as how they select the leader in the IPM/FFS. In the study samples 4 (67%) out of 6 IPM/FFS groups were led by women and the remaining 2 (33%) IPM/FFS groups are led by male. Details are shown in fig. 4.5.

Mrs. Shanti Devi Paudel, Chairperson of Radhakrishna IPM/FFS said: *"I always encouraged and asked other women members of the group to take part in the decision making position and hold leadership role of the groups so that they can learn decision making process and develop leadership role in the group and community"*.

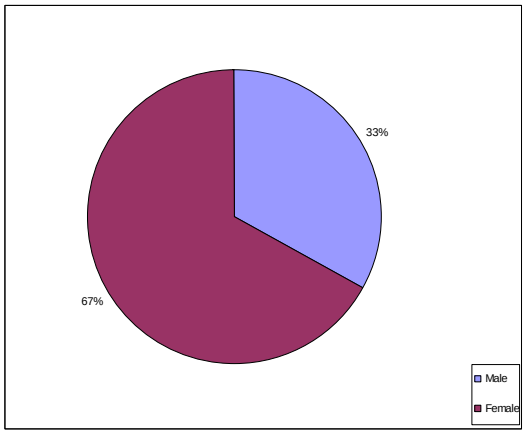

Fig. 4.5: Women led IPM/FFS. (*Source: Field Survey, 2009*)

In all of the IPM/FFS groups, for the selection of group leader, the following criteria were taken into consideration:

a. The person should be the member of the groups and should be a farmer.
b. S/he should be educated.
c. Having capacity to lead the group.
d. S/he should be active, enthusiastic, creative, confident and able to put his/her idea freely.
e. Having good planning and communication skills.
f. Socially well known and motivated to social work.
g. Motivated and dynamic.

All of the groups have their own group constitution and according to the group constitution, the leadership had to change in every two years intervals. However, in most of the groups the leadership has not been changed yet. Eventhough there were no clear-cut provision for inclusion of women members, but in most of the groups women leading role is grater than men.

Regarding the delegation of the roles and responsibilities, in all of the IPM/FFS groups the responsibilities were delegated based on the decision made in the group meeting. There were provisions of delegating responsibilities to the individuals based on the specialization. A person who had networking skills and public contact such person get responsibilities of that area. In some cases the responsibilities were taking in rotational basis. According to the respondent, all the members were performing their responsibilities in an efficient and cooperative way.

4.5.2 Women's participation in group decision-making:

Regarding the women's participation in decision making, this study shows that out of 30 respondents 3 women members were chairperson, 2 were vice chairperson, 2 were treasure, 5 women were involved as secretary and 14 women respondents were only the members in the executive board of the IPM/FFS groups. The remaining 4 respondents were only participated as general members in the IPM/FFS groups. All the executive board members have crucial role in decision making in the groups however, the ideas of the general members have been also taken into consideration during decision making process.

"Mrs. Apsara Timilsena of Hemja Milan IPM/FFS group expressed that she often pushed the women members for active participation in decision making process and asked them to put their idea and feelings freely in regards to the issues raised in the group meetings".

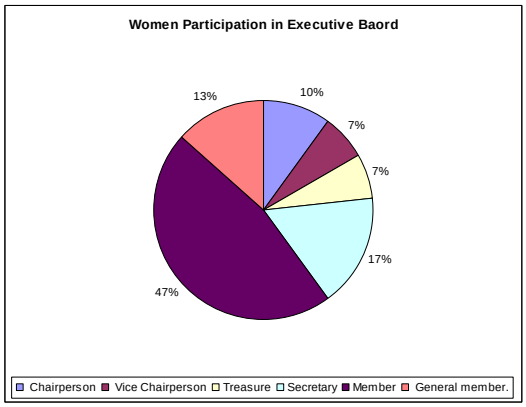

Fig. 4.6: participation of women in decision making position. (*Source: Field survey, 2009*)

In all of the IPM/FFS groups of this study, the group meeting is organized as per the need of the groups' members and importance of the issues. In all groups the chairperson is the responsible for the organization and facilitation of the groups meetings. Basically, in all farmers groups the secretary is responsible to take notes and meeting minutes. During the conduction of meetings, the group chairperson first collects the agendas and issues and put into the discussion. In the decision making process, the ideas of the all general members and executive members are taken into considerations and finally the decision are made.

As far as the decision making in the household level is considered, the women IPM/FFS graduates had developed their capacity in making decision within the household level. During the field survey the followings criteria were developed to identify the decision making capacity of the FFS graduates. The decision making capacity has been significantly changed within the women graduates after participating in the IPM/FFS Training. Details are shown in table no. 4.4.

One of the respondents said during the interview "Majority of the women graduates expressed their feeling that they could decide their household business like child education, food management, use of income and purchase of agriculture products like seed, fertilizer and management of labour etc".

Table 4.4 a: The decision making capacity of women graduates before FFS training

SN	Criteria	Excellent	Very Good	Good	Fair
1	Child education	0 (0%)	6 (20%)	10 (33%)	14 (47%)
2	Food management	1 (3%)	12(40%)	15 (50%)	2 (7%)
3	Use of income	0 (0%)	11 (37%)	8 (27%)	11 (37%)
4	Use of Agriculture Product	3 (10%)	14 (47%)	7 (23%)	9 (30%)
5	Purchase of Agriculture Product	0 (0%)	11 (37%)	9 (30%)	10 (33%)
6	Saving	0 (0%)	6 (20%)	9 (30%)	15 (50%)
7	Religious/social program	0 (0%)	7 (23%)	10 (33%)	13 (43%)

Table 4.4 b: The decision making capacity of women graduates after FFS training.

SN	Criteria	Excellent	Very Good	Good	Fair	Difference
1	Child education	12(40%)	5 (17%)	10 (33%)	2 (7%)	1 (3%)
2	Food management	11 (37%)	9 (30%)	6 (20%)	2 (7%)	2 (7%)
3	Use of income	11 (37%)	10 (33%)	8 (27%)	0 (0%)	1 (3%)
4	Use of Agricultural product	9 (30%)	9 (30%)	4 (13%)	5 (17%)	3 (10%)
5	Purchase of Agricultural product	7 (23%)	11 (37%)	8 (27%)	1 (3%)	3 (10%)
6	Saving	11 (37%)	6 (20%)	9 (30%)	0 (0%)	4 (13%)
7	Religious/social program	10 (33%)	12 (40%)	1 (3%)	1 (3%)	6 (20%)

Source: Field Survey 2009.

During the field survey the researcher wanted to explore the changing capacity of decision making in farm level. In this aspect, the decision making capacity of women graduates has been increased. They were more empowered in farm activities aspects as compared to their participation before IPM/FFS. The results are shown in Table 4.5.

Table 4.5 a: Decision making capacity of women graduates before IPM/FFS.

SN	Activities	Excellent	Very Good	Good	Fair
1	Crop selection	0 (0%)	3 (10%)	12 (40%)	15 (50%
2	Variety selection	0 (0%)	5 (17%)	14 (47%)	11 (37%)
3	Soil Management	2 (7%)	14 (47%)	12 (40%)	2 (7%)
4	Use of fertilizer	1 (3%)	16 (53%)	11 (37%)	2 (7%)
5	Weed Management	1 (3%)	12 (40%)	14 (47%)	3 (10%)
6	Biological control	2 (7%)	12 (40%)	15 (50%)	1 (3%)
7	Pesticide Management	3 (10%)	11 (37%)	13 (43%)	3 (10%)
8	Harvesting	1 (3%)	10 (33%)	16 (53%)	3 (10%)
9	Storage	2 (7%)	13 (43%)	13 (43%)	2 (7%)
10	Marketing	1 (3%	14 (47%	11 (37%	4 (13%

Table 4.5 b: Decision making capacity of women graduates after participating in IPM/FFS.

SN	Activities	Excellent	Very Good	Good	Fair	Difference
1	Crop selection	3 (10%)	15 (50%)	12 (40%)	0 (0%)	0 (0%)
2	Variety selection	5 (17%)	14 (47%)	11 (37%)	0 (0%)	0 (0%)
3	Soil Management	3 (10%)	14 (47%)	11 (37%)	2 (7%)	0 (0%)
4	Use of fertilizer	3 (10%)	16 (53%)	11 (37%)	0 (0%)	0 (0%)
5	Weed Management	3 (10%)	11 (37%)	14 (47%)	2 (7%)	0 (0%)
6	Biological control	3 (10%)	11 (37%)	15 (50%)	1 (3%)	0 (0%)
7	Pesticide Management	5 (17%)	10 (33%)	13 (43%)	2 (7%)	0 (0%)
8	Harvesting	3 (10%)	10 (33%)	15 (50%)	0 (0%)	2 (7%)
9	Storage	3 (10%)	13 (43%)	13 (43%)	1 (3%)	0 (0%)
10	Marketing	3 (10%)	12 (40%)	9 (30%)	3 (10%)	3 (10%)

Source: Field Survey 2009.

4.5.3 Technical knowledge gained from IPM/FFS (Knowledge empowerment):

As far as the technical knowledge gained by the women graduates from the IPM/FFS, all the respondent women were confident in saying that they have gained technical knowledge from IPM/FFS. All the respondents were familiar with the knowledge on proper use of chemical fertilizer and pesticides taking into consideration of environmental protection. The IPM/FFS graduates have acquired enough knowledge about biological control of insect pest and weed managements. All respondents expressed that they had sufficient skills of soil treatment and managements as well as they were able to identify the beneficial and harmful insect pest of the crop land. Nevertheless, they have developed capacity on experimentation on how to solve problems. Along with the technical knowledge the presentation skills and confidence in mass dealing have been *also* developed in women members *after* participating in IPM/FFS training. Almost all the respondents expressed that they were able to identify the infestation of major insects and pest in the crop field.

Moreover, the respondent had expressed that "they had increased the knowledge and awareness level of women rights after participating in the IPM/FFS". A total of 26 (87%) of the respondents confidently claimed that the awareness level regarding women right has increased after participating in FFS. For example 33% reserved quota for women

participation, the roles and responsibilities distribution to the women, equal treatment to the men and women, right to education, health, equal treatment with son and daughter, equal property right. However, the remaining 13% of the respondent clearly expressed they did not have any idea regarding the women rights.

4.5.4 Capacity on programme planning and implementation:

During the field survey, 80% of the women graduates expressed that programme planning and implementation skills of the women have developed after participating in the IPM/FFS. Regularly, all of the women graduates come in one place and discussed in group what are the programme they have to do and how to implement in the community. During the group discussion all the members are actively involved and put owns ideas and arguments in group meetings. Finally, all the decisions are taking place by the group consensus. The meeting decides the responsibilities delegation to the member participants. The respondents expressed that they had practiced the responsibilities delegated in a rotational basis. Moreover, some of the participants have participated in training on facilitator on IPM and developed their capacity as a facilitator. As far as women members expressed, there were three FFS graduates have now become IPM/FFS facilitators and these days they are working as resource persons on IPM/FFS which is conducted by GOs and NGOs. For example, the women graduates are involved in planning workshop organised by VDC, the women graduates are involved in planning with service providers for IPM follow-up activities.

4.5.5 Involvement of IPM/FFS graduates to the other social groups:

Regarding the involvement of IPM/FFS graduates in other social groups, 24 (80%) respondents were involved in other social groups except IPM/FFS groups. But, the remaining 6 (20%) women graduates were only involved in IPM/FFS. According to the respondents some of the women members were in the major decision making post of such groups while some other women members were just participating as a general member of the groups. According to them, the trend of participating in such type of groups has increased after participating in the IPM/FFS training. A total of 18 (60%) women graduates involved in the decision making position in the other social groups like, water users group, CFUGs, other groups formed by NGOs, Women welfare groups formed by WDO.

Basically, the number of women participated in IPM/FFS groups are more than men. Men of the household are always busy with other type of activities such as service and non-farm activities. Participating in IPM/FFS, women graduates gained knowledge on mass dealing and developed self-confidence by preparing and presenting materials every day. The women graduates had more exposure on participating in IPM/FFS. So, they had more accesses to the other social groups.

4.5.6 Information collection and taking action to disseminate it with others:

As we know that the IPM/FFS is the common place where the IPM/FFS trainees acquired skills and knowledge by experiential learning approach. Different types of knowledge and skills have been developed in participation of the training. According to respondents they have developed the networking capacity to the different service providers like DADO, RPPL, National and International Non Governmental Organizations. Total 97% of the respondents expressed that they usually go to the service providers to get information.

All the respondents reported that they share knowledge with all the community members Non–FFS farmers, neighbours and to the family members and to their husband also. They shared knowledge by organizing meetings, home visit and to the farmers who come with her. By sharing the learnt skills and knowledge to the other members the motivation has increased to find out other new knowledge and new technology related to the IPM to the all IPM/FFS graduates. The FFS graduates basically provide information regarding the insect pest and its harm, nursery management, selection of crop and its variety, method of planting, fertilizer and pesticide management. They also suggest if they noticed wrong way of

spraying pesticide. They also gave suggestions about disease and insects as seen in field. It shows that transfer of technology is effective among participants.

The women IPM/FFS graduates demonstrate technology which they have learnt in FFS to their field. From the positive impact, other non FFS members also convinced and follow the practices followed by FFS graduates like proper use of fertilizer and pesticides taking into consideration of environmental hazards, selection of best variety and crops selection according to the cropping seasons, commercial vegetable farming, practiced soil testing etc in research site more than 10 farmers constructed poly-house for vegetable cultivation.

All of the IPM/FFS groups involved in the collection of financial resources for group and other social activities by contributing monthly small amount equally in the group fund. In research area there are one financially strong group that invest loan to the community people and group members for income generating activities and other activities like health service and payment of children's school fee. The community pay certain interest by using the group fund. That is also a part of group resources. The rest of the groups collect monthly from the group members and present cultural programme, street drama and religious programme like Deusi Bhailo[3] and collect donation. Generally, all the groups stated that they go to the different service providers to request to implement the programme in their community. One member of Sakneri IPM/FFS said: *"last year we able to build our community hall from our group. Some of the financial resources we collect our selves by Deusi Bhailo and rest of the part we got from DDC".*

4.5.7 Economic empowerment by the IPM/FFS:

Researcher had set some of the indicator to measure the economic empowerments of women IPM/FFS graduates. They are access to the loan, group access, access to market, dependence on husband, land ownership pattern, situation of saving and employment opportunity of the women graduates. After the IPM/FFS, the women graduates have been economically empowered. From the below tabulated data it is clear that more than half of the percentage of women graduates are empowered economically. 61% of the total respondent reported that they have good access to the loan provided by the different financial institution. However, 39 % of the total respondent did not get access to the loan. By participating in IPM/FFS the 84% of the respondent increased access to the other groups. Same as 74% of the total respondent claimed that they get access to the market the remaining 26% of the respondent is in the fair situation. From the field data 67% of the women were not dependent on their husband and the remaining 33% women were dependent on their husband. The land ownership pattern has not so significantly changed up to this time. 70% of the women graduates claimed that they had increased the saving after participating in the IPM/FFS, however, the land ownership pattern have not significantly changed yet. After participating in the IPM/FFS training 44% of women graduates have got employment opportunity. The detail shows in below Table 4.6.

Table 4.6 a: Economic empowerment of Women graduates before participating in IPM/FFS.

SN	SN	Excellent	Very Good	Good	Fair
1	Loan access	1 (3%)	8 (27%)	8 (27%)	13 (43%)
2	Group access	2 (7%)	11 (37%)	12 (40%)	5 (17%)
3	Access to the Market	2 (7%)	11 (37%)	8 (27%)	9 (30%)
4	Not to depend on husband	2 (7%)	12 (40%)	8 (27%)	8 (27%)
5	Land ownership	1 (3%)	3 (10%)	4 (13%)	22 (73%)
6	Savings	1 (3%)	8 (27%)	13 (43%)	8 (27%)
7	Employment opportunity	0 (0%)	7 (23%)	8 (27%)	15 (50%)

[3] Deusi Bhailo is a song that is sung during the festival of light "Tihar" in Nepalese culture. Children and teenagers sing the song and dance as they go to various homes in their community, collecting money and food and giving blessings for prosperity.

Table 4.6 b: Economic empowerment of Women graduates after IPM/FFS.

SN	Indicators	Excellent	Very Good	Good	Fair	Difference
1	Loan access	2 (7%)	8 (27%)	8 (27%)	10 (32%)	2 (7%)
2	Group access	4 (14%)	11 (37%)	10 (33%)	4 (13%)	1 (3%)
3	Access to the Market	4 (14%)	9 (30%)	9 (30%)	8 (26%)	0 (0%)
4	Not to depend husband	4 (14%)	10 (32%)	6 (21%)	8 (26%)	2 (7%)
5	Land ownership	2 (7%)	2 (7%)	3 (10%)	5 (17%)	18 (60%)
6	Savings	2 (7%)	7 (23%)	12 (40%)	5 (17%)	4 (13%)
7	Employment opportunity	2 (7%)	5 (17%)	6 (20%)	4 (13%)	13 (43%)

Source: Survey 2009.

Most of the member of IPM/FFS groups said: *"After participating in IPM/FFS we became able to reduce the cost of production in agriculture and also able to increase the production".*

4.5.8 Social relation and network:

In regards to the building of social relation, all the respondents expressed that they were able to build social relations with the community people and other service providing organizations. Most of the women graduates have strong relationship with DADO, Agriculture Service Centre and RPPL and other NGO like CARITAS Nepal. Usually, FFS graduates go to visit the organization to get some technical as well as material support like seed and fertilizer. They added that the service providing organizations also go to them for regular follow-up. During the visit, the technicians give feedback to the farmers. Sometimes the service providers invited them to participate in the farmers exposure visit and other type technical trainings, workshop and seminar related to agriculture. 80% of the respondents stated that this trend has increased after participating in the IPM/FF training. In some of the groups DADO and RPPL organized follow activities of FFS like IPNS and one day field based training to the IPM/FFS graduates.

A total of 93% of the women graduates claimed that they have positive recognition in the society. They added that at least community people respect them as a local level technician. Community people think that they have technical capacity on pest managements and other agricultural knowledge.

"The most of the women graduates claimed that after participating in IPM/FFS they are invited in the other social activities and in VDC planning workshop."

4.5.9 Change in social relationship:

As far as the change in social relations, a total of 50% of the respondents have claimed that the social relationship has changed within this 10 years period and it is in the process of changing day by day. According to the respondents in the past 10 years, there was a kind of belief that every mother in-law treated their daughter in-law as a domestic worker and the daughter in-law have to respect them. If the family was not economically sound and not educated, there was always a conflict of interest within the family. The respondents stated that these days this type of behaviour has gradually changed. If the daughter in-law is educated she is allowed to go for job and can engage anywhere. These days in some families the mother in-law and father in-law treat their daughter in-law as their own daughter.

Regarding to the relationship between husband and wife, previously the marriage has taken place in early age. Both were not known their responsibilities, girls could not refuse if her father/mother arranged her marriage. Both husband and wife were pre-matured during the previous time. Most of the husbands think that their wives were housewives. However, this has changed these days. Girls are educated and they had rights to choose their life partner

and could easily refuse if her parents arrange her marriage without her consensus or agreements. These days, every husband allows his wife to join the social activities and to join the job.

The relationship between father and mother with their children also changed these days. Based on the patriarchal society system in the previous time in which not all the parents treated their daughter and son equally. They thought that all the daughters go to husband's house. So, the parents discriminate there son and daughter in education, food, clothes, property rights, and also in labour division. The respondents stated that the relation has been changed with their children these days. These days most of the parents treated their children equally. The parents send their daughter and son to the same school, feeding same food, giving priority to choose clothes according to their need. One of the example is 5 parents in the research area transferred the property right to their daughter also.

4.5.10 Problems faced by the women graduates:

Being a part of the community members, 63% of the women graduate faced different types of problems. Most of the members faced the problems of natural disaster (flood and land slide) because of land slide some of the member lost animals, inundation of crop land and house. Some of the members faced financial problems and problems of dowry in the marriage of daughter as well as the problem of disease infestation.

In regards to the coping with these kinds of problems, most of the respondent develop patience and discussed with family members, group members and other members of the same community. Some of the member took assistance from the humanitarian organisation like ICRC, IRC and district based rescue committee. The respondents expressed that in order to overcome these types of problems they had taken help from family members, husband, community groups and neighbour. The women graduates help as material some of them they got financial assistance from the parents and lots of encouragements. From the humanitarian organisations, the respondents got material support like blanket, cooking utensils, some food and small amount of financial support to build their house.

CHAPTER FIVE – DISCUSSION

Based on the research objective all the findings have adjusted in the main three sub chapters and discussed separately. The first part of this chapter is discussed about the leadership development of women by IPM FFS. The second part of this chapter is discussed about the decision making capacity of IPM/FFS women graduates within the household, society and in the IPM/FFS groups and the last part of this chapter is discussed about the networking and information seeking and taking action to dissemination to others.

5.1 Leadership development by women by IPM/FFS:

As mentioned in chapter 4 regarding the leadership role of women graduates, 67% of the IPM/FFS groups were led by the women. In the beginning, there were no any groups formed. With the emergence of IPM/FFS concept in Kaski, most of the women members were excited to affiliate in the group and implement activities in the communities. Women are involved in IPM/FFS in which they enhanced their capacity by participating in training. During the training they involved in the whole process from preparation, implementation, final evaluation and follow up activities that strengthening the role of farmers and emphasizing the women's leadership (Fakih, 2003). In the beginning women were in the general members, gradually the capacity of women members was developed and these days the in the majority of the FFS groups, women are in the leadership positions. In the research area, out of six groups four groups are leading by women. So, it is clear that the IPM/FFS significantly contributed to develop the leadership of the women graduates.

As indicated by Westendorp and Biggs (2002), the Farmers Field School approach played leading role in improvement of skills and capabilities of individual people to improve farm level pest management skills, improved management of other farm production activities, improved practices in nonfarm rural livelihoods activities. These are key stages that will ensure grounding of the season-long FFS. These tools will help ensure farmers' leadership development (Salazar, 2002).

As far as the affiliation of women graduates to the social groups, as mentioned that 80% of the women graduates were involved in other social groups like water users group, CFUGs, other groups formed by NGOs and women welfare groups formed by WDO. But some of the women members are in the major decision making position of such groups. A total of 4 (13%) of the women members are just participating as a general member of the groups. According to the respondents the trend of participating is such type of group has increased after participating in the IPM/FFS training. A total of 60% of the women graduates involved in the decision making position in the other social groups like CFUGs, Water Users Groups and other women welfare groups.

In this regards, NIP Vietnam article stated that, the farmers can develops their leadership skills by participating in IPM/FFS. As well as many farmers (including female farmers) served as IPM/FFS trainers in their own communities for a certain period. Some of them also are selected for local leadership positions. Most of the FFS alumni leaders are often elected for leadership positions in other formal organizations also (Braun and Duveskog, 2008).

5.2 Decision making capacity of women graduates:

Decision making is a process of first diverging to explore the possibilities and then converging on a solution. The data shows that 87% of the total women graduates were participated in the executive board of the IPM/FFS group. Decision making and the presence in leadership position is like the two sides of a single coin. The member of the board have crucial role in decision making within the group. From the result it is clear that the IPM/FFS has played important role in building decision making capacity in FFS women graduates. In group meeting all the women members come in common place and collect agendas and

everyone is asked for their view then the final decision will be made on the basis of group consensus and take into action to the implementation. These are the most common practices applied in the farmers groups. From the decision making and its implementation style of the group and individual, it can be easily judged that what type of group or individual is that.

In the same line, Khan et al. (2004) clearly stated that there is an increase in the decision making capacity of the FFS graduates in participating IPM/FFS training. Farmers indicate colossal gains at this front. This had been achieved through spending more time in the field and making own informed crop management decisions.

As stated in chapter four, the decision making capacity of women graduates within the household level has increase as compared to before. In the IPM/FFS, gender analysis was practiced by the women graduates and they were more aware of the activities taken place and the gender role in the household level. The women IPM/FFS graduates have developed there capacity in making decision within the household level. Based on the data presented in the table no 4.4 it is clear that the decision making capacity of the women graduates have increased significantly. They gained some knowledge about the women rights from the exposure and informal discussion with colleagues and the trainer in the IPM/FFS. These days they were capable to decide in regards to the children education, food management in the family and even family have given authority to use the income of the family. Technically they became sound and these days they are able to purchase agricultural goods like seed, fertilizer and arrangement of agricultural labour.

As far as the decision making in the agricultural activities, the women graduates with their newly gained knowledge through FFS, have followed alternative practices on their field. So they are able to decide on crop and variety selection, soil, fertilizer, and weed managements. They are also fully responsible to harvesting, storage and marketing of the agricultural products.

In the same line as indicated by Kevin et al. (2009) that IPM/FFS have encouraged farmers to be able to make their own individual decisions as well as to develop community level approaches to deal with community level pest management. IPM/FFS also empowered farmers to take other decisions in agricultural practices and policy issues such as pesticide impact on the environment and health of the community.

5.3 Empowerment of IPM/FFS in different dimension:

5.3.1 Knowledge empowerments by IPM/FFS:

In findings, almost all the women graduates gained technical knowledge. Before participating in the IPM/FFS training the women graduates were not aware about the insect pest, soil and fertilizer management, biological control mechanism of insect pest, environmental issues and experimental learning method. After the IPM/FFS, all the women graduates have gained technical knowledge and have applied them in practices. The data shows that the IPM/FFS has positive impact on knowledge empowerments of the participants. Besides this, the participants have learnt other skills like writing poem and song, and singing skills have been developed. Nevertheless, the women graduates felt that the presentation skills and the mass dealing capacity have also been developed by the IPM/FFS.

As indicated in comprehensive study of Winarto (nd) that IPM/FFS seems to be more appropriate proposition for enhancing farmers' knowledge and improving their practices not only in pest management, but also in the entire crop management strategies. This programme premises is that, with improvement in technical knowledge and managerial capacity, farmers would adopt crop intensification pathways contributing towards long term sustainability of agro ecosystems. Enriching farmers' knowledge is the most beneficial result of Farmer Field School. The IPM program indeed provides immense scope for improving

farmers' knowledge and capacity. Knowledge empowerments are key subjects in designing an alternative approach for enhancing small-scale livelihood together with ecologically sound natural resource management. The IPM/FFS graduates have potential to become experts not only for their own farms but could also educate their fellow farmers (Khan et al., 2004).

5.3.2 Capacity on programme planning and implementation:

In the finding section of this report, the outcome clearly says that the IPM/FFS women graduates have capacity of programme planning and implementation of the IPM/FFS to the community. The data says that 80% of the respondent farmers clearly revealed that the IPM/FFS have increased their skill on programme planning and implementation. In every day of IPM/FFS training, one day before, every participant is involved in the preparation of plan of what they are going to do in the following day and on the next day they bring in the implementation.

In the same line as indicated by Dilts (2001) that the farmers groups are involved in planning and conducting a variety of activities to help farmers overcome specific field problems. This also includes seasonal planning meetings for IPM farmers from place to place. According the author in many locations networks of active IPM farmers' graduates had been established and many of the functions previously done by government or NGO fieldworkers had been taken over. However, the organizers of most activities, except at village level, remained with outsiders. Within Community IPM, activities were planed that would implement by the trained farmers with the skills and opportunities to build their own institutions and communities.

5.3.3 Involvement of IPM/FFS graduates to the other social groups:

From this research finding, 80% of the women IPM/FFS graduates have been involved in other social groups like water users group, CFUGs, other groups formed by NGOs and Women welfare groups formed by WDO except IPM/FFS groups. By participating in the IPM/FFS the women members had developed their networking skills and capacity on how to deal with other people as well as the technical capabilities have been increased. Because of the exposure the women graduates do not hesitate to present their idea in large mass and communication skills of the women graduates also have been developed that insist them more access to the other social groups. A total of 60% respondents are also able to occupy the vital post of the other social groups like CFUGs, water users groups and other groups formed by I/NGOs.

5.3.4 Information collection and taking action to disseminate it with others:

According to the respondent total 97% of women IPM/FFS graduates expressed that they still have strong relationship to the service providers and usually go to them to get some technical information. They visit to the service providers as per the need of the community members. After participating in the IPM/FFS training the relation has been strong between SPs and women graduates. During the training women graduates knew most of the employees of the SPs, on the other hand they have developed capacity of exploring the new knowledge. All the women graduates have practiced in sharing of collected information and the technical knowledge with all the community members Non–FFS farmers, neighbours and to the family members and to their husband also. They shared knowledge by organizing meetings, home visit and to the farmers who come with her. By sharing the learnt skills and knowledge to the other members the motivation has increased to find out new knowledge and new technology related to the IPM to the all IPM/FFS graduates. The FFS graduates basically provide information regarding the insect pest and its harm, nursery management, selection of crop and variety itself, method of planting and fertilizer and pesticide managements. They also suggested if they noticed wrong way of spraying pesticide. They also give suggestions about disease and insects as seen in field. It shows that transfer of technology is effective among participants. From the above result we came in conclusion that the capacity of women graduates in seeking information and taking action to disseminate with other have been increased.

Rola and Jamias (2002) indicated that the majority of the informal FFS knowledge sharing largely takes place within the FFS community whether they are FFS participants of Non FFS participants. However, the FFS graduates actively networked outside their villages as well as knowledge recipients residing outside the village and within the community. This is to conform what Winarto (Nd) indicated that the trained IPM graduates are expected to disseminate knowledge gained by them in Farmers School to other farmers together with their adoption of IPM practices. In addition, as indicated by Westendorp and Biggs (2002) that there has been observed that many IPM/FFS groups continue on conducting meetings after the FFS is over since they want to further improve their knowledge and skills and undertake collective action to improve life in their communities.

5.3.5 Gathering of financial resources and sustainability:

All the IPM/FFS women graduates and the FFS groups were involved in the collection of financial resources for groups for the social as well as the technical activities in the groups. In some groups, for gathering of financial resources, each individual group members contribute equally a small amount of money every month which serves as group fund. Some of the financially and well-established groups invest loan to the people and the group members as wells the community people should pay certain rate for using the group fund. This is also a part of group resources. Some of the groups present cultural programme and street drama and religious programme like Deusi Bhailo and collect donation. Some of the groups go to the different service providers to request to implement the programme in their community. From the above results some of the groups are financially strong enough. However some of the group is in the state of financial progress. For example, one of the IPM/FFS group in Lekhnath municipality is able to built community hall for the community use and the group purpose. They are able to manage some part of the resources from the DDC and some part they contributed themselves.

As indicated by Wiele (2002) that the IPM-FFS were aimed at alleviating vulnerability for the significant determinants of adoption. To reduce the people's vulnerability, some of the IPM/FFS graduates allocating some portion of time, land, and labour to the cultivation of vegetable crops for the sugarcane farmers, or adoption of beekeeping. That would require households to make a significant commitment of financial resources for a physical asset that may take six months or longer to bring returns and is not easily transportable in the event they have to flee.

5.3.6 Economic empowerment by the IPM/FFS:

From the results presented in the previous chapter, After the IPM/FFS, the women graduates have been somehow economically empowered. From the result it is clear that more than 50% percent of women graduates are empowered economically by reducing the cost of production and increased in production of crop yield. 61% of the total respondents reported that they have good access to the loan provided by the different financial institutions. However, 39 % of the total respondents did not get access to the loan. By participating in IPM/FFS the 84% of the respondents have increased access to the other groups. Same as 74% of the total respondents claimed that they get access to the market the remaining 26% of the respondents are in the fair situation. From the result 67% of the women graduates were not needed to depend with their husband. The land ownership pattern has not so significantly changed up to this time. That is somewhat guided by the cultural norms and values of the Nepalese society. Total 70% of the women graduates claimed that they had increased the saving after participating in the IPM/FFS, however, the land ownership pattern have not significantly changed yet. After participating in the IPM/FFS training 44% of women graduates have got employment opportunity.

As indicated by World Education, 2002 cited by Westendorp and Biggs (2002) that some of the IPM/FFS trainees have found the job opportunities. Their skills are in demand in other

groups, such as in forest user groups, power tiller groups and savings groups. In Morang, women who have been trained in a FFS are in high demand during the rice-planting season. They are acknowledged to be better skilled planters. Several FFS graduates have found employment opportunities in the local NGOs.

As far as the market access the women's group was strengthened by the FFS in Bhaktapur and now, after rice IPM FFS training is involved in group level fruit production and marketing Westendorp and Biggs (2002). After the IPM FFS the market access has been increased, because they go the market to sell the agriculture products like vegetables, seed, and from they can get fertilizer, pesticides seeds etc.

As indicated by Heidari (2007) that, the IPM/FFS graduates are able to get access to the domestic and international markets that reward better agricultural practices. IPM farmers who participated in an agricultural fair received acknowledgment for producing high quality products meeting certain standards like low pesticide residues.

As far as the access to the groups Westendorp and Biggs (2002) expressed that many villagers are involved in a broad range of livelihood and community development activities, in addition to IPM FFS activities. In some places it is found that members of forest user groups, water user groups and other development groups are also members of IPM FFSs. So, women IPM/FFS graduates increased their access to the other community and social groups.

5.3.7 Social relation and network:

In this section of the findings we have presented that, all the respondents were able to built social relations with the community people and other service providers. The IPM/FFS women graduates have strong relationship with DADO, Agriculture Service Centre and RPPL and other NGO like CARITAS Nepal. Usually FFS graduates go to visit the organization to get some technical as well as material support like seed and fertilizer. They added that the service providing organization also go to them for regular follow-up. In the visit the technicians give feedback to the farmers. Sometimes the service invited them to participate in the farmers visit and other type technical trainings, workshop and seminar related to agriculture. 80% of the women graduates stated that this trend has increased after participating in the IPM/FFS training. In two previous IPM/FFS groups DADO and RPPL organized follow activities of FFS like IPNS and one day field based training to the IPM/FFS graduates.

It is come in conclusion that the women IPM/FFS graduates have positive recognition in the society. The community people respect them as a local level technician. Community people think that they have technical capacity on pest managements and other agricultural knowledge. As a result they are invited in the other social activities and in VDC planning workshop.

As indicated by Wickrama Arachchi (nd), that in most of the places, IPM/FFS graduates have gained recognition and some of them became leaders among their community, and would advise and guide other farmers during pest out breaks and crop management issues. The farmers are aware of the importance of community approach of living together. The IPM/FFS improve the social status in the community KC, (2008).

CHAPTER SIX – CONCLUSION AND RECOMMENDATION.

6.1 Conclusion:

In the literature I found that there are numerous efforts made by GOs and I/NGOs to implement FFS in the community as well as to evaluate its impact on problem solving and community empowerment. The data shows that the 60% of the total participants are women participated in Farmers Field School groups in Nepal but the leading positions are occupied by men. In Nepal, I hardly found the study in regards to the IPM/FFS and its impact of women empowerment in relation to leadership development, decision making, economic dimensions and seeking information and diffusion to others. So, I carried out this study to find out how the IPM/FFS played role to empower women in Nepal. In my study I found that IPM/FFS has helped to empower women in Kaski district of Nepal.

The IPM/FFS is basically a school without walls. This is a group approach of extension methodology which is conducted in the adult learning principle. In IPM/FFS all the activities taken place in group basis. This is an ecology based approach for pest management. IPM/FFS also includes social component which encourages farmers to organize themselves and enhances empowerment.

The study showed that the majority of the women graduates acquired technical knowledge and skills in judicious use of pesticide, improved agricultural activities, identification of natural enemies and biological control. By participating in IPM/FFS, all the graduates have developed communication and mass dealing skills, built self-confidence and enhanced creative thinking skills on writing poem and songs. In the social aspects, the FFS graduates developed their decision making capacity within the household like children education, food management, somewhat in use of income, and agricultural activities (Crop and variety selection, soil management, biological control and pesticide management and purchase of agriculture inputs). The capacity of the women graduates in group decision making like participating in group meeting and involving in group decision making, taking and delegating responsibilities to the group members has enhanced. In addition, they have more access to the other social groups and are able to holding the vital position. Moreover, the capacity of IPM/FFS graduates in seeking information and taking action to disseminate to others have been developed. After the IPM/FFS, the skills of building social relation, networking skill and the skill of gathering financial resources has also been enhanced and practiced in the groups.

The study clearly shows that the women graduates are able to reduce the cost of production of the farm land and are able to increase the production yield due to improved agricultural system. It is also indicated that their farming trend has been changed with improved farming system. Further more the study shows that the income utilization pattern of women graduates has also significantly changed and the control over the income of household is in the positive direction. The women graduates are able to increase the saving in household and in the groups. The social relation and the networking with different service providers and within the society and other social groups have been established.

On the other hand, the study shows that there is an increased access of credits in the financial institutions and in their own group fund. The access to the markets of the individual graduates is increased after the IPM/FFS. Some of the IPM/FFS graduates (male and female) are able to trap the employment opportunities, and developed their capacity as a facilitator. These days they are working as a resource person in the community conducting IPM/FFS.

The IPM/FFS increased the capacity of women graduates in planning and implementation of the activities in the field or community level. Some of the examples are the women

graduates are invited in V.D.C level planning and annual planning workshop conducted by DADO. Rather than this, women graduates are able to establish positive recognition in the community as a grass-root level technician. The other way of establishing positive recognition in the society is participation in community activities like construction of road, irrigation channel and cleaning of the villages and dwellings.

According to the study, the skill of women graduates in seeking information and taking action to disseminate to others have been developed. The IPM/FFS graduates come in one place to have meetings. During the meetings they shared new idea to the other members of the community and non IPM/FFS members and convinced them to apply these technologies in their field. They also share the new knowledge to their husband and other family members.

In conclusion we can easily say that the IPM/FFS played an important role in the empowerment of women in social, economical and technological aspects. In addition, the decision making capacity of women graduates have been increased in household level and community/group level. They are now able to build up social network with other social groups. The capacity of the women graduates in seeking information and taking action to disseminate to others have also been increased. The women graduate also able to create their own identity in the community and society after participating in the IPM/FFS. Thus, the IPM/FFS have positive impact and vital role on women empowerment in Kaski district of Nepal.

6.2 Recommendations:

According to the respondents and finding of the study there are some points to take into account in order to improve or make better IPM/FFS as an extension tool and empowerment tool for male and female farmers.

- Skills related to social part like women empowerment, decision making and leadership development should be included in the training curriculum.
- Formulate policy to provide equal access of women and men to training.
- Equal participation should be made from different ethnic groups, regions, religion and social groups.
- More emphasis should be given to develop women facilitator.
- Facilitate to establish district level IPM/FFS graduates association to create platform for experience sharing of the graduates.
- Develop effective mechanism of monitoring and follow up programme by the service providers to retain the farmers' knowledge on IPM/FFS.
- Encourage illiterate and semi-literate women farmers to participate in IPM/FFS training.
- Gender sensitive tools should be used while selecting the farmers.
- In organisation level (service provider and farmers groups) proper record of gender disaggregated data should be maintained.
- It is quite important to encourage public-private partnership in conducting training of facilitators and subsequent establishment of IPM/FFS.
- Establish good coordination between the service providers.

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REFERENCES:

Arachchi, W., (nd). INTEGRATED PEST MANAGEMENT (IPM) AND GREEN FARMING IN RURAL POVERTY ALLEVIATION IN SRI LANKA. Regional Agricultural Research and Development Center, Aralaganwila.

Andersen, J. and Siim, B., (2004). The Politics Inclusion and Empowerment Gender, Class and Citizenship. New York: Palgrave Macmillan.

Asiabaka, C., (2004) Promoting Sustainable Extension Approaches: Farmer Field School (FFS) and its role in sustainable agricultural development in African. Federal University of Techology, Nigeria.

Bajwa, W. and Kogan, M., (2002). Compendium of IPM Definitions (CID). Integrated Plant Protection Center (IPPC) Oregon State University, Corvallis Publication Number 998.

Bartle P., (2009). GROUP FORMATION AND DEVELOPMENT. Available at: http://www.scn.org/cmp/modules/bld-grp.htm. (Accessed on 24th August, 2009).

Bartlett, A., (2004). Entry Points for Empowerment: Report for CARE Bangladesh.

Bartlett, A., (2005). Farmer Schools to promote Integrated Pest Management in Asia: the FAO Experience.

Batliwalta, S., (2007). Putting power back into empowerment. Open Democracy: http://www.opendemocracy.net/article/putting_power_back_into_empowerment_0 (Accessed on 20 June 2009).

Berg, H., (2004). IPM Farmer Field Schools: A synthesis of 25 impact Evaluations. Wageningen University, the Netherlands.

Bhattarai, P., (2006). Migration of Nepalese Youth for Foreign Employment: Problems and Prospects Available at http://www.tigweb.org/express/panorama/article.html?ContentID=7420 (Accessed on 23rd of August 2009.

Bista, R., (2004). International Development Enterprises Nepal Making BDS Providers Work for the Smallholder Farmers in Nepal Lessons Learned and Insights Gained. Available at:www.bdsknowledge.org/.../bds/.../BDS%20providers%20and%20smallholders-IDE%20Nepal .pdf (Accessed on 23rd of August 2009).

Braun, A and Duveskog, D., (2008). The Farmer Field School Approach - History, Global Assessment and Success Stories, IFAD.

CBS, (2001). Central Bureau of Statistics, Annual report, Kathmandu, Nepal.

Chambers, R. (2003), *Challenging the Professions: Frontiers for Rural Development*, Practical Action Publishing, Rugby.

DADO, (2008). Annual Agriculture Development Programme Statistics. GON, MOAC District Agriculture Development Office Kaski, Nepal.

De Jager, A., Onduru, D.D., Gachimibi, L.N., Muchena, F., Gachini, G. and Van Beek, C.L., (nd) Farmers Field Schools for rural empowerment and life-long learning: Experiences in Central and Eastern Kenya. Wageningen University and Research Centre - Alterra, Wageningen, the Netherlands.

Dilts, R., (2001). From farmers field schools to community IPM Scaling up the IPM movement LEISA MAGAZINE

Fakih, M., (2003). Gender Field School. LEISA Magazine, March 2003.

FAO, (2000). Gender and IPM in Nepal. The FAO Programme for Community IPM in Asia.

Gallagher, K., Braun, A. and Duveskog, D., (2006). *Demystifying Farmer Field School Concepts*.

Heidari, H., (2007) Integrated pest management Pesticides News 76.

KC, G., (2008). Farmers to Farmers Extension: an experience and lesson from farmers field school.http://www.ppdnepal.gov.np/Download/F2F%20EXTENSION-AN%20EXPERIENCE%20AND %20LESSON%20FROM%20FFS%20BY%20GK%20KC.pdf. (Accessed on 20th June 2009).

Khan, M., Ahmad, I. and Soomro, M.H., (2004). Impacts of FFS Approach on Skill Enhancement and Decision Making Capacity of Farmers: Evidence from Pakistan. Pakistan Agricultural Research Council National IPM Programme, NARC, Islamabad, Pakistan Food and Agriculture Organization of the United Nations.

Lange, Mnr AM de., (1998). Empowerment LO18349. http://www.learningorg.com/ 98.06/ 0113.html. (Accessed on 20th June 2009).

NIPM, (nd). www.vegetableipmasia.org/.../Nepal/Nepal-NatlIPMLeaflet_(final).pdf

Norton, G. and et.al., (2005). Globalizing Integrated Pest Management – A participatory Research Process. Blackwelll Publishing, USA.

NPC, (2008). Three Years Interim Plan 2008. http://www.npc.gov.np/en/plans-programs/ detail.php?titleid=19 (Accessed on 4th of September 2009).

MOAC, (2008). Annual Report 2008. Ministry of Agriculture and Cooperatives, Monitoring and evaluation Division, Simhadarbar Kathmandu, Nepal.

PAC, (2001). Prepared for the meeting of the Programme Advisory Committee (PAC), Ayutthaya, Thailand.

Pontius, J.C., Dilts, R. & Bartlett A., (2002). Ten Years of IPM Field School in Asia: From farmer field school to community IPM: RAP/2002/15, FAO Regional Office for Asia and the Pacific, Bangkok, Available at: http://www.fao.org/docrep/006 [Accessed Sept 24, 2009]

PPD, (2005). Proceeding of Officer Level Training of Facilitator in Vegetable IPM. PPD and FAO Kathmandu, Nepal.

Pradhan, R., and Shrestha, A., (2005). "Ethnic and Caste Diversity: Implications for development." in *NRM working paper (4)*: Asian Development Bank.

Rola, A.C., Jamias, S.B., and Quizon, J.B., (2002). Do Farmer Field School Graduates Retain and Share what they lean? An Investigation in Iloilo, Philippines. Journal of International Agriculture and Extension education (Volume 9, Number 1).

Salazar, R., (2002). International Learning Workshop on Farmer Field Schools (FFS): Emerging Issues and Challenges, *SOME* LESSONS IN ADAPTING THE IPM FFS APPROACH TO PARTICIPATORY PLANT BREEDING (PPB) IN RICE. Yogyakarta, Indonesia *Salazar.*

Saxena, R. and Saxena, A., (2007). LEISA INDIA.

Simpson, B., (2002). Farmer Field Schools and the Future of Agricultural Extension in Africa. Proceedings of the 18th Annual Conference, Durban, South Africa.

Seymoar, N., (2002). Empowerment and public participation. http://sustainablecities.net/ index.php?option=com_docman&task=cat_view&gid=134&Itemid=560 (Accessed on 19th June 2009).

Tuyen, N., (1997). Women farmers and IPM Farmer Field Schools in Vietnam. ILEIA NEWS LETTER. Available at: www.metafro.be/leisa/1997/13-4-20.pdf. (Accessed on 26th August 2009).

Westendorp, A. and Biggs, S., (2002). Strengthening Social Capital in Agricultural and Natural Resources Innovation Systems: Community IPM Farmer Field Schools (FFSs) in Nepal.

Wiele, C., (2002). Using Integrated Pest Management-Farmer Field Schools as Developmental Relief. A Field Report from Liberia.

Winarto, (nd) Farmer field school, farmer life school and farmers club for enriching knowledge and empowering farmers: A case study from Cambodia Division of International and Area Studies Pukyong National University Busan, Korea.

World Bank, (2009). What is Empowerment? http://web.worldbank.org/WBSITE/EXTERNAL/ TOPICS/EXTPOVERTY/EXTEMPOWERMENT/0,,contentMDK:20272299~pagePK:21005 8~piPK:210062~theSitePK:486411~isCURL:Y,00.html. (Accessed on 20th June 2009).

WWF, (2006). Farmer Field School (FFS). Available at: http://www.wwfpak.org/bmp/bmp_ farmer_field_school.php (Accessed on 1st July 2009).

ANNEXES:

ANNEX – I: Information of IPM Farmers Field School:

SN	Name of IPM/FFS	Address	No of Participants			Crop	Date of Conduction		Organization
			F	M	T		From	To	
1.	Shreejansheel IPM/FFS	Pokhara 17	25	0	25	Cauliflower	2061/09/20	2062/01/10	PPD/RPPL
2.	Hemja Milan IPM/FFS	Hemja	16	9	25	Tomato	2061/12/04	2062/03/17	PPD/RPPL
3.	Deurali IPM/FFS	Dhikurpokhari 1	13	0	13	Paddy	2062/03/04	2063/09/09	CARITAS Nepal
4.	Namuna IPM/FFS	Puranchaur 2	28	2	30	Paddy	2062/03/10	2062/08/20	CARITAS Nepal
5.	Sadabahar IPM/FFS	Pumdi Bhumdi	24	1	25	Cauliflower	2062/04/07	2062/08/29	PPD/RPPL
6.	Lagansheel IPM/FFS	Sarangkot 7	20	5	25	Cauliflower	2062/08/25	2063/01/25	PPD/RPPL
7.	Nabashreejana IPM/FFS	Dhikurpokhari 4	38	2	40	Cucumber	2062/09/09	2063/02/05	CARITAS Nepal
8.	Shreejansheel IPM/FFS	Nirmalpokhari 8	22	12	34	Cucumber and Tomato	2062/09/10	2063/02/02	CARITAS Nepal
9.	Gaurishankar IPM/FFS	Hemja 9	21	4	25	Cucumber	2062/09/15	2063/02/05	DADO Kaski
10.	Radhakrishna IPM/FFS	Hemja 4	24	1	25	Cucumber	2062/09/15	2062/02/05	DADO Kaski
11.	Shreejansheel Cooperatives IPM/FFS	Pokhara 17	23	2	25	Tomato	2062/09/19	2063/01.12	PPD/RPPL
12.	Namuna IPM/FFS	Nirmalpokhari 8	17	13	30	Paddy	2063/02/02	2063/0810	CARITAS Nepal
13.	Janajagaran IPM/FFS	Nirmalpokhari 3	19	8	27	Paddy	2063/02/03	2063/08/15	CARITAS Nepal
14.	Bhandari IPM/FFS	Nirmalpokhari 9	14	11	25	Paddy	2063/03/07	2063/08/05	CARITAS Nepal
15.	Chetana IPM/FFS	Pokhara 15	25	6	31	Paddy	2056/03/12	2056/07/22	PPD/RPPL
16.	Milansheel IPM/FFS	Saadikhola 1	23	3	26	Paddy	2063/03/25	2063/08/20	CARITAS Nepal

SN	Name of IPM/FFS	Address	No of Participants			Crop	Date of Conduction		Organization
			F	M	T		From	To	
17.	Shreejana IPM/FFS	Dhamphus 5	13	12	25	Paddy	2063/03/31	2062/08/07	CARITAS Nepal
18.	Jaagrity IPM/FFS	Dhikurpokhari 4	28	2	30	Cauliflower	2063/04/15	2063/09/09	CARITAS Nepal
19.	Janajaagriti IPM/FFS	Saadikhola 1	28	7	35	Cabbage	2063/05/20	2063/10/05	CARITAS Nepal
20.	Janaheet IPM/FFS	Bharatpokhari 4	16	9	25	Cauliflower	2063/05/28	2063/11/12	PPD/RPPL
21.	Sachetana IPM/FFS	Pokhara – 15	25	6	31	Cucumber and Tomato	2063/09/10		CARITAS Nepal
22.	Jaagrity IPM/FFS	Puranchaur 2	20	4	24	Cucumber	2063/09/19	2064/02/02	CARITAS Nepal
23.	Pragatisheel IPM/FFS	Puranchaur 3	24	4	28	Cucumber	2063/10/01		CARITAS Nepal
24.	Chilimdanda IPM/FFS	Nirmalpokhari	22	3	25	Cucumber	2063/12/01		CARITAS Nepal
25.	Shubhakamana IPM/FFS	Nirmalpokhari	23	2	25	Cucumber	2063/12/14		CARITAS Nepal
26.	Nabashreejana IPM/FFS	Dhikurpokhari	20	5	25	Cucumber	2063/12/19		CARITAS Nepal
27.	Khapaudi IPM/FFS	Sarankot 2	24	3	27	Cucumber	2063/12/19	2064/10/10	PPD/RPPL
28.	Himshikhar IPM/FFS	Laahachok 8	18	9	27	Cucumber	2065/10/26	2065/11/23	PPDRPPL
29.	Jaagrity IPM/FFS	Hemja 1	24	3	27	Cucumber	2065/10/28	2065/11/24	PPD/RPPL
30.	Sahara IPM/FFS	Pokhara 18	24	7	31	Winter Paddy	2065/11/03	2066/03/31	PPD/RPPL
31.	Sakneri IPM/FFS	Lekhnath 3	11	17	28	Winter Paddy	2065/11/07	2066/03/06	RPPL/DADO
32.	Namuna IPM/FFS	Pokhara 13	7	21	28	Winter Paddy	2065/11/17	2066/03/16	PPD/RPPL

ANNEX – II: Profile of the respondent women IPM/FFS Graduates:

S. N	Name of Graduates	Address	Age	Education	HH member	Land holding	Land Ownership	Status in Group	Name of IPM/FFS
1.	Sharada Paudel	Hemja – 2	35	Literate	5	1 Ropani	Male	Member	Radhakrishna IPM/FFS
2.	Shanti Devi Paudel	Hemja – 2	35	Secondary	5	2	Both	Chairperson	
3.	Bhagawati Paudel	Hemja – 2	28	Secondary	3	2	Female	Treasure	
4.	Laxmi Timilsina	Hemja – 4	33	Literate	4	1	Male	Member	
5.	Sita Paudel	Hemja – 3	38	H. Secondary	7	7	Male	Member	
6.	Sita Dhakal	Sarangkot - 7	24	H. Secondary	8	9	Both	Member	Khapaundi IPM/FFS
7.	Laxmi Thapa	Sarangkot - 7	24	Secondary	3	4	Male	Vice Chairperson	
8.	Narayani Dhakal	Sarangkot - 7	35	Literate	4	5	Male	Member	
9.	Bimala Timelsina	Sarangkot - 7	30	Literate	6	7	Male	Member	
10.	Sharmila Thapa	Sarangkot - 7	27	H. Secondary	6	7	Male	Member	
11.	Bhagawati Bajgain	Hemja – 4	33	Secondary	4	12	Both	Member	Hemja Milan IPM/FFS
12.	Laxmi Timilsena	Hemja – 4	31	Secondary	7	7	Male	Secretary	
13.	Chitra Devi Timilsena	Hemja – 4	44	Secondary	5	15	Male	Member	
14.	Apsara Timilsena	Hemja – 4	35	Secondary	6	10	Female	Chairperson	
15.	Sita Timilsena	Hemja – 4	42	Literate	5	15	Both	Vice Chairperson	
16.	Rajani Bhujel	Lekhnath – 3	30	Secondary	7	0.5	Male	Member	Sakneri IPM/FFS
17.	Mina Baral	Lekhnath – 3	27	Secondary	4	2	Male	Member	

S. N	Name of Graduates	Address	Age	Education	HH member	Land holding	Land Ownership	Status in Group	Name of IPM/FFS
18	Uma Baral	Lekhnath – 3	35	Secondary	4	10	Female	Secretary	Sakneri IPM/FFS
19.	Dhanamaya Gurung	Lekhnath – 3	43	Illiterate	6	0	-	Member	
20.	Rama Adhikari	Lekhnath – 3	33	Literate	5	5	Male	Member	
21.	Bindu Thapa	Pokhara – 16	27	Secondary	6	2	Both	General Member	Hariyali IPM/FFS
22.	Laxmi Thapa	Pokhara – 16	26	H. Secondary	6	24	Male	Member	
23.	Khem Kumari GC.	Pokhara – 16	35	Secondary	2	5	Both	Secretary	
24.	Urmila Thapa	Pokhara – 16	31	Secondary	6	3	Male	Chairperson	
25.	Bina Thapa	Pokhara – 16	45	Illiterate	5	2	Male	General Member	
26.	Sita Paudel	Hemja – 1	38	Secondary	7	7	Both	Chairperson	Jaagrity IPM/FFS
27.	Laxmi KC	Hemja – 1	20	Secondary	3	1	Female	Secretary	
28.	Shusila paudel	Hemja – 2	22	H. Secondary	3	4	Male	Treasure	
29.	Tara Adhikari	Hemja – 1	53	Illiterate	8	10	Male	Member	
30	Biddhya Bastola	Hemja – 1	28	Secondary	4	9	Male	Secretary	

ANNEX – III: Survey Questionnaire for Farmers of IPM FFS Groups:

Date: ……/……/2009

General Information:

Name of FFS group: Village:

Farmer's Name:

Age: Caste/Ethnicity[4] : Sex:

Education: Illiterate/Just Literate/ Primary/Secondary/Higher secondary and above.

Household Size (no. of family member):- ……

Land holding Size:- ……. In ha. (Ropani)

Land ownership ***(who owns the land)***: Male / Female / Both

Major Sources of Household income:-

a. Agriculture / Business / Service

b. Others, Please specify ……..

Nature of the groups:- Women / Men / Mixed

No. of Group Members:- Total…….. Male:……. Female:…….

Date of Groups Formation:- ……/……/……

Who helped to form group? a. Government. b. I/NGO c. Others……

Do you have welfare fund in your group? Yes / No

If yes, how much? ……

Do all members have equal access to use fund? yes / No

If Yes how……

if no why ……

When this group started FFS? ……

In which Crop your group start FFS?.....

[4] Dalit: Kami, Damai, Sarki, Gayen
Disadvantaged Janajati: Gurung, Magar, Rai, Limbu, Tamang, Tharu.
Advantaged Janajaties: Newar and Thakali
Religious Minorities: Muslims and Churaute.
Others: Bramihin, Chettry, Thakuri,
Source: Livelihood and Forestry Programme, Annual Report 2005.06 available at: http://www.lfp.org.np/download.php?dir=files&filename=Annual%20Report%2005-06.pdf

A. Empowerment by Leadership and decision making

1. Leader in Group: Women / Men
2. In which Position are you in group? ……
3. How many women members are in executive board?.....
4. How often do your group organize meeting?

   a. ( ) once in a month b. ( ) Twice in a month c. ( ) As per need and agenda.
5. How often do you change the leader in your groups? ……
6. How was the leadership selected (Criteria)?.....

   ……
7. Who raise the issues in group meeting: groups leaders/members/all ……..
8. Who does facilitate the group meeting? ……..……
9. Who does take meeting minute? ……..……
10. Did/do the women members and leaders actively involved in the planning and designing process of Farmer Field School? What are the activities you do?
11. Can women farmer/women leader farmers design and conduct the FFS learning activities themselves? How?
12. Do women farmers have knowledge about group constitution/norms? Yes/No
13. Have your participation in other community work has increased after FFS training?
14. Are you/FFS women members are the leaders and/or members of other different community groups?
15. Do FFS women graduates be aware of women right? Example:
16. Can women leader farmer convince other members of the groups? How?
17. How do women members lead the group activities?
18. Do women members involve in generating financial resources for the group? How?
19. Do women members/leaders have personal links with extension workers, research persons and persons of NGOs for generating resources? If yes how?

    If no……
20. How you involve in the group decision making process? And how does group decision take place?
21. How do you take responsibility while conducting group activities and how the responsibilities distributed within the group members?

22. How the household decisions take place after FFS training?

	Areas of decision making						
	Education of Children	Food	Income	Agriculture production	Purchasing agriculture inputs	Saving	Social/Religion Function
Before IPM							
Rank Now							
Female							
Male							

Rank - (a) Excellent (b) Very good (c) Good (d) Fair (e) No change

23. Are you getting recognition in the household decision making related to farm activities?

Activities	**Rank Now**	**Rank Before IPM-FFS**	**Remarks**
Crop selection			
Variety selection			
Soil management			
Fertilizer use			
Weed management			
Biological control			
Pesticide Management			
Harvesting			
Post -harvest storage			
Marketing of Product			
Use of income			

Rank - (a) Excellent (b) Very good (c) Good (d) Fair (e) No change

24. Do women farmers are equally treated while distributing the groups' resources?

……

25. What kind of knowledge and skills women farmers have gained by IPM-FFS?

a. Judicious use of pesticides
b. Environmental protection
c. Biological control
d. Weed management
e. Soil management
f. Identify beneficial insects /know about natural enemies
g. Problem solving with own experimentation
h. Others specify……..

26. Can women graduates identify the major field problems after FFS training? Example:

27. Skill and knowledge developed in group discussion/ mass dealing.

28. Can you identify major insects and pests in the fields?

29. Have you experienced any positive recognition in the community after FFS?

a) No, ( ) if no why not …….

b) Yes ( )

If Yes, how do you Specify …….

30. Economic empowerment in community after FFS.

Community	Rank Now	Rank Before FFS
Access to credit		
Access to groups		
Access to market		
Dependency to husband		
Land ownership		
Saving		
Assess to Employment		
Others specify.		

Rank - (a) Excellent (b) Very good (c) Good (d) Fair (e) No change

31. Do you familiarize with the group constitution and other operational norms/policy?

32. Do they involve in the formulation of group constitution? How?

33. Does women farmer have links/connection with SPs like DADO and RPPL? How is the relation?

34. How often you go to Service Providers (SPs)?
a. Once in week. b. Twice in week. c. Once in Month. d. As required.
Why?.....

35. What type of information you are getting from SPs after FFS? Is this relevant?

36. Do you participate in the activities organized by service providers? Examples:

37. Has this trend increased after FFS training? How?

38. Do you think FFS training has increased your knowledge information seeking capacity?
a. yes b. No.
If yes how?

If not why?

39. Do you share the learnt knowledge and skills of FFS?
If yes whom?

If no why?

40. Have the knowledge dissemination/sharing process encouraged you to explore and gathering of new information?

41. Has this knowledge sharing process encouraged the non-participants women farmers to adopt new knowledge?

If yes what type of innovative activities they adopted?

42. Do you initiate for the follow up activities of FFS?

43. What kind of follow up activities are they doing?

44. Has the social relations changed in your family and society within 5-10 years? How?
    With Husband.
    With Children
    Father/mother in-law
    Community people.
    Dalit community

45. What types of problems you are facing in the community?
    Natural disaster
    Financial problems
    Animals/Cattle
    Disease
    Dowry
    Others……

46. Who helps you when you face these types of problems?
    Neighbour
    Own family members
    Maiti (Parents' house)
    Daughter (Married)
    Husband
    Community Groups.

47. How do you resist and coupe to overcome these problems?

48. Does the FFS encourage you to solve these problems? How?

49. What are the strengths of FFS?

50. What are the weaknesses of FFS?

51. Do you have any suggestion to improve empowerment of women via FFS? Explain in which aspects do you feel empower or gained knowledge?

ANNEX – IV: Pictorial Glimpse of IPM/FFS:

Picture 1: Taking interview with women graduates during field survey.

Picture 2: Women participants compiled field data in IPM/FFS.

Picture 3: Non FFS community member built poly-house learnt from his Neighbor.

Picture 4: Women graduates prepared common vegetable Nursery in Common Land.