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CORK, IRELAND**

**ROLE OF WOMEN IN VALUE-CHAIN SYSTEMS OF VEGETABLES  
AND SPICES IN ATSB I WEMBERTA WOREDA, EASTERN ZONE  
OF TIGRAY**

**BY**

**Ametemariam Gebremichael**

**A Thesis Submitted in Partial Fulfillment of the Requirement for the  
Master of Science Degree in Rural Development**

**ADVISORS:**

**Sintayehu Fissaha (PhD), MU**

**Una Murray, UCC**

**CO\_ADVISOR: Gebremedhin Weldewahid (PhD), ILRI-IPMS**

**June, 2009**

**MEKELLE**

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## Declaration

This is to certify that this thesis entitled “Role of Women in Value-Chain Systems of Vegetables and Spices, in Atsbi Wemberta Woreda, Eastern Zone of Tigray.”, submitted in partial fulfillment of the requirements for the award of the degree of Master of Science in Rural Development, a joint degree program between Mekelle University (MU), Ethiopia, and University College Cork (UCC), Ireland to the College of Dryland Agriculture and Natural Resources, Mekelle University, Coordinated through the Department of Natural Resource Economics and Management (NREM) done by Ametemariam Gebremichael, ID. No. FDA/PR003/99 is an authentic work carried out by her under our guidance. The matter embodied in this project work has not been submitted earlier for an award of any degree or diploma to the best of our knowledge and belief.

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## **Abstract**

*In Atsbi-Wemberta woreda, intensive interventions have been introduced and successfully applied in the value chains of vegetables and spices benefiting over 10,000 households who produce vegetables and spices on about 1,400 ha in 2007. In these interventions, women's participation, role and benefits shared in the value chains have not been reported. Thus the study was conducted to assess the role and benefits of women, associated constraints and suggest possible intervention in the value chains of vegetables and spices. Accordingly data was collected from individual interviews (108 interviewees) using semi-structured questionnaires from five tabias drawn from beneficiary and non-beneficiary FHHs and MHHs. In each tabia, women and men farmers separate group discussions were conducted to generate further information. Each group consists of 8 farmers equally drawn from beneficiary and non-beneficiary households. The collected information was re-enforced through further group discussions with tabia administrators and DAs. The information collected from five tabias was cross checked at woreda level group discussion consists of experts from Offices of Agriculture and Rural development, Women's Affairs and Women's Association. Market related group discussions were also held with women vegetables and spices retailers in Atsbi, Haike Meshal and Habes market places separately.*

*The result indicated that there was no significant difference in land ownership and quality between beneficiary FHHs and MHHs. On the other hand, MHHs had better access to sharecrop/rented in land (43%) than FHHs (8%). With regard to level of participation, about 29 % of the beneficiary households were FHHs covering about 24% of the land covered by vegetables and spices in 2007. Moreover, about 80% of the vegetables and spices retailers were women and 100% of wholesalers were men. Women involved in all activities along the value chain of vegetables and spices except in plowing. Aggregately, FHHs' role was (50-90%) whereas the role of women in MHHs (10-70%). There was a significant increase in women workload (FHHs and women in MHHs) due to their participation in the value chains. FHHs commands about 90% of the decision which was much higher than that of women in MHHs (25%) on what, when and how to produce vegetables and spices. Besides, the decision making power of FHHs on the income incurred from vegetables and spices was significantly higher (95%) than women in MHHs (20%). Moreover, the overall decision making power of women in the beneficiary households was significantly higher than the women in non-beneficiary households. There was no difference in the type of information dissemination mechanisms, extension service provision, credit access and input supply between beneficiary FHHs and MHHs but differences did exist in the frequency of DAs contact and training. Beneficiary MHHs incurred more annual income than FHHs. The proportion of households with saving culture between FHHs and MHHs was almost similar except in the amount of money saved. In terms of wealth status, beneficiary households were much wealthier than non-beneficiary households. The majority of the beneficiary FHHs were grouped as medium (65%) and very few as rich (7%). Similarly, the majority of the beneficiaries MHHs were grouped as medium (64%) and about 26% were rich. This indicates that FHHs are beneficiaries in the value-chain of vegetables and spices but the income benefited was below that of the MHHs.*

*The reason for the disparity in income is due to the low level of investment in input and efficiency and in productivity and marketing of FHHs on vegetables and spices compared to that of MHHs. This requires further empowerment in capacity and uptake of knowledge to improve the productivity and marketing of vegetables and spices. Women in MHHs showed low level of decision making power than FHHs and thus facilitating their involvement in spices, seedling and retailing of vegetables and spices could make them competent enough economically.*

## **Abbreviations and Acronyms**

AVRDC	Asian Vegetable Research and Development Center
DAs	Development Agents
FDRE	Federal Democratic Republic of Ethiopia
FHHs	Female Headed Households
FTCs	Farmers Training Centers
IFPRI	International Food Policy Research Institute
IPMS	Improving Productivity and Market Success of Ethiopian Farmers
MHHS	Male Headed Households
OECD	Organization for Economic Cooperation and Development
OoARD	Office of Agriculture and Rural Development
SDPRP	Sustainable Development and Poverty Reduction Program

## Table of content

Declaration -----	ii
Acknowledgement -----	iii
Abstract-----	iv
Abbreviations and Acronyms -----	v
List of tables -----	viii
List of figures -----	ix
Chapter 1 INTRODUCTION-----	1
1.1 Statement of the problem-----	3
1.2 Significance of the study-----	5
1.3 Objectives of the study-----	5
1.3.1 General objective-----	5
1.3.2 Specific objectives-----	5
1.4 Scope and limitations of the study-----	6
1.5 Organization of the study -----	6
Chapter 2 LITERATURE REVIEW-----	7
2.1 Definition of Value Chain -----	7
2.2 Developing value chain systems that benefit the poor ---	7
2.3 Market-driven development in vegetable value chains-----	10
2.4 Women’s role in agricultural development-----	11
2.5 Women’s participation in vegetables and spices production-----	11
2.5.1 Production of vegetables and spices in home gardening-----	13
2.5.2 Constraints to vegetables and spices production for women---	14
2.6 Gender roles in vegetables and spices value chain systems-----	15
2.7 Gender differences in accessing rural institutions-----	16
2.7.1 Extension Services-----	16
2.7.2 Credit services-----	19
2.8 Information networking of rural women-----	20
2.9 Limitations of Ethiopia’s agricultural extension services in relation to gender issues-----	21
Chapter 3 RESEARCH METHODOLOGIES-----	24
3.1 Description of the study area-----	24
3.2 Sampling techniques-----	25
3.3 Methods of data collection-----	26
3.4 Methods of data analysis-----	28
Chapter 4 RESULTS AND DISCUSSION-----	29
4.1 Demographic characteristics of respondent-----	29

## Table of content (continued)

4.2	Socioeconomic characteristics of respondent-----	30
4.3	Participation level of beneficiary FHHs and MHHs in vegetables and spices value chains-----	32
4.3.1	Participation of FHHs and MHHs in vegetables and spices production-----	32
4.3.2	Participation of FHHs and MHHs in vegetables and spices marketing-----	33
4.4	Role of women in the value chains of vegetables and spices-----	34
4.5	Workload of women in beneficiary households in the value chains	37
4.6	Decision making level of female headed households and women in male headed households-----	38
4.7	Institutional factors-----	41
4.7.1	Information flows and service provision-----	41
4.7.2	Access to credit and inputs-----	46
4.8	Benefits from the value chains of vegetables and spices-----	48
4.8.1	Direct benefits from the value chains-----	48
4.8.2	Additional benefits from the value chains-----	54
4.9	Saving-----	55
4.10	Wealth status of beneficiary and non-beneficiary households-----	56
4.11	Opportunities and challenges faced by women-----	56
4.11.1	Opportunities-----	56
4.11.2	Challenges-----	57
Chapter 5	SUMMARY, CONCLUSION AND RECOMMENDATIONS-----	58
5.1	Summary and conclusions-----	58
5.2	Recommendations-----	62
	REFERENCES-----	65
	APPENDICES-----	70



## List of tables

Table.1	Mean distribution of sample respondents by demographic variables-----	29
Table.2	Literacy level of respondent household heads -----	30
Table.3	Land ownership of respondent households-----	31
Table.4	Comparison of cultivable land size of beneficiary respondents -----	31
Table.5	Comparison of cultivable land quality between beneficiary FHHs and MHHs-----	32
Table.6	Access of beneficiary households to rent/sharecrop in or to rent/sharecrop out land-----	32
Table.7	Participation of FHHs and MHHs in vegetables and spices production at wereda-----	33
Table.8	Decision making level of FHHs and women in MHHs in the value chains of vegetables and spices-----	39
Table.9	Decision making power of household members in beneficiary MHHs in the value chains of vegetables and spices-----	41
Table.10	Frequency of contact occasions of beneficiary and non-beneficiary households with development agents-----	42
Table.11	Preference of extension service provision by beneficiary and non-beneficiary respondents-----	43
Table.12	Extension service provision difference in beneficiary female and male headed households-----	43
Table.13	Service provision rank of beneficiary households by different institutions-----	44
Table.14	Rank of extension service provision between female and male headed households-----	44
Table.15	Frequency and length of training for women in beneficiary and non-beneficiary households-----	45
Table.16	Source of credit for beneficiary female and male headed households and repayment status-----	47
Table.17	Production frequency and annual income from sale of seedlings in beneficiary households-----	52
Table.18	Actors in marketing and profitability of vegetables and spices-----	53
Table.19	Means of transportation for vegetables by female and male headed households-----	54
Table.20	Annual money saved by beneficiary households and place of saving -----	55
Table.21	Wealth status rank of beneficiary and non-beneficiary households -----	56

## List of figures

Figure.1	Comparison of roles of FHHs and women in MHHs in the value chains of vegetables and spices-----	35
Figure.2	Involvement of household members on off farm income generating activities-	36
Figure.3	Labor source of beneficiary FHHs to cultivate land-----	37
Figure.4	Workload condition of beneficiary FHHs and women in MHHs-----	38
Figure.5	Total average annual income obtained by respondent households from vegetables, spices, cereals and pulses-----	49
Figure.6	Annual average income of beneficiary female headed and male headed households from vegetables and spices-----	50
Figure.7	Comparison of annual income obtained by beneficiary and non-beneficiary households-----	51

## **Chapter 1. INTRODUCTION**

Agriculture is a dominant sector in the Ethiopian economy. Agriculture contributes about 51% to the GDP, employs nearly 80% of the total labor force and generates the bulk of foreign exchange. Smallholder farms are predominant and account for more than 90% of agricultural production and over 95% of the total area under cultivation (Tiruneh, *et al.*, 2001). Given the rapid growth of population and the poor performance of the agricultural sector, intensification of agriculture is very critical. Furthermore, unleashing the potential of Ethiopian women who constitute about half of the population is central to ensure food security.

Women are engaged in agricultural production and other off-farm income generating activities to improve their standard of living and diversify their source of income. Women's participation in economic activities affect their negotiating power, which itself depends on their asset endowment (including human capital) and their access to and control of the household's assets (Tiruneh, *et al.*, 2001). Tiruneh, *et al.* indicated that though women do play an important role in decision-making in agriculture and in the adoption of agricultural technologies, the transfer and adoption of agricultural technologies is affected by basic economic questions of who owns productive resources and who decides what to produce, when to produce, how much to produce and how much to sell and control of income. These questions are raised due to the observed socio-cultural differences that Ethiopian women and men have different access to critical economic resources and varying power to make choices that affect their lives, as a consequence of the state of gender relations that exists with in the country (SDPRP, 2002). As a result, the poverty situation of women particularly female-headed households (FHHs) is more severe, which stems basically from the shortage of livelihood assets such as land, livestock and labor to lacking of basic needs (Tiruneh *et al.*, 2001).

In recent years, the pro-poor growth approach has become one of the key concerns of developmental organizations. The focus of the approach lays in the promotion of economic potential of the poor and disadvantaged groups of people particularly women (OECD, 2006). Hence, the approach should give central importance for the value chain systems in order to enhance self-employment and entrepreneurship opportunities for women, with

emphasis on agriculture, agro-industry and small firms in the informal sector (Fairbairn-Dunlop, 1996). These value chain systems grow and continuously incorporate new businesses, generating ever-increasing jobs, income, and assets. In this manner, vegetables and spices value chain systems have the potential to significantly increase income of women. Enabling women to move beyond subsistence production into higher-value and market-oriented production is an important element of successful agriculture for development strategies (Felipe, n.d.). Niche marketing of vegetables and spices provides enormous potential for generating improved incomes for rural women. These commodities are suited for small-scale production and processing operations which can be organized to work around other farming and domestic duties which often traditionally fall on women (World Bank, 2008).

Women's agricultural production can be commercialized with careful attention to underlying gender roles. Some ways to assist in this process include improving women's access to services such as agricultural extension and finance and technology such as improved seeds or female-specific farming implements or improving women's link to modern value chains. This can enforce them to focus on high-value agriculture sector particularly the emerging global supply chains of vegetables and spices. These activities generate considerable employment through production and more off-farm jobs in processing, packaging, and marketing (Felipe, n.d.).

A survey conducted by Tiruneh, *et al.*, (2001) indicated that women as being economically and socially disadvantaged, such differences found mainly between male headed households (MHHs) and FHHs. Differences are also expected to exist between women in the FHHs and MHHs, which deserve special attention. This research focused, therefore, on the investigation of role of women in the value chains of vegetables and spices, differences among women and men with regard to livelihood options and their benefits from the value chain systems. It also assessed the level of participation of women in the value chains of vegetables and spices and the barriers that hinder them from participating.

## **1.1 Statement of the problem**

Women constitute half of the world's population, they do two third of the world's work, they earn one tenth of the world's income and they own one hundredth of the world's property including land (United Nations, 1979). Women do play an important role in decision-making in agriculture and in the adoption of agricultural technologies (Tiruneh *et al.*, 2001). However, the transfer and adoption of agricultural technologies is affected by who owns productive resources and who decides what to produce, when to produce, and how much to produce, how much to sell and control of income (*ibid*). The gender gaps in access to resources as a result of political, legal or cultural factors and differential opportunities to invest in and make use of human capital have serious consequences for well being, not only for women but also for their families and society at large. Hence, empowering women is a key not only in achieving food security but is critical in the socio-political life and well being of any society (SDPRP, 2002). If any meaningful change in poverty and welfare is to bring to the society, special attention to women and their problems should be given. Cognizant for this, the government at the national, regional and woreda levels has taken legislative, political and socio-economic measures that are expected to empower women (SDPRP, 2002). However, in practice many of the developmental efforts often by-passed women, and their participation in the decision making process has been very low.

Women are not able to access development services on an equal basis with men perhaps due to illiteracy, cultural restrictions, shortage of free time and gender biases in institutions. There is also lack of diversification of development options for women and lack of female extension agents (Mukhopadhyay and Pieri, 1999; Tiruneh, *et al.*, 2001). Women are also labor poor and hence are deemed to rent out their small plots of lands. This indicates that FHHs have lesser agricultural produce and income compared to MHHs. The out-migration of men to off farm activities added burden on women's workload and also strengthened their role as major contributors to agriculture (Mukhopadhyay and Pieri, 1999; Tiruneh, *et al.*, 2001). However, gender based constraints have often been found to reduce women's efficiency as farmers and managers of resources.

Even though women are known to play a great role in the production of food and other crops in the back yards and generating income, their success is impeded by lack of resources including lack of voice in relevant community decisions. Among resource control issues, access to even small garden and irrigation plots of land for women has remained an important component of household food supply (Elfring, *et al.*, 2005; Emanu and Gebremedhin, 2007). Vegetables and spices production gives an opportunity for intensive production and increases smallholder farmers' participation in the market led development. Increasing vegetables and spices production contribute to commercialization of the rural economy and creates many off-farm jobs particularly for women (Emanu and Gebremedhin, 2007). Production of vegetables and spices is more capital intensive than staple crops (Ali *et al.*, 2002; Joshi *et al.*, 2003; cited in AVRDC, 2007). Besides, the expansion of vegetables and spices is often complicated by substantial problems including access to market and market information, credit, extension services, technology, inappropriate management and pest control and input supply (Lumpkin, *et al.*, 2005). Moreover, input and product markets for vegetables and spices are incomplete, endowed with insufficient quality infrastructure and support services such as information and communication, and they are poorly integrated. The combined effects of these features cause loss of competitiveness in markets and increased poverty of women.

The rapidly developing high-value agriculture sector particularly the emerging supply chains of vegetables and spices has important effects on women's life. Thus increasing the integration of value chains of vegetables and spices through improved linkages with different sectors is increasing the efficiency of agriculture. This can have a positive effect on national economic growth and provides women with attractive options for investment in quality improvement and value-added activities beyond the production of raw materials. These activities generate considerable employment through intensive production and more off-farm jobs in processing, packaging, and marketing (Felipe, n.d.). However, women's link to these modern value chains of vegetables and spices is low.

## **1.2 Significance of the study**

The result of this study will help to understand the role of women in the value chains, the information flow system and sources that rural women use, and the different constraints and opportunities of the system in reaching out women. The findings of this study can also be used in guiding policy makers and development planners who are concerned about gender issue while designing agricultural projects within the region and elsewhere in the country. This result is also expected to lay a bench mark for a study on the situation of women in the value chains. Moreover, the study is expected to serve as an input for researchers who may be interested to undertake further research, analyze and develop appropriate extension systems to empower women. It would also be expected to be of help to development institutions and development workers to review their development activities, so that they could address the needs and problems of women in the value chains of vegetables and spices. The empirical findings of this study would use as valuable tools to advocate the role of women and how the value chains can empower women socially and economically.

## **1.3 Objectives of the study**

### **1.3.1 General objective**

To assess the role and benefits of women in the value chains of vegetables and spices and to identify constraints that hinder their participation and benefit sharing and to propose appropriate intervention strategies.

### **1.3.2 Specific objectives**

- To investigate the extent of women's participation and benefits and compare their roles in the value chains of vegetables and spices.
- To compare income level of beneficiary and non-beneficiary women and the level of decision making power of FHHs and women in MHHs who are involved in the value chain systems of vegetables and spices.
- To assess women's work load due to their participation in the value chains of vegetables and spices and examining its impact on their usual activities.
- To compare the information flow systems about value chains of vegetables and spices between women and men.

- To identify potential barriers to women's participation in the value chains of vegetables and spices, and suggest possible actions to overcome some of the gender barriers.

#### **1.4 Scope and limitations of the study**

The study was limited to only one selected woreda and five tabias in Tigray. Therefore, there could be some bias in the information obtained about the value chains of vegetables and spices. Given the diversity of the Ethiopian population in terms of religion, ethnicity, agro-ecological climate and socioeconomic conditions the communities selected may not represent all the people in Ethiopia. As such, the research does not claim to provide conclusive findings on the role of women in the value chains of vegetables and spices in Ethiopia. However, the research finding could be used to raise awareness among different stakeholders and also serve as background information for others who seek to do further related research and would help serve in formulating and revising agricultural extension strategies in relation to the value chains in the region as well as other areas with similar socio-economic conditions.

#### **1.5 Organization of the study**

The thesis is organized into five chapters. It starts with the introduction, which includes statement of the problem, objectives, significance and limitation of the study. The second chapter reviews literature that deals with past studies and information pertinent to the study. The third chapter explains research methodology including description of the study area, sampling techniques, methods of data collection and tools for data analysis. In the fourth chapter the main findings of the study are discussed. Finally, conclusions and recommendations are provided in chapter five.



## Chapter 2. LITERATURE REVIEW

### 2.1 Definition of value chain

Any rural development to be successful it should give central importance to self-employment and entrepreneurship, with emphasis on agriculture, agro-industry and small firms in the informal sector (Fairbairn-Dunlop, 1996). The value chain concept has proven particularly useful for the identification and formulation of projects as well as in the development of strategies for improved agricultural and rural development. A value chain is the full range of activities required to bring a product from conception, through the different phases of production and transformation. A value chain is made up of a series of actors (or stakeholders) from input suppliers, producers and processors, to exporters and buyers engaged in the activities required to bring agricultural product from its conception to its end use (Kaplinsky and Morris, 2001).

Agricultural value chains can include three or more of the following: producers, processors, distributors, brokers, wholesalers, retailers and consumers. The partners within the value chain will work together to identify objectives and are willing to share risks and benefits and will invest time, energy and resources to make the relationship work. Bammann, (2007) has identified three important levels of value chain.

- **Value chain actors:** The chain of actors who directly deal with the products, i.e. produce, process, trade and own them.
- **Value chain supporters:** The services provided by various actors who never directly deal with the product, but whose services add value to the product.
- **Value chain influencers:** The regulatory framework, policies, infrastructures, etc.

### 2.2 Developing value chain systems towards benefits of the poor

In recent years, the pro-poor growth approach has become one of the key concerns of developmental organizations. The focus of the approach lies in the promotion of economic potentials of the poor and disadvantaged groups of people (OECD, 2006). The main aim is to enable them to react and take advantage of new opportunities arising as a result of economic growth, and thereby overcome poverty (Berg, *et al.*, 2006). The promotion of

value chains in agribusiness aims to improve the competitiveness of agriculture in national and international markets and to generate greater value added within the country or region. The key criterion in this context is broad impact, i.e. growth that benefits the rural poor to the greatest possible extent or, at least, does not worsen their position relative to other demographic groups (GTZ, 2006). Pro-poor growth is one of the most commonly quoted objectives of value chain promotion. In recent years, the need to connect producers to markets has led to an understanding that it is necessary to verify and analyze markets before engaging in upgrading activities with value chain operators. Thus, the value chain approach starts from an understanding of the consumer demand and works its way back through distribution channels to the different stages of production, processing and marketing (GTZ, 2006).

The value chain approach seeks to identify long-term solutions to reduce the vulnerability of developing countries to fluctuating world market prices or trade shocks. It does not just focus on adding value to existing traditional commodity exports (in other words, diversifying the same product), but also on promoting alternative products. Another characteristic of the approach is that it does not solely concentrate on functional dimensions such as supplying appropriate inputs, or applying good agricultural processing, handling and distribution practices. It emphasizes the importance of institutional arrangements, or rather governance issues, along the value chains that link and coordinate producers, processors and distributors of a certain product (Heinze, S, 2005 cited in Berg et al., 2006). Moreover, this aspect covers authority and power relationships that determine how financial, material and human resources are allocated and flow within the chain (Gereffi *et al.* 1994).

Dynamic value chain systems respond to market shifts by developing and transferring knowledge to intermediaries and producers, so that they can adapt and maintain a competitive market position over time. Vibrant value chain systems grow and continuously incorporate new businesses, generating ever-increasing jobs, income, and assets. In this manner, value chain systems can have the potential to significantly reduce poverty for large numbers of poor people particularly women (Alexandra and Mary, 2006). The value chain approach contributes to reducing poverty if development programs are employed strategically and concentrates on targeting the disadvantaged groups. Development programs have to overcome the bias towards the better off by consciously using the full

range of options available to support the poor and women in the value chains. This includes skills development and learning, facilitating contract arrangements and supporting information and service delivery. Often, it is necessary to combine value chain promotion with a livelihoods perspective, with local economic development or with vocational training so as to enable the rural poor in particular women to enter and stay in the system (Aid Workers Network, 2007).

Value chain is useful as a poverty-reduction tool if it leads to increase on and off farm rural employment and income (Lundy *et al.*, 2002). Increased agricultural productivity alone is not a sufficient route out of poverty within a context of globalization and increasing natural resource degradation. A focus on post-harvest activities, differentiated value added products and increasing links with access to markets for goods produced by low-income producers would appear to be the strategy open to smallholders (Lundy *et al.*, 2002). The poverty reducing potential of value chains is not only in generating rural income and employment but also complemented by improvements in processing and market chains that reduce traditional food preparation times, thus releases time for women for more productive activities.

In order to take advantage of this potential, however, the resultant activities must be competitive, sustainable and involve low-income rural populations (Lundy *et al.*, 2002). Competitiveness can be understood in this context as: (a) the establishment of production systems that make efficient use of existing financial, human and natural resources; (b) a market orientation which produces the right product for the right buyer at the right time and price; (c) appropriate business and marketing skills and organizational schemes which lead to economies of scale, and; (d) improved links among market chain actors and flows of information and technologies. The sustainability of these activities should be measured in economic, social and environmental terms. This sector faces a variety of difficulties, however, which must be resolved before a significant impact of rural poverty can be achieved. Chief among these are the identification of market opportunities, access to appropriate processing technologies, implementation of effective business organization practices, more efficient farm to market channels and the timely provision of key financial and non-financial business development services. These limitations can be overcome

through the development of skills, services and alliances between local and external actors and agencies (Lundy *et al.*, 2002, p. 3)

### **2.3 Market-driven development in vegetable value chains**

The value chain approach considers both the added value of a product and an insight into the actors' roles and relations. The value chain approach analyses a product's development process from input supply through production and processing level, transport, trade and marketing, to consumption. Despite the fact that, earlier work on agriculture concentrated mainly on improving the supply side of the respective value chains e.g. production conditions and output, recent studies have also paid attention to the demand side (Diao/Dorosch 2007). Here the value chain analysis concentrates on both ends of the chain corresponding with the two sides of a market.

The development of the domestic markets of vegetables and spices is strongly determined by factors on the supply side, e.g. soils, aridity, agricultural knowledge, competition, weather, and market infrastructure as well as on the demand side e.g. increase in population, urbanization, and income-elasticity. As vegetables are highly perishable commodities there are many difficulties during the marketing process. Natural occurrences such as aridity, the composition of soils, and the weather are mainly responsible for creating opportunities and constraints on the supply side of the market. Seasonality strongly influences the supply side of the vegetable production. Production of vegetables and spices in rain fed is highly affected by seasonality (high and low supply on the markets), which is mainly influenced by the climate and weather conditions. Those farmers who have access to irrigation can operate more independently of the seasons (Koenig *et al.*, 2008). Furthermore, the importance of market co-ordination and market participation has been highlighted and described as one of the most important constraints responsible for the poor performance of vegetables and spices (Dorward *et al.*, 2005). On the other hand Pender and Gebremedhin (2007) stated that participation in marketing cooperatives has the largest predicted impact on both vegetables production and income, increasing both by more than 40 percent. According to estimations by Kelley and Byerlee (2004) some 60% of the African rural population lives in areas of good agricultural potential, but with poor market access. Only 22% live in areas of good

agricultural potential and good market access. 18% suffer from poor market access and poor agricultural potential (Koenig *et al.*, 2008).

Agricultural potential and market access alone can not make farmers profitable. Availability of storage facilities is important for farmers to avoid flooding of markets and enables them to increase their profit by selling in times of low supply. Due to seasonality market prices fluctuate depending on the quantity and the quality of the products on the markets. Especially on the wholesale and retail markets prices also fluctuate even during one day. Often the limited availability of storage is the reason that traders and retailers try to sell all their produce by the end of one day, even if they achieve only a low price. Another reason is that most of them particularly women suffer from regular cash constraints and therefore they need the money badly. In times of high supply, traders benefit more; in times of low supply farmers can sell everything they harvest for good prices (Koenig *et al.*, 2008).

## **2.4 Women's role in agricultural development**

Every country's development is focused mainly on the uplifting of the rural smallholder-farming sector. Most people in this group are women who labor day and night to sustain the family's food supply and provide extra income to the households. Majority of women in developing countries fall within the small scale subsistence sector farming and produce more than 80% of the food for the Sub-Saharan Africa (Irvine, 1996). In addition, they grow half of the world's food requirements (FAO, 1993). Women are the invisible agricultural producers in peasant society (Ellis, 1993). Nearly 85% of women's labor is spent in farming (Yeshi, 1997). Women in Ethiopia play multiple and overlapping roles, which have increasingly put pressure on their health, food security, productivity and potential contribution to improved human welfare and economic development (Senait, 2000). Generally, women are considered as sources of food and heads of household, while all the important activities of women are hidden behind the men. But, the fact is that women play a significant role in food production and in farm family as a whole.

## **2.5 Women's participation in vegetables and spices production**

Women are the principal producers of most vegetables and spices in developing countries and are predominantly involved in the value-addition activities from production to

marketing (AVRDC, 2007). Both female and male farmers engaged in the production of vegetables and spices earn higher net farm incomes than farmers engaged in cereal production alone. The sale of garden surplus is often a major source of income for rural women, and largely used for crucial family needs (ibid). Vegetables and spices production provides new and profitable sources of income for women. Their production has high value-added and income generation potential. For instance in India, vegetable producers generate five to eight times more profits than cereal farmers, depending on the crop (Subramanian, *et al.*, 2000; cited in AVRDC, 2007). Vegetables and spices production is attractive especially for small-scale women farmers that own small irrigable or garden plots. The production of vegetables and spices has a comparative advantage particularly under conditions where arable land is scarce, labor is abundant and markets are accessible. The enhanced social and economic status of women, achieved through vegetable production can lead to greater household food and nutrition security (IFPRI, 2005). In addition to the financial benefits from vegetables and spices production, increasing women's access to these products also increase consumption for themselves and their families, that can improve their health and work performance, thereby contributing to higher incomes.

The move from cereal production towards high-value crops such as vegetables and spices is an important contributor to on farm and off- farm employment opportunities, because it is usually more labor intensive that provides twice the amount of employment per hectare of production compared to cereal crop production (Ali *et al.*, 2002; Joshi *et al.*, 2003; as cited in AVRDC, 2007). The vegetables chain is also longer and more complex than the cereal crop one and as a result job opportunities are more abundant. In Zimbabwe women comprise 91% of the employees of vegetable production and play a much more significant role in these sector compared to staple crops (Dolan and Sorby, 2003; cited in AVRDC, 2007). The generation of additional employment opportunities in rural areas where labor is abundant is critical for achieving widespread and equitable growth. Increasing vegetables and spices production contributes to commercialization of the rural economy and creates many off-farm jobs such as processing and marketing, especially for women (Ali *et al.*, 2002; cited in AVRDC, 2007). For example in Bangladesh, women account for 48% of all labor in vegetable production compared to only 11-20% for cereal production (Rahman, 2000; cited

in AVRDC, 2007). In Africa, women play a dominant role in the production of vegetables and cultivate more than half of the total smallholdings (Dolan and Sorby, 2003; cited in AVRDC, 2007).

Since vegetable production is very labor-intensive, landless and youth women also benefit from the new employment opportunities created by vegetables and spices production. Vegetables and spices production contributes to the overall growth of markets and agribusinesses in rural economies. Vegetables and spices producers are usually more integrated into markets than cereal farmers. For example, Bangladeshi farmers on average sell 89% of their vegetable production in to local markets compared to selling only 22% of their cereal output (Ali and Hau, 2001; cited in AVRDC, 2007).

In times of plenty women process vegetables such as garlic, green pepper and onions by drying and storing them for future use. This adds more value to the processed products and generates income for the household. Most women also use vegetables to generate their own income by buying vegetables in bulk and selling them in the market (Chadha *et al.*, 2008).

### **2.5.1 Production of vegetables and spices in home gardening**

Women carried out household based vegetables and spices production or home gardening (Ninez 1984). Home gardening has a big impact on the family's food supply and nutritional status. In many rural areas production of vegetables and spices in backyards during rainy seasons is a common feature. Home gardening assures equal access of family members to grow vegetables by themselves to a large extent (Chadha *et al.*, 2008). Home gardens do not need large sums of money to grow vegetables or spices; though it requires devoting large share of time on it. The advantage of home gardening is that women have direct access to raise their incomes. However, home gardening is used for personal consumption; its production also saves time and money for women by avoiding traveling to market to buy vegetables and spices. The other benefit is the improvement of the nutritional status of family members from a variety of vegetables grown (Chadha *et al.*, 2008).

### **2.5.2 Constraints to vegetables and spices production for women**

Expanding production of vegetables and spices is often hindered by different factors such as lack of market access, market information, pests, inappropriate management, input supply, and credit and extension services. Moreover, labor affects land management for vegetable and spices production and gender is an important factor in affecting land management and outcomes from vegetables production. Pender and Gebremedhin (2007) reported that in Tigray, FHHs use significantly less labor and draught power, probably because of labor constraints and a cultural taboo against women plowing. Hence, FHHs obtain substantially lower crop yields and incomes than MHHs. Moreover, (Suleiman, 2004) reported that female-headed households have less access to share and rented in land than MHHs. Besides, MHHs cultivate better quality of land than FHHs.

Despite women playing a central role in the production of vegetables, they do not have much control over resources and do not benefit fully from their efforts. Moreover, for those that have managed to move from subsistence farming to growing vegetables as a business, market, extension services and exposure are other constraints (Chadha *et al.*, 2008). Women lack access to extension services and exposure to good vegetables and spices growing techniques that can help them in vegetables and spices production. In Malawi field days and agricultural shows less emphasizes to women. This has a negative impact on the development of vegetables and spices production. Lastly, access to credit facilities is another constraint. Without credit, women cannot obtain inputs and use modern technology such as treadle pumps to grow vegetables and spices (Chadha *et al.*, 2008). The production of vegetables and spices at a large scale is affected by a number of factors such as a lack of markets, lack of extension services, and lack of vegetables and spices shows and displays. Processing of vegetables for value adding is low, and hence prices result in fewer returns to the farmer at the peak times of supply. Storage remains a big problem for the whole agriculture sector and vegetables in particular. This limits the horizon of vegetable marketing; outreach is restricted by factors like distance and time. If these could be brought under control, pre- and post-harvest losses would be reduced significantly (Chadha *et al.*, 2008). Thus, women should be provided training opportunities and access to information on how to produce and supply safe products of vegetables and spices for markets.



## **2.6 Gender roles in vegetables and spices value chain systems**

Ethiopian rural women make a significant contribution to agriculture and to ensure food security and are the mainstay of the farm labor. A major chunk of women's labor force in production system is invested in weeding, harvesting, marketing, post harvest handling etc (Ranjan and Hedija, 2004). In Ethiopia harrowing and weeding, in particular, are considered as women's activities. The division of tasks between women and men varies according to the crop grown, the farming system, the technology used, the wealth of the household and culture. Related to this, Bishop-Sambrook, (2004) has pointed out that in Atsbi Wemberta in cereal production women participate in weeding and harvesting and are actively growing vegetable on small plots of land close to their home. They also play an active role in irrigated vegetable production, taking the labor-intensive activities of the nursery, transplanting and weeding while men are responsible for preparing land and distributing water but harvesting is done together.

Within a conventional household, men sale the majority of the cash crops and are traditionally responsible for major items of expenditures (Bishop-Sambrook, 2004). Despite the distinct roles of women and men in marketing, it is generally found that decision-making regarding market with in household is a joint activity (ibid). However, many studies have shown that as crops become more valuable in the market place, women's access to and control over the proceeds of these crops becomes marginalized (Olawoye, 2003; cited in Bishop-Sambrook). A study made by Tiruneh *et al.*, (2001) has indicated that women do play an important role in decision-making in agriculture and in the adoption of agricultural technologies. However, the transfer and adoption of agricultural technologies is affected by who owns productive resources and who decides what to produce, when to produce, and how much to produce. Tiruneh *et al.*, (2001) has also elaborated decisions about purchasing agricultural inputs such as improved seeds, is made mostly by the husband in the MHHs. Women generally have limited access to technologies and services associated with farming. There are very few items for example kitchen utensils women used to a greater extent than men. In contrast men enjoy the use of a relatively wide range of resources and they control nearly all household's resources (Bishop-Sambrook, 2004). In vegetables and spices production, women, together with children and teenagers, clean fields of uprooted plants and

other debris before they are sown. They also weed and carry harvested produce. When not involved in plowing, the men also help in weeding. Men plough, harvest and stock the harvest. Women and children help men with the harvesting (The United Nations University, 1993).

Women's role in African agriculture ranges from providing a significant share of labor for food as well as cash crop production to managing their own field. However, the household head frequently centralizes control and management of resources in Ethiopia. As heads of households, women directly participate in agricultural products and inputs markets and make household level decisions about how to respond to changes in price and non-prices incentives they face (Suleiman, 2004). On the other hand, traditionally, wives are responsible for decisions regarding consumption, while husbands often make production and marketing decisions (Suleiman, 2004).

## **2.7 Gender differences in accessing rural institutions**

North (1999) refers to institutions as the rules of the game in a society. These rules guide human interaction. Institutions may be either formal or informal. Formal institutions include laws and policies, while informal institutions include social customs, which might be more deeply embedded in culture, and are therefore more resistant to change.

### **2.7.1 Extension services**

Adams (1983) defined extension as assistance to farmers to help them to identify and analyze their production problems and to become aware of the opportunities for improvement. Extension provides agricultural and vocational training on the use of fertilizer, insecticides, improved seeds, land use practices, post harvest technology, and home economics (Tiruneh, *et al.*, 2001). Any extension system should target particular categories of clients to meet their needs efficiently (Saito and Weidman, 1990). Nevertheless, extension services frequently fail to provide adequate information to women farmers due to failure to recognize their specific needs. In addition to their productive tasks they are frequently overburdened with household responsibilities, they are often less educated than men and have a more limited access to resources such as labor. If an extension program deals effectively

with those constraints, it will be easier for women farmers to get involved in agricultural activities (FAO, 1996).

Women lacked improved extension packages and services that assist them to improve their productivity. So far the extension system in Ethiopia has not been able to address the cultural taboo against the participation of female farmers in plowing and sowing, which subsequently reduce the rigid division of labor both at the household and field level. There is a lack of concern about the multiple roles of female farmers while doing research on identifying the priority problems and developing extension systems that are appropriate to women. Little efforts have been made to address and reduce the heavy burden of work that female farmers face. Often it is observed that major emphasis in agriculture is given to men's activities while the role of women in the Ethiopian farming systems has been ignored. Women in MHHs in particular are by-passed in the transfer of improved agricultural technologies assuming that they will get the information through their husbands (EARO, 2000).

A survey in three woredas of Eastern Showa by Tiruneh, *et al.*, (2001) indicates that FHHs lack access to extension facilities and services. This experience reveals that, MHHs benefited more from extension services than FHHs and lack of extension service is one of the factors affecting gross output for FHHs. In addition, Due (1987) shows that in Kakamega District of Kenya, 40% of the women interviewed knew nothing about the extension services and credit program and a survey in Nigeria's Ogun State Agricultural Development Project revealed that extension agents visited only 10% of women farmers every week, whereas 70% of male farmers were visited weekly (Elabour-Idemudia, 1991). Apart from outright discrimination, the methods used to disseminate technical information, such as the contact farmer approach and the use of training centers, tend to channel information to farmers who have more resources and who are generally men (Berger, Delancey and Mellencamp, 1984) and this account for women's low participation in extension programs.

All this confirms that, despite the active involvement of women in a wide range of agricultural activities, they have limited access to extension services. The majority of

women who participate in farmer extension groups are household heads. Wives may attend if their husbands are not available but are usually much more difficult to reach. Specific attention is being paid to encourage the participation of FHHs in the household extension packages; however field experience is demonstrating that many women are reluctant to take out loans and some lack labor to participate in the household extension packages (Bishop-Sambrook, 2004, p. 3). Bishop-Sambrook's study also indicates that few women participate in farmer research groups since it is culturally difficult for them to represent their husbands when their husband is present. The agricultural extension service in Ethiopia is male dominated and predominantly oriented towards advising and working with male farmers of the households (Ngatwa, 2006). Agricultural extension services still do not attach equal importance to reaching women farmers (Habtemariam, 1996). Women are typically, and wrongly, still characterized as economically inactive. Policy makers and administrators typically still assume that men are the farmers and women play only supportive role as farmers' wives. This attitude by both planners and implementers has significant adverse effects on women's access to agricultural extension services (Habtemariam, 1996).

Despite the significance of women's role in agricultural development, evidences show that women's farming productivity and efficiency levels often remain very low due to lack of technical advice on production and marketing, cultural practices, skills and technology (Almaz, 2000). Men and women perform different tasks they can substitute for one another only to a limited extent and this limitation creates different demands for extension information also, as men leave farms in search of paid employment in urban areas. Hence, women are increasingly managing and operating farms on a regular and full-time basis (Edlu, 2006). However, the extension efforts and technological packages usually address men farmers (Dagnachew, 2002). Extension agents are most likely to visit male farmers than female farmers. The low level of women's education and cultural barriers prevent them from the exposure to extension channels by their initiative. The male-dominated extension system also often restrains from contacting and working with women due to the strong taboos and value systems in the rural areas (ibid).

Agricultural extension services still do not attach equal importance to reaching women farmers. Habtemariam, (1996) indicates that only 37% of the women have participated in

extension advice and training. Policy makers and administrators typically still assume that men are the farmers and women play only “supportive role” as farmer’s wives. Due to this attitude, the agricultural extension services in Ethiopia are male dominated from the national to the local levels. Male extension workers tend to work mainly with male farmers, they do so less often with female household heads. Women in MHHs rarely get advice from the government extension services. Yet women whether heads of household, wives or daughters are actively involved in farming throughout the country (ibid).

As DA’s are evaluated mainly based on the types and number of technology packages they were able to disseminate and the number of farmers they could reach out, the DAs are more likely to focus their efforts to the relatively well progressive farmers. This would further limit women’s access to extension and other services including credit, fertilizer and improved seed. When inputs are limited in supply, again women would receive lower priority than their male counterparts (Habtemariam, 1996). Moreover, given the cultural constraints inhibiting the interaction of men and women, female farmers both in male and female-headed household are not benefiting as well from the extension system (Habtemariam, 1999).

### **2.7.2 Credit services**

Credit availability increases the ability to invest and improve access to other productive inputs and assets, so it is very important for improving farm productivity and returns (AVRDC, 2007). Credit programs may enable farmers to purchase inputs or acquire physical capital, needed for technology adoption (Feder *et al.*, 1985). The high price of agricultural inputs implies the need for more cash and the non-availability of loans is among the major problems of vegetables production. Tiruneh, *et al.*, (2001) has stated that farmers’ access to credit is possible if one is willing to buy inputs included in the extension program at a given price. Extension programmes use credit as a means of persuading farmers to adopt a certain package of technology (Chipande, 1987). However, this type of credit package did not take into account that land resources, managerial ability, and labor access of FHHs, which are defaulted. This resulted in poor yields that in turn lead to poverty in the household. In addition, the production of vegetables is often more risky, because these crops are much more costly to produce per hectare than cereals, yields and prices are more

variable than for cereals and they are perishable (Key and Runsten, 1999). Thus resource poor women should be supported by an enabling institutional environment, such as access to credit and capital, and should be provided with access to market price information.

## **2.8 Information networking of rural women**

Knowledge/information is becoming one of the most important factors of production. In this century, it is knowledge accumulation and application that will drive development and create unprecedented opportunities for economic growth and for poverty reduction. Having timely and relevant information can fundamentally alter people's decision-making capacity and is critical to increasing agricultural productivity. Information on vegetables and spices management practices, pests and diseases, transport availability, new marketing opportunities, and the market prices and outputs is fundamental to an efficient and productive agricultural economy. Yet, information poverty is common in rural areas in Africa (CTA, 2002). Despite their immense contribution to the household economy and given their critical role in determining and guaranteeing food security as food producers, food providers and contributors to household nutrition and security, rural women often face difficulties than men in gaining access to agricultural information to increase their production and productivity (Winrock, 2001).

It is common to all but is sever for rural women to obtain relevant and timely information. Distance to the information source can be considerable, and poor transport and communications infrastructure make access to information difficult. Such information is also often in a written form, which limits access of many women who have limited literacy than men (Suleiman, 2004). Other than face to face information, rural women do not have access to the information that upgrade their skill and knowledge and increase their scope of marketing systems. CTA, (2002) reported that women in the agricultural sector in eastern and southern Africa face many socio-economic, educational and legal obstacles in realizing their full potential. Women also lack appropriate and usable information that could help them with their farming activities. Women need information on a wide range of subjects, including agricultural production, processing and marketing. They also need to exchange indigenous knowledge (ibid).

Development planners have assumed that information given to male farmers will be passed on to other farming members of the household. This does not often happen. Experiences indicate that agricultural knowledge acquired by male, unless they themselves will benefit, often does not trickle across effectively to women in the family (Saito and Daphne, 1992). In Malawi, for example, women in MHHs in agricultural extension groups said their husband rarely passed advice on to them. If they did, the women had difficulty in understanding the secondhand advice or did not find it relevant to their needs (Kaske 2007).

According to Samuel (2001), information is a resource that must be acquired and used in order to make an informed decision. Those who possess appropriate and timely information will make a more rational decision than those without. According to Asres (2005), information facilitates the individual to be more rational, increase the decision-making abilities and improve the standard of life. The real challenge of our time is not producing information or storing information, but getting people to use information. Information and its dissemination is also a subject of considerable importance to women who commonly suffer from isolation and have difficulties in communicating their priorities to decision makers. Consequently, it is imperative to find approaches which can communicate women's problems and aspirations (Kaske 2007). Agricultural information is not effectively reaching and benefiting women headed households in the food security chain (FAO, 1996). According to Saito and Weidemann (1990), a survey of women farmers in Burkina Faso found that 40% had some awareness about the existence of modern crop and livestock production technologies. For most of the women, relatives and friends were the source of information; nearly one-third had acquired their knowledge from the extension service, and only 1% had heard of the technologies from their husbands (Saito and Weidemann, 1990).

## **2.9 Limitations of Ethiopia's agricultural extension services in relation to gender issues**

Though women play a critical role in agriculture, it is recognized that the Ethiopian agricultural extension system suffers from a number of weaknesses in the provision of services for rural women. According to Habtemariam (1996) there are different limitations in the extension service provision as follows. First, there are misperceptions and prejudices

about women's actual and ideal roles with the result that they are often excluded from the target group of extension. In Ethiopia farming is traditionally considered as male activity. Women's work in agriculture sector is considered marginal. Second, agricultural extension in Ethiopia focuses on efficiency objectives and on few "progressive" farmers to the relative neglect of resource-poor households, and female heads of rural households. The extension methodology uses the DAs as the main point of contact between the Bureau of Agriculture and farmers through the use of demonstration plots on the farms of better, more advanced farmers who are willing to serve as model for five to ten of their neighbors. Since some women, particularly those in female-headed households are generally among the poor farmers; their chance to be selected by DAs for extension services is very low. They are often too poor to afford the inputs necessary for optimum productivity even when inputs are available.

Third, there is a gender bias against women among extension workers. Extension services in Ethiopia are male-dominated and work mainly with male farmers, partly for cultural reasons and partly because the extension system itself has traditionally relied on the use of contact farmers, whose criteria for selection tended to exclude female farmers. Assistance for women had usually been in the form of separate women's projects aimed at assisting women in their reproductive role, sanitation, nutrition and home management. Habtemariam, (1996) indicated that 87% of women interviewed acknowledged the lessons they have drawn from home economists mainly on the use of improved stoves, nutrition and home management planning. Thus their impact on rural women's life is insignificant. Home economists were not in a position to advise women on aspects of field crop or livestock production.

Fourth, the different needs and constraints of different categories of people are not distinguished and treated accordingly. Extension needs of men and women are basically different. Men have easier access to technology and training, mainly due to their strong position as head of the household and greater access to off-farm mobility. Women in male-headed households also have different needs from women who are household heads. It is difficult to reach women in the male-headed households. They generally do not attend meetings, as it is generally the husbands that attend. Women in these households need to



negotiate with husbands to allow them to participate in development activities autonomously. Women headed households are among the poor and more vulnerable groups. The prevailing social and cultural constraints on the interaction of men and women, the lack of a clear strategy by extension system for targeting female farmers in general, and female-headed households in particular, limits the extension system's ability to reach female-headed households. Female-headed households also lack alternative productive resources that would enable them to improve their productivity and income, which in turn would contribute to ensuring household food security.

Agricultural extension as an educational and communication tool makes a vital contribution to agricultural production and rural development. It is thus important to provide women farmers both male and female-headed households with efficient, effective and appropriate technology, training and information. However, it is a mistake to view rural women as a homogeneous social classification or to drive policies and services for women in agriculture that are not based on empirical research which captures their diversity. The extension service needs to be adapted to circumstances as there is no one one-package extension model, which can work for all women in all places.

## **Chapter 3. METHODOLOGIES**

Atsbi Wemberta woreda is selected for this research because it is one of the potential areas for highland vegetables and spices production. Besides, Atsbi Wemberta is one of the Pilot Learning woreda of Improving Productivity and Marketing Success (IPMS) project of International Livestock Research Institute (ILRI), who sponsored this research. One of the cross cutting objectives of the IPMS project is to enhance the participation of women in market oriented commodity developments such as vegetables and spices. Thus, the woreda was purposely selected accordingly.

### **3.1. Description of the study area**

Atsbi Wemberta is one of the rural woredas of Tigray located about 65 km north east of the Tigray Regional State capital of Mekelle at 13° 36`N and 39° 36`E. The woreda is bounded in the north by Saesie Tsaedaemba woreda, in the south by Enderta woreda, in the west by Klte Awlaelo woreda and in the east by Afar regional state. The woreda has a total area of about 1223 sq. km (Abebe, 2007).

The climate of Atsbi Wemberta ranges from cool to warm. Altitude in the woreda ranges from 918 to 3069 m and 75% of the woreda is upper highlands and 25% is found in midlands and lowlands. The average temperature of the area is 18°C. Rainfall is usually intense and short in duration, with an annual average of about 668 mm. Shortage of rainfall is a major constraint for agricultural production in the woreda to remain low productive and subsistence type. Under normal conditions rain starts around June and it erratic as a result Atsbi Wemberta is one of the drought prone woredas in Tigray.

In Atsbi Wemberta woreda, there are 16 rural tabias /the lowest level of administrative structure which consists of 3-4 villages/ and 2 town dwellers associations with a total of 41,398 household heads (IPMS, 2004) of which about 30% are FHHs. Atsbi Wemberta has a total population of 112,639 of which 51% are female. Moreover, urban and rural population is 9609 and 103,030 respectively (Abebe, 2007). According to IPMS, 2004 two major farming systems have been identified in the woreda.

- Pulse/livestock farming system in which barley is the dominant crop, followed by pulses, sheep fattening, dairy, apiculture and vegetables.
- Apiculture/livestock farming system in which apiculture and goat rearing are the main activities. Besides different types of vegetables and fruits are also being introduced in the area.

The average household land holding of the woreda is about 0.5 ha. The important market oriented commodities are pulses, sheep fattening, dairy, apiculture, vegetables and spices (IPMS, 2004). Introduction of water harvesting technologies is becoming one of the food security strategies in Atsbi Wemberta woreda. With the increasing number of water harvesting schemes, especially with the construction of small ponds vegetables and spices are becoming important market oriented commodities. Prior to the introduction of ponds and wells, gravity irrigation was the major source of water for vegetables and spices production. Vegetables and spices are cultivated under full irrigation during the dry season (December/January-May/June). In the months of July and August, rainfall can be quite intensive and farmers grow vegetables and spices at their backyards with supplemental watering from the ponds or rivers.

At present, vegetables and spices are grown on about 1,416 ha of land benefiting about 10,334 households in Atsbi Womberta woreda. Currently the marketing of vegetables is on individual basis. Since farmers harvest vegetables homogenously and at the same time, prices fall significantly during harvest time. The marketing of vegetables also depends up on the longevity of the small ponds built by individual farmers.

### **3.2 Sampling techniques**

To select the tabias, purposive sampling was employed. The sampled tabias were selected based upon their road accessibility and potential production for vegetables and spices under irrigated and rain fed conditions. Accordingly, five tabias namely Hayelom, Adimesanu, Golgol Naele, Rubafeleg and Felegeweini were selected. Among the selected tabias, the respondents were stratified into beneficiary (those who participated in the value chains of vegetables and spices) and non-beneficiary (who did not participate in the value chains of vegetables and spices) FHHs and women in MHHs. The stratification in to beneficiary and

non-beneficiary and FHHs and women in MHHs was made so as to compare the income level, extension service provision and access to inputs, credit and agricultural technologies between FHHs and MHHs and to compare the decision making power, access to information and workload situation between FHHs and women in MHHs. The size of the sample was based on available fund, time and accessibility and not necessarily on the total population (Storck *et al.* 1991). Hence, the total sample size for the study was 108 beneficiary and non-beneficiary FHHs and women in MHHs. Hence, 82 beneficiaries and 26 non-beneficiaries were sampled randomly.

### **3.3 Methods of data collection**

Due to the complex nature of the subject value chains and its benefits and to avoid biases, mixed methods such as surveys, focus group discussions, observations, informal discussion with other community members and discussion with successful and unsuccessful women in the value chains were used to collect the primary data. Accordingly, data were collected by interviewing beneficiary and non-beneficiary FHHs and women in MHHs. Semi-structured interview schedule (Appendix 3) were prepared and pre-tested to include all quantitative and qualitative data pertaining to the proposed study.

Thus from the beneficiary group, 8 FHHs per tabia and 8 women in MHHs per tabia, in total 40 FHHs and 42 women in MHHs per woreda were interviewed. From the non-beneficiary groups, 12 FHHs per woreda (3 FHHs per tabia) and 14 women in MHHs (3 women per tabia) were interviewed. From the individual interviews information on economic, demographic, social aspects, services provided and challenges faced women in the value chains of vegetables and spices were collected.

For the survey enumerators were trained to undertake the interviews with different households. The training was focused on data gathering and interviewing methods. During data collection process the researcher was closely monitoring each enumerator and the gathered data was checked and crosschecked immediately on the spot.

Qualitative methods such as focus group discussion, observation and discussion with successful and unsuccessful women in the value chains, and informal discussion with other

community members were used to collect information. The qualitative information was focused on the comparison of benefits between beneficiary and non-beneficiary households from the value chains of vegetables and spices and efficiency of FHHs in the value chains of vegetables and spices. Besides, opportunities and challenges faced women farmers, the extension service provision for vegetables and spices producer women and men farmers and the decision making power difference between FHHs and women in MHHs was also collected. Open-ended questions were used to include all the qualitative data from the group discussion pertaining to the proposed study (Appendix 3).

Group discussion on the role and participation of women in the value chains of vegetables and spices was conducted with women and men farmers groups separately. The group discussion was conducted with a group of women farmers consists of 8 participants equally drawn from beneficiary and non-beneficiary FHHs and women in MHHs in each tabia randomly. Besides, group discussion was also conducted with men farmers consists of 9 participants equally drawn from beneficiary and non-beneficiary households in each tabia.

At tabia level, group discussion was conducted with DAs and tabia administrators (7 participants per tabia). The group discussion with DAs and tabia administrators was aimed to crosscheck the information obtained from the interviews and farmers group discussions. Further information on the extension service provision and information flow systems among women and men farmers and uptake of technologies in FHHs was also collected.

Group discussion was also conducted with women groups who retail vegetables and spices in the market. The group discussion was conducted in Atsbi, Habes and Haiki Meshal markets with market retailers groups which consist of 8-10 participants per market place. Information on participation level and benefits of women from the market of vegetables and spices, opportunities and challenges faced and the extension support they obtain was collected.

At woreda level, group discussion was conducted with supervisors, irrigation experts, women rural desk unit from the Office of Agriculture and Rural Development (OoARD) and experts from the Offices of Women's Affairs and Women's Association. In total about eight

participants were in the discussion group. The information collected from the group discussion at woreda level was aimed to crosscheck the information collected by interviews and farmers, DAs and administrators and women retailer groups.

Secondary data were collected from various published sources and unpublished office reports of regional Bureau of Agriculture and Rural Development, woreda Office of Agriculture and Rural Development and IPMS. The data for the price of vegetables, spices, cereals and pulses were also collected from the woreda Agriculture and Rural Development Office report.

### **3.4 Methods of data analysis**

To analyze and summarize the collected data a descriptive statistical method was employed. To simplify the analysis of gathered information, the collected data was pre-coded before entering into the computer. The quantitative data was analyzed using SPSS version 15.0. The analyzed data was presented and summarized using tables, percentages and graphs. Any idea that cannot be captured through quantitative analysis was analyzed qualitatively based on the ideas from the interview and discussion with different groups. Besides, variation on the methods and approaches of extension service that was successful and unsuccessful in enhancing women's participation and access to income in the value chains of vegetables and spices was explored and analyzed in each tabia.

## Chapter 4. RESULTS AND DISCUSSION

### 4.1. Demographic characteristics of respondents

**Age:** age is one of the household characteristics important to describe households' situation and can provide a clue on working ages of households. It is assumed that age would have a relationship with farmer's investment and decisions on the value chains of vegetables and spices. Similarly, the data on Table 1 reveals that the mean number of working age in MHHs beneficiaries was more than FHHs beneficiaries. The same holds true for the non-beneficiary households (Table 1). Hence less number of working age is likely to reduce benefits of FHHs beneficiaries from the value chains of vegetables and spices. This indication is in line with the findings of Mukhopadyay and Peri, (1999) and Tiruneh *et al.*, (2001) which indicated that FHHs are labor poor and they deemed to rent out their lands.

Table 1. Mean distribution of sample respondents by demographic variables (mean variable  $\pm$  SE).

Variables	Beneficiaries		Non-beneficiaries	
	FHHs	MHHs	FHHs	MHHs
Age of household head	44.2 $\pm$ 1.8	50 $\pm$ 2.2	48.3 $\pm$ 3.5	51.6 $\pm$ 3.6
Number of children (<14yrs)	3.4 $\pm$ 0.2	5.3 $\pm$ 0.35	5.7 $\pm$ 0.5	6.1 $\pm$ 0.5
Number of working age (14-64 yrs)	1.6 $\pm$ 0.14	2.2 $\pm$ 0.18	2 $\pm$ 0.25	2.5 $\pm$ 0.3

**Education:** It is obvious that education can influence productivity of farmers. Literate farmers are expected to be in a better position to get and use information which contributes to improve their farming practices. Hence, education was expected to influence participation in the value chains of vegetables and spices and adoption of newly introduced technologies and innovations. This study confirmed that FHHs beneficiaries were more illiterate (78%) than MHHs beneficiaries (48%). Furthermore, 28% of the MHHs beneficiaries and 5% of the FHHs beneficiaries were at primary education level. Simultaneously, 50% of the MHHs non-beneficiaries were primary education and literacy program completed, where as 17% of the FHHs non-beneficiaries were primary education and literacy program completed (Table 2).

In line to the above justification, FHHs beneficiaries were better in education level than FHHs non-beneficiaries which could be one of the factors for FHHs beneficiaries to participate in the value chains as compared to FHHs non-beneficiaries. However, the education level of FHHs in both beneficiary and non-beneficiary households was lower than their respective beneficiary and non-beneficiary MHHs. Moreover, in the group discussion it was indicated that most of the women in MHHs were illiterate as that of FHHs. The low literacy level of women in both beneficiary and non-beneficiary households could be an obstacle in optimizing their full potential in the value chains of vegetables and spices. This is because most of the information on vegetables and spices production is in a written manuals and guideline forms. This finding is consistent with the finding of Suleiman (2004) which indicated that MHHs are significantly more educated than FHHs in Ethiopia.

**Table 2.** Literacy level of respondent household heads (%), in Atsbi Wemberta, 2008.

Literacy level	Beneficiary households		Non-beneficiary households	
	FHHs (n=40)	MHHs (n=42)	FHHs (n=12)	MHHs (n=14)
Illiterate (can't read and write)	78	48	83	50
Literacy program completed (read and write)	10	17	9	36
Primary education (1-6)	5	28	8	14
Junior (7-8)	2	5	0	0
10 <sup>th</sup> grade complete	5	2	0	0

\*n=number of respondents

## 4.2 Socioeconomic characteristics of respondents

Based on group discussion and personal observation, the main source of income for the rural farmers was from crop and livestock production. Crop production includes cereals, pulses, vegetables and spices cultivated under rain fed and irrigation. Income from livestock production includes apiculture, dairy, fattening and poultry. It was indicated that farmers who own land obtain more income from crop production than from livestock. Moreover, majority of the farmers were also participated in off farm income generating activities such



as food for work, daily labor, petty trade (small shops and retailing of vegetables, spices and grain in the market).

**Land ownership and size;** In Atsbi Wemberta woreda, more than 85% of the population is dependent on agriculture for survival and land is their main resource. With regard to land ownership all respondents but one 25 years old youth own land (Table 3). The youth was participated in the value chains of vegetables and spices by renting and sharecropping in irrigated land. This data confirms that land ownership problem was not a factor for the non-beneficiary households for not participating in the production of vegetables and spices.

**Table 3.** Land ownership of respondent households (%), 2007.

Household type	Do you have your own land?	
	Yes	No
Beneficiary FHHs	100	0
Beneficiary MHHs	97.6	2.4
Non-beneficiary FHHs	100	0
Non-beneficiary MHHs	100	0

The data revealed that the mean land size of beneficiary FHHs was 1.5 tsmdi and that of MHHs was 2.4 tsmdi. Moreover, 58 % of FHHs own about 0.5-1.5 tsmdi of land where as 85% of MHHs own  $\geq 2$  tsmdi of land (Table 4). The land size difference between the beneficiary FHHs and MHHs could be due to the large family size in the MHHs.

**Table 4.** Comparison of cultivable land size of beneficiary respondents (%), 2007.

Household type	Cultivated land size in tsmdi (1 tsmdi=0.25 ha)		
	0.5-1.5	2-3	$\geq 3.5$
Beneficiary FHHs	58	41	0
Beneficiary MHHs	15	73	12

On the contrary, there was no much difference in land quality between FHHs and MHHs and this was due to the land redistribution system that land was shared among the households on quality bases. This finding is contrary to the report by Suleiman, (2004) that indicated FHHs own poor quality of cultivable land than MHHs in Ethiopia.

**Table 5.** Comparison of cultivable land quality between beneficiary FHHs and MHHs, (%).

Household type	Land quality		
	Low	Medium	High
Beneficiary FHHs	30	48	22
Beneficiary MHHs	31	57	12

The relationship between gender and land management (sharecropping or renting) is given in Table 6. MHHs had better access to sharecrop or rented in land than FHHs. The survey showed that there were no MHHs who share cropped or rented out their land but 15% of FHHs respondents sharecropped or rented out their land. Participants of the group discussion indicated that the difference in access of sharecropping or renting in land between FHHs and MHHs was due to labor and draught power shortage on FHHs and the cultural taboos against women's plowing. This result is in agreement with Suleiman (2004) and Pender and Gebremedhin (2007) findings which indicated MHHs have better access to sharecrop/rented in land where as FHHs have less labor and draught power.

**Table 6.** Access of beneficiary households to rent/sharecrop in or to rent/sharecrop out land.

Household type	Did you rent/sharecrop in land		Did you rent/share crop out your land?	
	No	Yes	No	Yes
FHHs	92.5	7.5	85	15
MHHs	57.1	42.9	100	0

### **4.3 Participation level of beneficiary FHHs and MHHs in vegetables and spices value chains**

#### **4.3.1 Participation of FHHs and MHHs in vegetables and spices production**

According to 2007 report of Atsbi Wemberta woreda OoARD, vegetables and spices covered about 12% of the total cultivated land in 2007. About 1.25% of the total households were participating in vegetables and spices production. Of the total participants in vegetables and spices production 28.5% were FHHs. In general the area cover of vegetables and spices as well as the number of households participating in vegetables and spices production is steadily growing year after year.

Comparatively, the area coverage and number of households participated in vegetables and spices production was more in MHHs than FHHs (Table 7). Thus, due to the larger area covered by vegetables and spices in MHHs beneficiaries; they were more benefited and getting more income than FHHs beneficiaries from the value chains of vegetables and spices. The difference of land size covered by vegetables and spices between the FHHs and MHHs beneficiaries could be due to men's opportunity to use treadle and motor pumps, larger cultivable land size, and opportunity to sharecrop/rented in land, access to labor and draught power to manage and cultivate their land.

**Table 7.** Participation of FHHs and MHHs in vegetables and spices production at wereda level, 2004-2007.

Production year	Total cultivated area at wereda level (ha)	Number of participant households and land size covered by vegetables and spices			
		FHHs		MHHs	
		Area covered (ha)	Number of beneficiaries	Area covered (ha)	Number of beneficiaries
2004	12272	118.08	1055	303.64	2713
2005	12775	168.02	1448	496.4	3916
2006	12299	217.15	2483	715.72	8183
2007	12142	340.05	2944	1076.8	7390

Source: Atsbi Wemberta wereda Office of Agriculture and Rural Development, 2008.

The collected data shows that the participation level of FHHs beneficiaries who cultivate their own land in the production process of vegetables and spices was about 80%. Whereas that of FHHs beneficiaries who sharecrop out their land was less than 20%. This is because FHHs who share crop out their land were not participated in the production activities of vegetables and spices. On the other hand, the participation level of women in beneficiary MHHs in the production process of vegetables and spices was better than those FHHs beneficiaries who sharecrop out their land. This finding implies full possession and utilization of land can increase the participation level of women in the value chains of vegetables and spices.

#### **4.3.2 Participation of FHHs and MHHs in vegetables and spices marketing**

According to the data obtained from women retailer groups, participation of women as retailers in the market of vegetables and spices was greater than 80%. And most of the

women retailers in Atsbi and Haiki Meshal were FHHs. Participants of the retailer groups described that they were not efficiently participating in the market due to their low financial capacity, limited mobility to buy vegetables from different alternative markets, lack of market information and coordination. However, women retailers have access to credit they are afraid to borrow large amount of money.

From the group discussion it was indicated that men were only participated as wholesalers in vegetables and spices market. The difference in participation between women and men was due to better financial capacity of men to rent storage and to buy large amount of vegetables and supply continuously to the market. Besides, men have better access to market information and mobility to buy vegetables from cheaper areas, which makes them more competitive than women. In addition men did not also have rotting and weight lose problems since they sale the whole produce at once.

Generally the supply of vegetables and spices in the local market is highly dependent on seasons. For instance, during high supply women retailers buy cabbage and swiss chard from farmers of nearby tabias. They buy potatoes, tomatoes and garlic mostly from wholesalers in Atsbi, and in time of scarcity they get vegetables from Mekelle and Wukro. Spices were more profitable for the retailers since there was no lose of weight and rotting and spices can be stored for longer period of time. Unlike the study conducted by Koenig *et al.*, (2008) which indicated women retailers are profitable when vegetable supply is high; women retailers in Atsbi wenberta were more profitable when supply is scarce since they sale all the vegetables they bought without any lose and competition with producers.

#### **4.4 Role of women in the value chains of vegetables and spices**

The study shows that FHHs were involved in almost all activities in the value chain procedures except plowing, which is culturally considered as men's duty. Women in MHHs involved in 40% of the activities such as seedling management and selling, guarding, harvesting, grading, retailing and selling of produce at nearby market more than men. They did also participate on other activities together with other family members except plowing (Fig.1; Appendix 1). Besides, in beneficiary MHHs men were participating more than women in input purchase, seed bed preparation, land preparation, buying seedlings, planting, watering, harrowing, transporting and wholesaling.

FHHs were involved in almost all activities in the value chains (Fig.1). However, participants in the group discussion have indicated that FHHs were less efficient than MHHs, since FHHs lack labor due to their various responsibilities at farm, off farm and household chores. The data from the group discussions also revealed that women lack access to different alternative markets to get better price, lack information and exposure, and are afraid to borrow larger amount of money on credit and a theft problem which is often manifested on women's farms influence their initiation to invest in the value chains of vegetables and spices. Consistent with this finding, Almaz (2000) also found that women's farming productivity and efficiency levels often remain low due to lack of knowledge and skill on production and marketing and cultural influences.

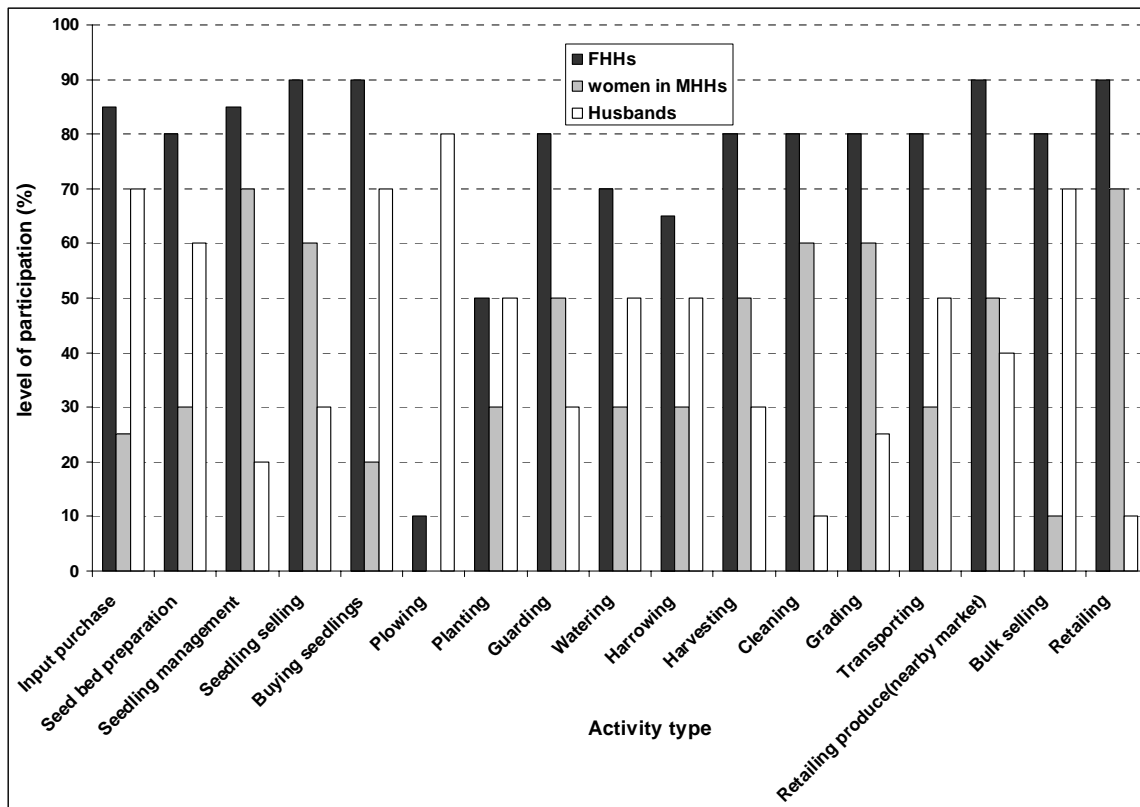
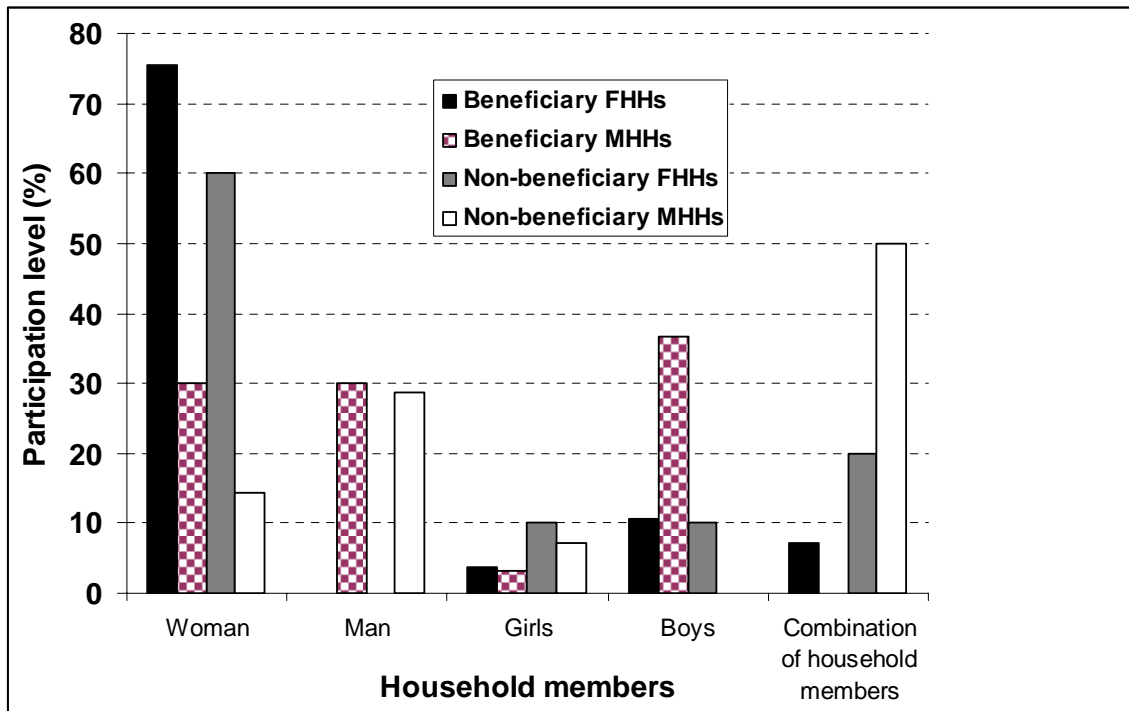


Figure 1: Comparison of roles of FHHs and women in MHHs in the value chains of vegetables and spices.

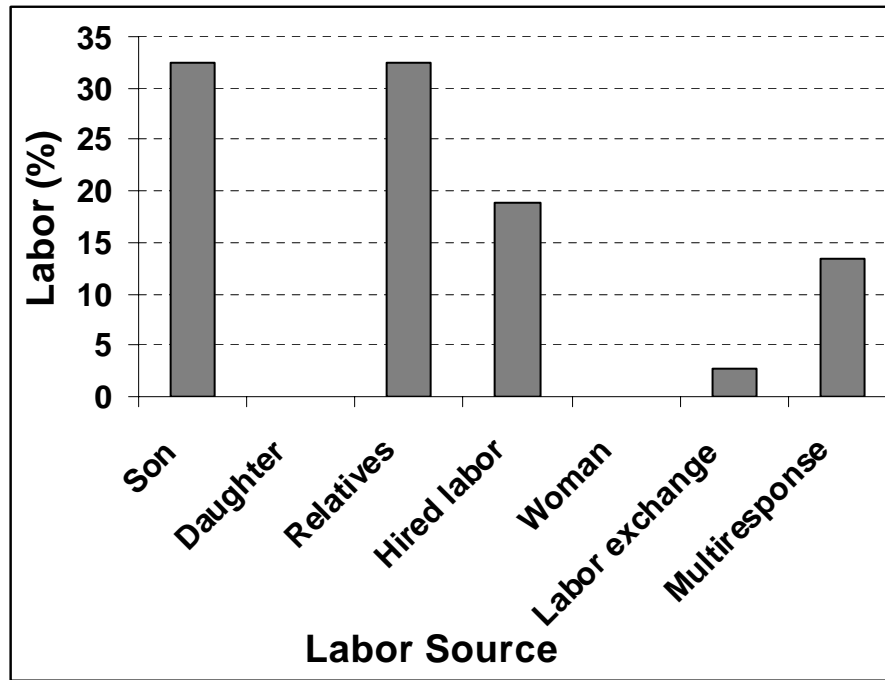
Both FHHs and women in MHHs were also involved in off-farm income generating activities. However, FHHs in both beneficiary and non-beneficiary households were involved more by themselves in the off farm income generating activities than other family members. The involvement of women in MHHs was lower than that of FHHs (Fig.2). This

result revealed that women in both beneficiary and non-beneficiary MHHs were less burdened in off farm income generating activities than FHHs, probably due to the access of labor in MHHs than FHHs.



**Figure 2.** Involvement of household members on off farm income generating activities (%)

This study revealed that, 90% of FHHs beneficiaries and 77% of FHHs non-beneficiary respondents cultivate their land by their own. Besides, above 60% of FHHs beneficiaries get labor to plow their land from their sons and relatives the rest being contributed from hired labor and labor exchanges (Fig.3). However, the labor from relatives and particularly the labor from exchange may not be effective to cultivate the land on time and properly as that of the owner which can directly affect time of planting and productivity as well as market. Consistent with this study Pender and Gebremedhin (2007) reported that human capital affects land management.



**Figure 3.** Labor source of beneficiary FHHs to cultivate land

#### **4.5 Workload of women in beneficiary households in the value chains**

Almost all women in beneficiary FHHs and MHHs indicated that there was additional workload due to their participation in the value chains of vegetables and spices (Fig.4). However, 5% of the FHHs beneficiaries who sharecropped out their land indicated that there was no additional work load. This is because the FHHs who sharecrop out their land may not participate on the process of vegetables production. Women in both beneficiary households appreciate the workload positively. They pointed out that before their participation in the value chains they were not using their time efficiently. However, at this time they have developed a good working culture, they are aware of efficient time utilization and their livelihood condition has improved significantly.

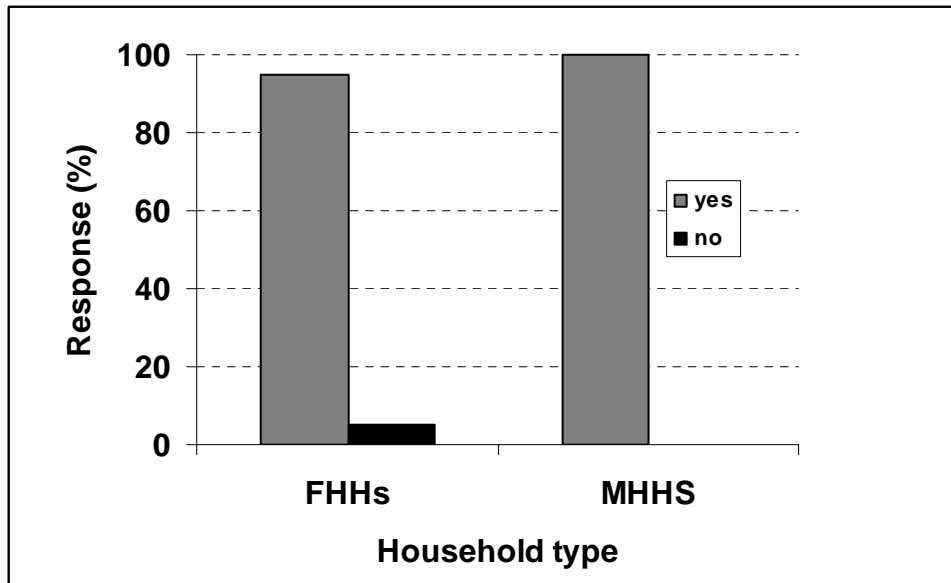


Figure 4. Workload condition of beneficiary FHHs and women in MHHs in the value chains of vegetables and spices (%).

The women in both beneficiary households indicated that they solve the workload added by sharing of tasks among family members, scheduling their activities, hiring labor during peak time (FHHs) and introducing labor saving technologies such as treadle and motor pumps, energy and time saving technologies such as MIRT stove. Moreover, respondents noted that harrowing, watering and seedbed preparation sequentially were the most difficult activities in the production process of vegetables and spices for women. Comparatively FHHs were more burdened in the value chains of vegetables and spices than women in MHHs. This could be due to FHHs' responsibility in the household, in the field and off-farm income generating activities. In addition, FHHs have less financial capacity than MHHs to use time saving technologies such as treadle and motor pumps that can solve the workload on watering of vegetables and spices. On the other hand, participants of the group discussion have indicated that women in MHHs were more loaded at home to serve the husband and the large family.

#### **4.6 Decision making level of female headed households and women in male headed households**

There was a substantial difference on the decision making power of what, when and how to produce and use of income from vegetables and spices between FHHs and women in MHHs (Table 8). FHHs involved on 90% of the decisions on what, when and how to produce



vegetables and spices compared to women in MHHs (25%). Similarly, FHHs make most of the decisions (95%) on the use of income from vegetables and spices compared to women in MHHs (20%). Moreover, in FHHs children decide about 10%, where as in MHHs the man was the key decision maker in both process of production (70%) and decision on the use of income (75%). This result agrees with Chadha *et al.*, (2003) and Bishop-Sambrook, (2004) findings indicating that men enjoy the use of a relatively wide range of resources and they control nearly all-household resources in which women do not benefit from their efforts. Similar result was also reported by Chadha *et al.*, (2003) which described that despite women’s central role in the production of vegetables and spices; they do not have much control over resources and do not benefit fully from their efforts. The difference in decision making power between FHHs and women in beneficiary MHHs could be as a result of less exposure and less negotiating power of the women and male domination in the MHHs as compared to FHHs. To confirm the decision making power and use of income from vegetables and spices of women in MHHs, discussion was conducted with a woman in Ruba Feleg tabia named by Weizero Zewdu, and the situation was stated in Box 1.

Box 1. Discussion with a woman in male headed household about decision making power.

*Weizero Zewdu is a woman in MHHs in Rubafeleg tabia and she was asked if they have borrowed money for vegetables and spices production in 2007. She indicated that she knows her husband has borrowed money but she did not know how much he borrowed, what the husband did with the money, whether he has paid back the loan or not and how much money he has. Weizero Zewdu has also indicated that deciding on the money is her husbands’ responsibility and mandate.*

Table 8. Decision making level of FHHs and women in MHHs in the value chains of vegetables and spices (%).

Activity type in the value chain of vegetables and spices	Female headed households				Male headed households				
	Woman	Children	Relatives	Hired labor	Woman	Man	Children	Relatives	Hired labor
Deciding what, when and how to produce	90	10	0	0	25	70	5	0	0
Deciding on the use of income from vegetables and spices	95	5	0	0	20	75	5	0	0

The study also reveals that the difference in decision making power was not only between FHHs and women in MHHs, but there was also difference in decision-making power among the women in MHHs. The difference between the women in MHHs could be due to wealth status of women's parents, presence or absence of matured children in the household and absence/presence of male relatives of the woman. Participants in the group discussion indicated that the decision making power of women in MHHs beneficiaries was better than women in MHHs non-beneficiaries. This decision making power difference of women between beneficiary and non-beneficiary MHHs could be due to women's access to better income in the MHHs beneficiaries from sale of vegetables and spices. Consistent with this study Chadha *et al.*, (2003) found that vegetable production has direct contribution to raise women's income.

The result of this study indicated that in MHHs the husband decides about 60-80% on financial and farming aspects, social or community issues, participation in extension training or meetings and purchase or sale of house equipments. The only thing that women decide more than the husband was on kitchen utensils (80%). Both husband and wife decide equally on children's issues (Table 9). Similarly in the group discussions, it was indicated that 48% of the women in MHHs do not decide on large equipments, large amount of money, on cultivation and seeding, on farm implements and larger animals such as ox and cattle. This implies that husbands are deciding on high value assets than wives. The decision making power difference between the husband and wife indicated that husbands can decide without the knowledge and consent of his wife but wives can't. Moreover, in Hayelom tabia participants in men group discussion indicated, Muslim women have less decision making power on their resources than Christian women. On the other hand, the decision-making power and involvement of women in beneficiary MHHs was better than those FHHs beneficiaries who sharecrop out their land. Participants in the group discussion indicated that involvement of women in the value chains of vegetables and spices generally increases their decision making power.

**Table 9.** Decision making power of household members in beneficiary MHHs in the value chains of vegetables and spices (%).

Household members	Financial aspects	Farming aspects	Kitchen utensils	Social/ Community issues	Participation in extension, training, meeting	Children's situation including schooling	House equipment with higher value
Husband	70	60	10	60	80	45	70
Wife	20	30	80	30	10	45	20
Children	10	10	10	10	10	10	10

## 4.7 Institutional Factors

### 4.7.1 Information flows and service provision

**Field supervision:** DAs serve farmers in consulting, supervising field activities and providing information with regard to vegetables and spices management, inputs and market either by direct contact with farmers or by organizing different forums and trainings. With regard to the frequency of contact with individual farmers, the number of contact occasions with DAs in Atsbi Wemberta ranges from 1-8 per month. The range of contact occasions with DAs for FHHs beneficiaries was 1-6 per month, of which 90% of them were visited 1-3 occasions per month. While MHHs beneficiaries were visited 1-8 occasions per month, of which about 11% and 30% had 4-6 and  $\geq 7$  contact occasions per month with DAs respectively. On the other hand, the number of contact occasions for majority of FHHs non-beneficiaries (50%) and 56% of MHHs non-beneficiary respondents was 1-3 occasions per month (Table 10). The study also shows 42% of FHHs non-beneficiaries and 37% of MHHs non-beneficiaries had no contact occasion with DAs. Thus, it is possible to conclude that MHHs beneficiaries had frequent contact than FHHs beneficiaries whereas FHHs and MHHs non-beneficiary households had less frequency of contact with DAs compared to FHHs and MHHs beneficiary households. This opportunity of frequent contact of MHHs beneficiaries with DAs favors them to get better information and acquire knowledge and skill than the other households. Hence, this may contribute MHHs beneficiaries to earn better income as compared to FHHs beneficiaries, FHHs and MHHs non-beneficiaries. Consistent with this result, Tiruneh *et al*, (2001) and Dagnachew (2002) found that extension agents are most likely to visit male farmers than female farmers.

**Table10.** Frequency of contact occasions of beneficiary and non-beneficiary households with development agents (%).

Household type	1-3 occasions / month	4-6 occasions/ month	≥7occasions/ month	No contact
Beneficiary FHHs	90	10	0	0
Beneficiary MHHs	59	11	30	0
Non-beneficiary FHHs	50	8	0	42
Non-beneficiary MHHs	56	7	0	37

Beneficiary and non-beneficiary respondents pointed out, women had knowledge and skill gap in order to be efficient in the value chains of vegetables and spices. Hence, women need additional extension services /support especially practical training on the areas of vegetables management, maintenance and use of drip irrigation, treadle and motor pumps, selection of better varieties, vegetable pests and information on market access and profitability. Consistent with this finding CTA, (2002) noted that women need information on a wide range of subjects, including agricultural production, processing, marketing and exchange of indigenous knowledge than men.

Women respondents have indicated their preference for extension service provision (Table 11). There was difference in preference for female and male DAs for extension service provision. However, more FHHs and MHHs non-beneficiaries showed a preference for female DAs. But, the preference of the women in non-beneficiary households for female DAs may not be based on the actual service they obtained. The respondents who prefer female DAs for extension service provision indicated that female DAs can internalize women's problems and needs easily and they are free and open to discuss their problems with female DAs. Thus, the presence of female DAs could be a better approach for better dissemination of information on the value chains of vegetables and spices for female farmers. This result coincides with the findings of Dagnachew (2002) that indicating male dominated extension system restrains DAs from contacting and working with women due to the cultural taboos and value systems.

**Table 11.** Preference of extension service provision by beneficiary and non-beneficiary respondents (%).

Household type	From whom did you get better extension service?		
	Female DAs	Male DAs	Equal
Beneficiary FHHs	56	18	26
Beneficiary MHHs	47	18	35
Non-beneficiary FHHs	64	29	7
Non-beneficiary MHHs	83	8	9

**Situation of extension service provision:** Majority of women respondents indicated that there was no separate extension service type provided to women and men farmers (Table 12). On the other hand, 24% and 25% of FHHs beneficiaries and women in MHHs beneficiaries respectively indicated that there was difference in extension service provision between women and men. However, the difference was basically on the frequency of contact with DAs and the attention given to women as producers. In the group discussions, participants indicated that women did not get enough up-to-date information on the value chains of vegetables and spices. This is because women have less access to radio and training, women are mostly staying at home and they do not have the exposure and opportunity to communicate and discuss with different people.

**Table 12.** Extension service provision difference in beneficiary female and male headed households (%).

Household type	Was there difference in extension service provision?	
	Yes	No
Beneficiary FHHs	24	76
Beneficiary MHHs	25	75

Respondents were asked to rank the extension service provided by different stakeholders. Hence, Woreda Office of Agriculture and Rural Development was ranked as the primary supplier of inputs, field support on management of vegetables and spices and market information. Dedit Credit and Saving Institute (DECSI), and Credit and Saving Cooperatives were ranked as primary and secondary institutions for credit supply respectively. FHHs have ranked neighbors third as source of input supply, management and market information (Table 13). Moreover, different institutions including neighbors were supplying inputs for FHHs. Neighbors were supplying improved seeds of vegetables and spices which they multiply by themselves in their field. FHHs borrow farm implements from

MHHs. Beneficiary households indicated that vegetables and spices seed was mostly supplied at tabia level by DAs. Thus, access of seed at tabia level would enhance women's involvement in the value chains of vegetables and spices. Generally both FHHs and MHHs beneficiaries ranked the extension provision as medium in the study area (Table 14).

**Table 13.** Service provision rank of beneficiary households by different institutions.

Assisting body	Service type									
	Input supply		Management		Formal training		Market information		Credit	
	FHHs	MHHs	FHHs	MHHs	FHHs	MHHs	FHHs	MHHs	FHHs	MHHs
Woreda OoARD	1	1	1	1	1	1	1	1	3	4
Neighbors	3	-	3	-	-	-	3	-	4	-
Relatives	-	-	-	-	-	-	-	-	-	-
Cooperatives	4	3	-	-	-	-	-	4	2	2
DECSI	-	-	-	-	-	-	-	-	1	1

**Table 14.** Rank of extension service provision between female and male headed Households.

Household type	Rank of extension service provision (%)		
	Low	Medium	High
FHHs	25	50	25
MHHs	22	63.4	14.6

**Training:** Training is one of the sources of information to farmers on the value chains of vegetables and spices. The result of the study revealed that the number of women trained as well as the frequency and length of training time was different among the different women categories (Table 15). The result of the study indicated that FHHs beneficiaries were trained more frequently than women in MHHs beneficiaries and the women in non-beneficiary FHHs and MHHs. Moreover, women in non-beneficiary MHHs were least participated in the training of vegetables and spices in 2007. This frequent opportunity of training builds the capacity and decision making power of FHHs beneficiaries. The low participation of women in MHHs beneficiaries and non-beneficiaries in trainings as compared to their respective beneficiary and non-beneficiary FHHs could be due to the frequent involvement of husbands in training. Similar result was reported by Ethiopian Agricultural Research Organization (EARO) (2000) which indicated that major emphasis in agriculture is given to men's

activities while the role of women has been ignored; particularly women in MHHs are by passed in the transfer of improved agricultural technologies. On the other hand, respondents who got training indicated that the way of training delivery was not easily understandable and applicable for them due to their low education status.

**Table 15.** Frequency and length of training for women in beneficiary and non-beneficiary households (%), 2007.

Household type	Number of participants trained (%)	Training frequency (times)	Length of training (days)
Beneficiary FHHs	37	2	4
Women in beneficiary MHHs	24	1	4
Non-beneficiary FHHs	17	1	3
Women in non-beneficiary MHHs	14	1	2

As indicated above, training access of women in MHHs was very low. Besides 94% of women respondents in MHHs beneficiaries indicated that their husbands did not share them information after training. Whereas 6% of the women in MHHs beneficiaries got information from their husbands after training but the information transferred was not easily understandable and practicable for them. Hence, women in MHHs were participated in the value chains without having adequate knowledge and skill on the newly introduced technologies. This result is consistent with Kaske, (2007) and Saito and Daphne, (1992) findings which indicated agricultural knowledge acquired by male, unless they themselves will benefit, often does not trickle across effectively to women if they did, the women had difficulty in understanding the second hand advice or did not find it relevant to their needs.

In presence of the husband in the tabia no respondent woman was participated on vegetables and spices training. However, 26% of the women respondents in MHHs beneficiaries have indicated that they got training when the husband was either sick, was not present in the village or old to manage vegetables and spices. This finding is in line with Bishop-Sambrook, (2004) report which stated that it is culturally difficult for women to represent their husbands in training when their husband is present. Women respondents who got training and participate in field days have stated that the opportunity of training and field days has improved their knowledge on the use of inputs, management of vegetables and

generally it has improved their productivity. However, most of the time trainings and demonstration site visits of vegetables and spices were focused on men, particularly if it is conducted outside of their tabia. This result agrees with Chadha *et al.*, (2003) report that indicated field day and agricultural shows less emphasize to women in Malawi.

There was discussion with successful women in the value chains of vegetables and spices in the study tabias to assess the approaches employed and extension services they obtain. Of the women interviewed the experience of Weizero Lemlem Kahsay (Hayelom tabia) and Weizero Lemlem Desta (Golgol Naele tabia) is considered as a sample case to clarify the situation (Box 2).

Box 2. Discussion with successful women in the value chains of vegetables and spices.

*Weizero Lemlem Kahsay and Weizero Lemlem Desta indicated that the secret behind their success in the value chains of vegetables and spices was their involvement in different trainings related to vegetables and spices, field visits within and outside of their tabias and their participation in different forums give them a good opportunity to gain practical knowledge and skill on the value chains. They had also an opportunity of listening to radio and frequent visit and consultation with DAs. Moreover, Lemlem Kahsay was plowing her plot of land by her own and she rented and sharecropped in land from others. This contributes for the timely and well managed production of vegetables and spices and better income as compared to other women.*

#### **4.7.2 Access to credit and inputs**

**Credit:** The availability of credit facilitates technology adoption. It is more essential to introduce farm technologies like treadle and motor pumps, which the farmers perceive the technology to be costly to engage in the production of vegetables and spices. In the year 2007 about 29% and 40% of MHHs beneficiaries and FHHs beneficiary respondents respectively had borrowed money for vegetables and spices production. Among the beneficiaries who took loan, 73 % of FHHs and 70% of MHHs have repaid their loans (Table 16). Furthermore, in the group discussion credit access for women was ranked as high (50%), medium (43%) and low (7%). This indicates that FHHs have almost equal access to credit with MHHs. Though, significant number of FHHs took credit; the amount of



money borrowed was less as compared to MHHs. The small amount of credit taken by FHHs indicates that their investment on agricultural inputs specifically on treadle and motor pumps was low. About 65% of FHHs and 69% of women in MHHs respondents indicated that credit is an important factor to improve the productivity of vegetables and spices. They also indicated that credit is essential to introduce technologies such as purchasing of agricultural inputs, to buy oxen and donkey to transport the produce to the market and to hire labor. Generally, credit empowers poor women who do not have access to credit from individuals. Consistent with this result (Feder *et al.*, 1985) found that credit programmes enable farmers to purchase inputs or acquire physical capital needed for technology adoption. In other words, the availability of credit facilitates technology adoption. The primary source of credit in the study area is DECSI followed by Credit and Saving Cooperatives (Table 16).

**Table 16.** Source of credit for beneficiary female and male headed households (%) and loan repayment status.

Household type	Source of credit			Loan repayment status	
	DECSI	Cooperatives	Multiple response	Not paid	repaid
FHHs	73	13	14	27	73
MHHs	50	30	20	30	70

**Input supply:** There was no difference in access to agricultural inputs, between FHHs and MHHs in the study area. Beneficiaries were using different inputs to produce vegetables and spices such as improved seeds, fertilizer, pesticides, treadle and motor pumps and small farm implement /hand tools/. In 2007, about 85% of the FHHs and 97% of the MHHs beneficiaries used different inputs whereas about 10% of the FHHs respondents use small hand tools and 5% of MHHs respondents use fertilizer. Hence utilization of different inputs in an integrated way was better in MHHs than in FHHs. The difference in input utilization between the two households could be due to the low financial capacity and knowledge of FHHs on inputs and aversion of input associated risks.

## **4.8 Benefits from the value chains of vegetables and spices**

### **4.8.1 Direct benefits from the value chains**

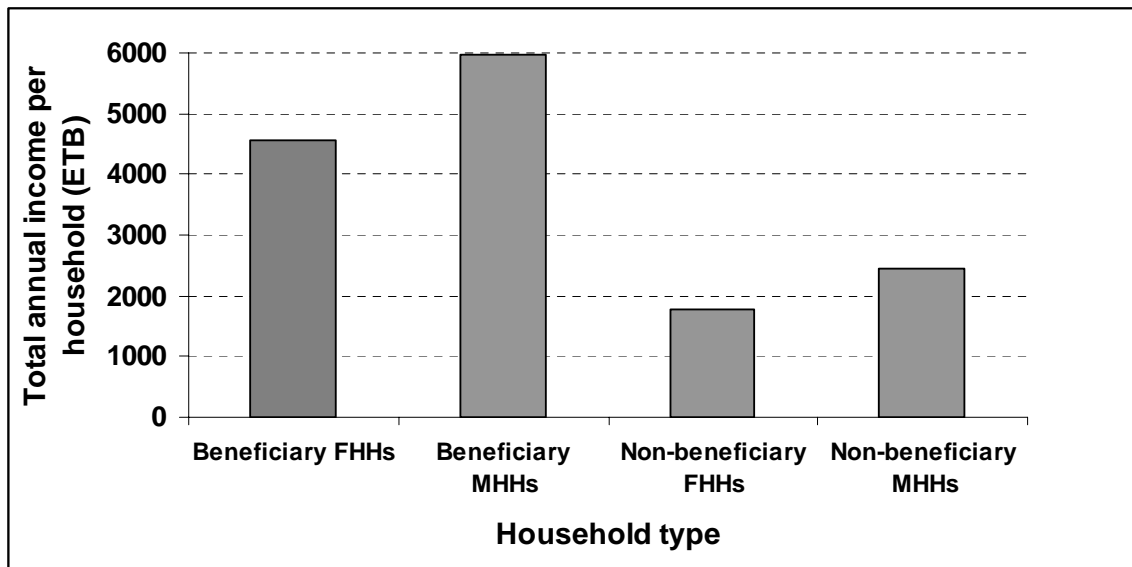
Women respondents indicated that, all the women in MHHs and 90% of FHHs got cash income from the value chains of vegetables and spices. FHHs and MHHs beneficiary respondents indicated that the money from the value chains of vegetables and spices was used for buying food items and cloths, school fee, saving, house construction and buying of house furniture. Of the total FHHs beneficiary respondents 10% indicated that they used the money mainly for buying food items. Besides, some FHHs produce few amounts of vegetables which can be used mainly for home consumption. The FHHs that do not get cash income and that use the money for buying food may have produced vegetables in a small scale due to labor /water shortage.

The study revealed that irrigated vegetables were more productive and free from disease and rotting while rain fed vegetables were easily damaged by rain and hail. Moreover, irrigated vegetables were more profitable since they have better quality and there was good price in the dry season where the supply of vegetables is low. As observed in the field and indicated in the group discussions, FHHs produce more vegetables and spices under rain fed than under irrigation as compared to MHHs. Of the beneficiary respondents 85 % of MHHs and 93% of FHHs indicated that irrigated vegetables and spices were labor and input intensive than rain fed. Irrigated vegetables and spices production need high cost inputs of water lifting devices, fuel and maintenance costs as well as intensive labor for seedbed preparation and harrowing. The high cost of inputs and intensive labor use in irrigated vegetables and spices might be the key constraints in FHHs to benefit from vegetables and spices production.

As indicated in the different group discussions, MHHs were more profitable than FHHs in the value chains of vegetables and spices. This is because men have better access to different alternative markets to sale their produce with better prices while women sale their produce at nearby markets with low prices. Moreover, shortage of information, lack of exposure and theft problems encountered in women's fields contribute to low profitability of women from the value chains of vegetables and spices. Pender and Gebremedhin (2004) indicated that

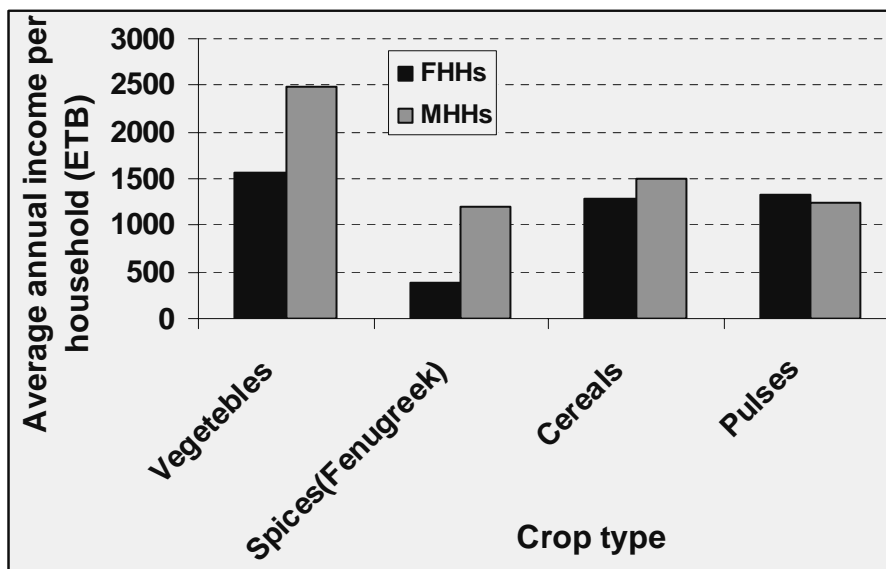
participation in marketing cooperatives has the largest impacts on both vegetables production and income. However, FHHs in Felege Weini tabia were not members of potato cooperatives to benefit from their produce and market outlet.

Beneficiary FHHs earn the best total annual income (4561 ETB) from vegetables, spices, pulses and cereals than non-beneficiary FHHs (1785 ETB) and MHHs (2462 ETB). On the other hand, beneficiary FHHs earned lower total annual income than beneficiary MHHs (5969 ETB) (Fig.5). In 2007, the total annual income obtained from vegetables, spices, pulses and cereals was higher in beneficiary households than non-beneficiary households. This income difference between beneficiary and non-beneficiary households could be due to production of multiple crops through irrigation and rain fed and input use in the beneficiary households. However, the total annual income of FHHs from vegetables, spices, pulses and cereals was less than the total annual income of their respective MHHs in beneficiary and non-beneficiary households.



**Figure 5.** Total average annual income obtained by respondent households from vegetables, spices, pulses and cereals, 2007.

The average annual income earned from vegetables and spices was by far higher in beneficiary MHHs than beneficiary FHHs (Fig.6). Lack of labor, market outlet, skill and knowledge and inefficiency on the production of vegetables and spices of FHHs beneficiaries could be the reason for the income difference between the two beneficiary households.

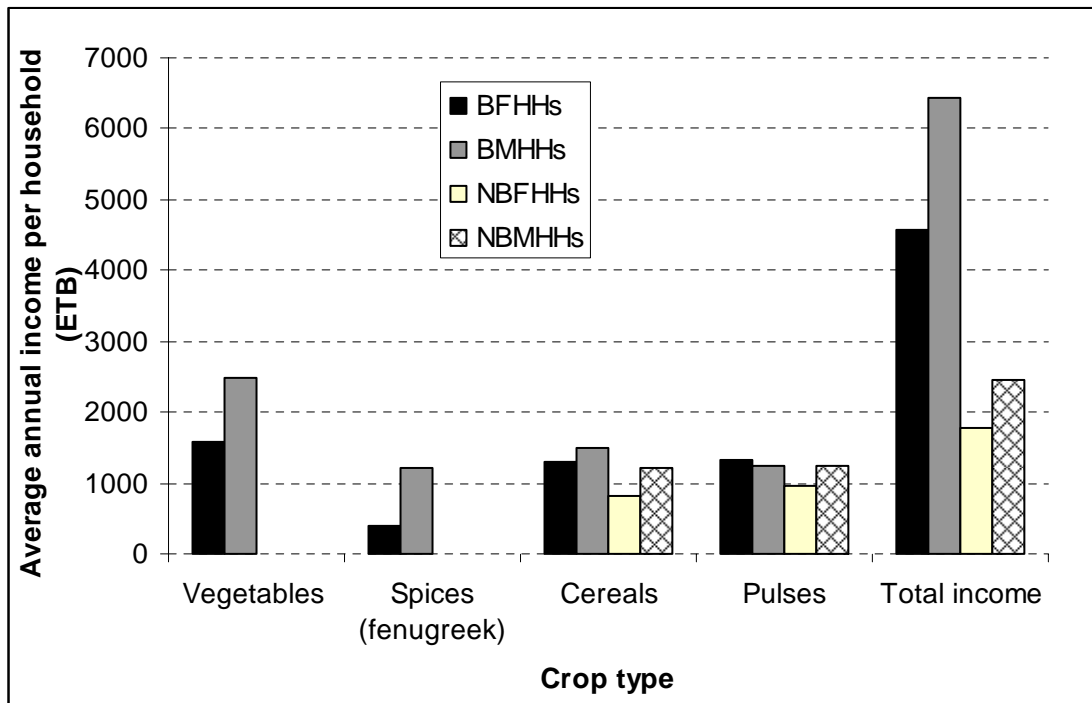


**Figure 6.** Annual average income of beneficiary female headed and male headed households from vegetables, spices, pulses and cereals, 2007

Respondents indicated that there was no significant difference in the type of vegetables grown in both FHHs and MHHs. The difference was in area coverage under vegetables, yield obtained and income earned from the vegetables and spices. MHHs were producing labor intensive vegetables such as potato, tomato, cabbage and pepper while FHHs were more focused on less labor intensive vegetables and spices such as Swiss chard, fenugreek and onions (Appendix 2). FHHs were producing Swiss chard, fenugreek and onions due to their ease of management, early maturity (Swiss chard), easy to transport; adaptability, frost resistance, availability of seed and the women had better knowledge on their management as compared to other vegetables.

The total area covered by cereals and pulses under irrigated and rain fed was bigger in both beneficiary households as compared to the area coverage by vegetables and spices. However, the income obtained from vegetables and spices was much higher than the income from cereals and pulses (Fig.7; Appendix 2). This difference in income could be due to the low price of cereals and pulses in the market as compared to vegetables and spices. In line with this result, Subramanian *et al.*, (2000) indicated that both female and male farmers engaged in the production of vegetables and spices earn higher net farm incomes than farmers engaged in cereal production alone. Similarly Chadha *et al.*, (2003) reported the experience of vegetable producers who generate five to eight times more profits than cereal farmers in India. On the other hand, the mean income earned from the sales of vegetables

and spices by MHHs beneficiaries was much higher than that of the income earned by FHHs. However, women in MHHs do not have much access to use this money.



**Note:** BFHHs - beneficiary female headed households  
 BMHHs - beneficiary male headed households  
 NBFHHs - non-beneficiary female headed households  
 NBMHHs - non-beneficiary male headed households

Figure 7. Comparison of annual income obtained by beneficiary and non-beneficiary households in 2007.

The study revealed that about 43% of the FHHs respondents rise and sale vegetables seedlings which were more than the number of MHHs respondents (24%). However, the amount of money earned was higher in MHHs than FHHs (Table 17). Probably FHHs may rise seedlings under smaller plots than MHHs and they may not produce quality seedlings as that of MHHs. Seedlings can be raised on small plots and earn money as high as 1000 ETB per person (Box 3).

Box 3. Profitability of seedling rising.

*Lemlem Desta one of the FHHs respondents in Golgol Naele tabia indicated that rising and selling of seedlings was profitable and does not require much space. In 2007, she got more than 1000 ETB from the sale of seedlings by rising seedlings under 2mx3m plot of land.*

Similarly, Subramanian *et al.*, (2000) reported that vegetables and spices production provides new and profitable sources of income for women in India. Moreover, the respondents who did not rise and sale seedlings pointed out that they could not rise seedlings due to lack of sufficient water and labor.

Beneficiary respondents indicated that they produced vegetables and spices 1-3 times in 2007 (Table 17). However, FHHs and MHHs showed slight difference in the frequency of producing vegetables and spices. The difference in frequency of production between the two beneficiary households could be mainly due to scarcity of labor by FHHs. Consistent with this result Tiruneh *et al.*, (2001) indicated that gender biased constraints have reduced women's efficiency as farmers and managers of resources.

**Table 17.** Production frequency and annual income from sale of seedlings in beneficiary households (%), 2007.

Household type	Production frequency of vegetables and spices per year			Income from sale of vegetable seedlings (ETB)	
	Once	Twice	Three times	≤150 Birr	>150 Birr
FHHs	49	46	5	71	29
MHHs	38	52	10	57	43

Processing of vegetables adds value to the processed products and generates income for the households. In Atsbi Wemberta woreda in 2007, 12% of the women in MHHs and 5% of FHHs practiced processing of vegetables such as garlic, onion and pepper in a dried form during plenty of supply and most of them were using the dried vegetables for home consumption. However, the majority of the respondent women did not process vegetables and selling of processed vegetables was not common in the study area. This could be due to the immediate sale of vegetables after harvest and market may not be developed for processed vegetables. Chadha *et al.*, (2003) reported that preserving vegetables in a dried form adds value to the processed product to generate income for the household. However, the result indicated that beneficiary households were not benefiting from this chain by adding value to the produce.

Producers retail their vegetable produce by themselves or sale it to retailers/wholesalers in the market (Table 18). About 90% of FHHs and 74% of the MHHs beneficiaries indicated that retailing was more profitable than wholesale. However, those producers who retail their

produce face problem of rotting vegetables. Of the beneficiary respondents, 3% of the FHHs and 17% of the MHHs were storing vegetables in a traditional way at home. Hence absence of storage facilities forces farmers to sale the whole produce at the end of the day with low price or even throw away the produce. Consistent to this result a study made by Koenig *et al.*, (2008) in Kenya and Tanzania indicated that, limited availability of vegetables storage forces retailers and traders to sell their produce at a low price at the end of the day.

In Atsbi Wemberta, the vegetables and spices were sold to consumers, retailers, wholesalers and to some extent potato producers organized in cooperatives (MHHs) were sold their potato at farm gate to research institute (Table 18). Of the beneficiary respondents, about 92% of FHHs and 75% of MHHs indicated that self retailing of vegetables and spices was more profitable than wholesaling, but wholesaling was advantageous with regard to time.

In Atsbi Wemberta woreda, most of the women produce spices other than fenugreek such as cumin, basil, and coriander, black and white cumin in very small plots of land under rain fed and irrigated fields. The women use the spices for home consumption and market. Spices such as cumin are sold with high prices up to 30 Birr per kilogram. This indicates that in addition to vegetables and fenugreek other spices could also be alternative sources of income for women, because spices can be stored for longer period of time, they are easily managed and controlled by women and can be produced in small plots of land.

**Table 18.** Actors in marketing and profitability of vegetables and spices (%).

Household type	To whom did you sale your vegetables and spices produce?				Which one was more profitable?			
	Farm gate	Wholesalers /retailers	Self retailing	Multiple response	Farm gate	Wholesalers /retailers	Self retailing	Multiple response
FHHS	0	24	53	23	0	5	92	3
MHHS	3	17	34	46	3	5	75	17

The women retailers in Haiki Meshal, Atsbi and Habes indicated that the income obtained from sale of vegetables and spices covers about 40% of their expenditure. The women retailers in Haiki Meshal and Habes markets spend one day per week in the market and the rest of the days they perform additional income generating activities such as micro and small enterprise/small shops/ and some on basketry to fulfill the household food demands. On the other hand, women retailers in Atsbi market did not had additional income generating

activities since they spend the whole week in the market. Hence, they indicated that the income obtained from the sale of vegetables was low for the households' survival. The women ranked their income level as medium compared to those who do not participate on vegetable market. The women retailers have also indicated that there was no market support, coordination and information from respective institutions except in Hayelom tabia they get market information and coordination support from IPMS.

#### 4.8.2 Additional benefits from the value chains

Beneficiary households indicated that there was additional advantage from the value chains of vegetables and spices such as animal feed and social acceptance due to additional income. Moreover, beneficiary households indicated that there was additional benefit in sending children to school, constructing houses, buying jewelry, getting enough food, buying house furniture and improvement in health condition of family members as compared to non-beneficiary households. Besides, participation of women in the value chains empowers them socially due to the income they earned from the value chains of vegetables and spices. This implies that participation in the value chains of vegetables and spices improves the livelihood of beneficiary households. This result is consistent with IFPRI (2005), report which showed that vegetable production can enhance social and economic status of women and lead to greater household food and nutrition security.

**Transport access:** The study revealed that MHHs beneficiaries have better access to transport their vegetables produce by pack animals and car than FHHs. About 34% of the FHHs carried their produce to the market compared with 10% in MHHs (Table 20). The difference in means of transport could be due to better access and capacity of MHHs to use pack animals and car transportation than FHHs. Furthermore, FHHs may produce few amounts of vegetables that do not require pack animals and car to transport.

**Table 19.** Means of transportation for vegetables by female and male headed households (%).

Household type	Means of transportation			
	Pack animals	Carrying	Car	Using different means
MHHS	26	10	5	59
FHHs	16	34	0	50



Non-beneficiary households have expressed the benefits that beneficiary households gained from the value chains of vegetables and spices as follows.

- Beneficiaries pay their loan on time as compared to non-beneficiaries.
- Beneficiaries were using vegetables and spices for their consumption from their farm but non-beneficiaries were spending money and time to buy vegetables and spices.
- Beneficiaries were well dressed and sending their children to school.
- Beneficiaries buy all household expenses from the income of vegetables and spices but non-beneficiaries were selling other resources to buy household expenses.
- Beneficiaries were constructing better houses and fulfilling household interests.

Similar result was reported by Chadha *et al.*, (2003) which indicated that production of vegetables and spices particularly in home gardens saves time and money by avoiding traveling to buy vegetables and spices and nutritional status of the family improves.

#### 4.9 Saving

Saving could be an indicator of success or getting additional assets and changing in livelihood. The study indicated that 30% of the beneficiary FHHs and 36 % of the beneficiary MHHs respondents save the money obtained from sale of vegetables and spices. The majority of FHHs and MHHs beneficiaries save the money at home (Table 21). The amount of money saved by majority of the FHHs was less than 40% of the money incurred from vegetables and spices. Moreover, 25% of FHHs and 46% of MHHs save more than 40% of the money obtained from the value chains of vegetables and spices. Participation of the households in the value chains was also an opportunity to adapt saving culture with in the beneficiary households. The income difference between the beneficiary FHHs and MHHs could be due to the access of MHHs to labor, inputs, information and other off farm and on farm sources of income.

**Table 20.** Annual money saved by beneficiary households (%) and place of saving in, 2007.

Household type	Percentage of respondents saved money	Saved amount ETB %		Saving place		
		<40%	>40%	At home	DECSI	Saving and credit cooperatives
FHHs	30	75	25	58	17	25
MHHs	36	54	46	60	7	33

#### 4.10 Wealth status of beneficiary and non-beneficiary households

Respondents ranked their wealth status based on local ranking methods. As indicated in table 22, most of the beneficiary households were ranked as medium in wealth status. However, 26% of MHHs beneficiaries and 7% of FHHs beneficiaries were under the rich category and 28% of the FHHs beneficiaries and 10 % of the MHHs beneficiaries were categorized as poor. This implies that FHHs were not benefiting from the value chains of vegetables and spices equally as that of MHHs. Moreover, the highest number of non-beneficiary households was ranked as poor and no FHHs non-beneficiary was ranked as rich. This indicates that beneficiary households were wealthier than non-beneficiary households. With in the non-beneficiary groups, FHHs were poorer than MHHs.

**Table 21.** Wealth status rank of beneficiary and non-beneficiary households (%).

Household type	Wealth status		
	Poor	Medium	Rich
Beneficiary FHHs	28	65	7
Beneficiary MHHs	10	64	26
Non-beneficiary FHHs	71	29	0
Non-beneficiary MHHs	50	42	8

#### 4.11 Opportunities and challenges faced for women to participate in the value chains

##### 4.11.1 Opportunities

The opportunities for both women and men to participate in the value chains of vegetables and spices and for women in particular have been indicated in the group discussion and personal interviews. The attention given to women by the government and the presence of extension service at tabia level is a good opportunity for women to get information and participate equally with men. Besides, the availability of vegetables and spices seed at tabia level is also a means of encouraging women which saves their time. Awareness of women about the advantage of the value chains through different forums, trainings and field visits and equal access of credit to women are some of the opportunities for women to participate in the value chains of vegetables and spices. Moreover, the strategy of introducing ponds, shallow wells, and treadle and motor pumps is contributing tremendous for the production of vegetables and spices for both female and male farmers. The presence of FTCs (Farmers Training Centers) is also an opportunity for women and men farmers which serve as centers of extension service and information due to their proximity.

#### **4.11.2 Challenges**

Despite these opportunities, women faced different challenges which affect them from efficiently participating and benefiting from the value chains. These challenges are emanated from cultural influences, low economic capacity and information gap of women. There are specific challenges that affect women's participation in the value chains such as labor shortage to dig wells, to manage vegetables and spices and to plough land. As indicated in the group discussion, women also lack skill, efficiency and capacity due to their low participation in trainings, field visits and less access to radio and paper media and some inherited cultural perceptions about women's roles. Due to cultural influences and the workload at home, women have low mobility to get information and to use alternative markets.

Women are also economically weak to cover the expenses for buying farm implements such as treadle and motor pumps thereby it influences their participation and benefits from the value chains. Besides, women face lack of means of transport to transport large amount of produce at a time, and they are afraid of taking large amount of credit. The workload of women as household heads, mothers and producers affects their efficiency in the value chains. There is also a challenge faced by women retailers in the market such as supply shortage of vegetables in the months of June-September and absence of shaded and safe retailing place. Occasional pest problems of vegetables, low and inconsistent vegetables price in the market also affect the participation of both women and men farmers.

## **Chapter 5. SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Summary and Conclusions**

In Atsbi Wemberta woreda women make significant contribution to the subsistence agriculture and to ensuring food security. Women are the principal producers of vegetables and spices. However, women have skill and knowledge gap to participate efficiently and benefit equally with men in the value chains of vegetables and spices. Hence, enabling women to move beyond subsistence production in to higher value and market oriented production of vegetables and spices is an important element of successful economic and social empowerment of women in the agricultural sector. Accordingly, this study was initiated to assess the role, participation level and benefits of women in the value chains of vegetables and spices and the extension information flow systems between women and men. It also aims to compare the income level of beneficiary and non-beneficiary households in the value chains and decision making power difference between FHHs beneficiaries and women in MHHs beneficiaries in the value chains of vegetables and spices in Atsbi Wemberta woreda, Eastern Zone of Tigray.

To address the objectives of the study, both quantitative and qualitative methodologies were used. The data were collected from primary and secondary sources. The primary data were collected through personal interviews with a total of 108 beneficiary and non-beneficiary FHHs and women in MHHs from the value chains of vegetables and spices drawn from five tabias randomly. Qualitative data were also collected through personal interviews, focus group discussions and observations. Descriptive statistics was used to analyze the data collected for the study.

Based on these procedures the study indicated that the literacy level of beneficiary FHHs and MHHs was better than their respective non-beneficiary households. However, the literacy level of FHHs was lower than MHHs in both beneficiary and no-beneficiary households, which could be an obstacle in realizing their full potential in the value chains of vegetables and spices. The mean number of working age in MHHs beneficiaries was

higher than FHHs beneficiaries. The high number of working age in MHHs confirms that they tend to participate and benefited more out of the value chains of vegetables and spices than FHHs due to their labor availability. Beneficiary MHHs own larger cultivable land size

as compared to beneficiary FHHs, but there was no much difference in land quality between the two households.

The size of land covered by vegetables and spices and the number of beneficiary households was increasing year after year in both FHHs and MHHs beneficiaries. However, the number of beneficiaries and the land size covered by vegetables and spices was more in MHHs than FHHs. There was similarity in the types of vegetables and spices produced by FHHs and MHHs. The difference was in land size coverage, productivity and income obtained from vegetables and spices. FHHs mostly produce vegetables that are not labor and input intensive whereas MHHs grow mostly vegetables that are labor and input intensive in larger areas. Even though, spices have high market value and stored longer than vegetables, farmers were producing spices other than fenugreek in a very small plot of land and the attention given to spices was low.

In Atsbi Wemberta woreda, selling of vegetable seedlings was profitable and does not require much space. However, most of the sample respondents were not participating in rising vegetables seedlings and there was no much difference between FHHs and MHHs in the benefit earned from seedlings.

Women in beneficiary MHHs and FHHs were participating in almost all the activities in the value chains of vegetables and spices except plowing, but the participation level of FHHs was more than the women in MHHs. However, FHHs who sharecrop out their land were not participating in all activities of the value chain. About 80% of vegetables and spices retailers in Atsbi, Haiki Meshal and Habes markets were women and mostly men were participated as wholesalers. However, the women retailers were not competent enough in the market of vegetables and spices as that of men. For the women retailers, spices were more profitable since they can be stored for longer period of time followed by garlic and onion.

The study revealed that there was workload increment in both FHHs and women in MHHs beneficiaries due to their participation in the value chains of vegetables and spices. However, beneficiary FHHs who sharecrop out their land indicated that there was no workload increment due to their participation in the value chains of vegetables and spice. The degree of workload increment was high in FHHs since they are responsible for field and household chores including additional income generating activities. However, beneficiary

FHHs and women in MHHs appreciated the workload positively, since there was improvement in their life and they were aware of efficient time utilization.

Beneficiary FHHs decide about 90-95% and women in MHHs decide 20-25% on when, what and how to produce and on the income obtained from the value chains of vegetables and spices. Besides, beneficiary FHHs who sharecrop out their land did not decide on when, what and how to produce vegetables and spices, but they decide on the income they earned from the vegetables and spices. In beneficiary MHHs husbands decide 61-80% of the household, farm and social aspects except kitchen utensils. However, the decision-making power of women in beneficiary MHHs was better than the women in non-beneficiary MHHs. Besides, there was difference in decision-making power among the women in MHHs due to wealth status of women's parents, presence or absence of matured children in the household and absence/presence of male relatives of the woman.

The result of this study revealed that there was no basic difference on the extension information dissemination systems among women and men in the value chains of vegetables and spices. The difference was on the frequency of contact occasions with DAs, frequency of training and field visits and the attention given to women as producers. Besides, women are staying at home and they do not have much opportunity to communicate with different people and get exposure as that of men. MHHs beneficiaries were frequently visited by DAs as compared to FHHs beneficiaries. On the other hand, FHHs non-beneficiaries were least visited by DAs followed by MHH non-beneficiaries.

Trainings and demonstration visits with regard to vegetables and spices were more focused on MHHs as compared to FHHs, particularly if the training is out side of their tabia. Moreover, this situation was worse on women in MHHs who do not have the opportunity of training and visiting fields in the presence of the husband. Even though husbands get training, they did not share information to their wives after training and those who got information from their husbands had difficulty in understanding and changing the information in to practice. Besides, women in non-beneficiary FHHs and MHHs households had the least opportunity of training as compared to FHHs beneficiaries and women in MHHs beneficiaries. The way of training for women was not appropriate due to their low education level. Besides, women can not attend the trainings equally with men and change it in to practice efficiently as that of men. Because, some women are lactating and looking

after their children during training time and some women are culturally influenced to ask for clarification freely in the presence of men. However, the women who got the opportunity of training and visiting demonstration sites have indicated that there is improvement in their skill and knowledge on vegetables and spices management.

Credit was an important input for the production of vegetables and spices particularly for poor women who did not have access to borrow money from individuals. The study revealed that FHHs have equal credit access with MHHs however they were afraid to take credit in large amount.

Comparatively MHHs were benefiting more from the value chains of vegetables and spices than FHHs as men had better access and opportunities to labor and other resources. Moreover, MHHs were producing vegetables and spices more frequently than FHHs in a year. On the other hand, FHHs were not efficiently participating in the value chains due to knowledge and skill gap and their inefficient input utilization. Besides, women have financial problems and they are risk averse to take larger amount of credit and buy inputs. Lack of labor, access to different alternative markets, less attention to women as producers and theft problems on women's farm were some of the factors that affect efficiency of women in the value chains of vegetables and spices.

In Atsbi Wemberta woreda, irrigated vegetables were more profitable than rain fed due to their better quality and high price, but irrigated vegetables were labor intensive. However, FHHs were producing vegetables and spices in larger area under rain fed than irrigated fields. Because irrigated vegetables and spices require more labor for harrowing, watering and money for watering devices and their fuel expenses.

Furthermore, the area covered and income obtained from cereals and pulses was larger in beneficiary households due to their access to grow cereals and pulses under rain fed and irrigated land and access to use inputs than non-beneficiary households. Yet FHHs obtain less income as compared to MHHs in both beneficiary and non-beneficiary households. However, the comparison between beneficiary FHHs and non-beneficiary FHHs shows that FHHs beneficiaries were by far benefiting economically and socially than FHHs non-beneficiaries. Similarly, women in MHHs beneficiaries were also more empowered than women in MHHs non-beneficiaries due to the income they earned from the value chains of

vegetables and spices. Generally women in both beneficiary households were economically and socially more empowered and benefiting than the women in non-beneficiary households due to their additional income from the value chains.

Non-beneficiary households were aware of the benefits that could be obtained from the value chains and they clearly indicated that beneficiary households were benefiting in different social and economical aspect than non-beneficiary households. Regardless of this fact, they could not produce vegetables and spices due to lack of irrigable land, lack of knowledge and skill on the value chains and occasional pest and disease problems on vegetables and spices.

Generally the wealth status of MHHs beneficiaries was better than the FHHs beneficiaries. The non-beneficiary households were poorer than the beneficiary households. Similarly, FHHs non-beneficiaries were poorer than MHHs non-beneficiary households.

There are opportunities for women to involve in the value chains of vegetables and spices. Yet women face different challenges that emanated from cultural influences, lack of information and exposure of women. These challenges affect women's involvement in the value chains of vegetables and spices and benefiting from their resources equally with men. Even though, both beneficiary households face different problems on the value chains, the problems faced by women were serious and had significant effect on their productivity and efficiency than men.

## **5.2 Recommendations**

In Atsbi Wemberta woreda, gender norms are important constraints to influence technology uptake and benefits from the value chains of vegetables and spices. There is difference in skill, knowledge and technology uptake between women and men in the value chains of vegetables and spices. This difference affects the benefits obtained from the value chains. However, little work has been done in identifying the efficiency gaps and benefits of women from the value chains of vegetables and spices. Therefore, the following recommendations are provided to improve women's participation and benefits in the value chains.

Efforts should be made to empower and capacitate women through various programs that improve their technology uptake and build their confidence of borrowing large amount of money and intensifying their input utilization in the value chain of vegetables and spices.



In Atsbi Wemberta woreda participation of FHHs and women in MHHs in different trainings and field visits with regard to value chains of vegetables and spices is low. Improving the number of women trainers in vegetables and spices management and business training is an effective way of empowering women. There is a need to transform the gender segregated approach to training and field visits. Besides, skills training programs for women need to be developed based on needs assessment and it is critical to adapt training materials to be easily understood by women.

Special attention should be given for women's participation in the production of spices such as cumin and there should be capacity building program on value adding and preserving activities in vegetable production.

There is a need to form vegetable market women groups and linkage to avoid excess supply and have opportunity of alternative markets. This can help enhancing their capacity to express their common interests and advocate for improved policy environment and increased investment in the value chains they operate. It can also increase their bargaining power, access of information, experience sharing and market coordination. Moreover, there is a need to facilitate linkage between producers, cooperatives and private sectors to avoid price fluctuation in the market and create market outlet for women.

The gender division of labor means that female and male farmers often have different extension needs. Yet untargeted dissemination is likely to benefit men and better off households because most extension services focus on activities controlled and performed by male farmers. In areas where it is difficult to employ female extension agents, it is important to make sure that the extension services provided by male extension agents meet the needs of female farmers. This includes training male extension agents in extension methods and communication skills suitable for female farmers and in tasks usually done by women.

Ensuring access to micro-credits and training to women alone is not a solution to women's competence in the value chains. Projects that support women needs to take into account the various gender related challenges including work burden, low technology, limited access to markets and information and limited supportive environment.

Social networks also can play an important role, especially for women, who often have less access to formal channels of information dissemination. Yet because men's and women's networks often differ, extension information should be disseminated through a range of networks. Markets, *mahber* and churches could be important source of information exchange. It is also recommended that, reorienting community rural radio programs and organizing women in radio listening groups for sharing their knowledge.

Rural women are confined to their localities, so they can not go far. FTCs are best and suitable institutional mechanisms to reach farm women. Therefore, FTCs should have special, women oriented programs with regard to value chains of vegetables and spices. A policy guideline should be framed to evolve special formal or informal trainings focusing on women in the value chains of vegetables and spices where they play major roles.

Research should be conducted on the profitability of value chains of vegetable and spices, and researchers should consider how women can be assisted to participate efficiently in the value chains for income generation. Besides, the socioeconomic and agronomic factors influencing women's selection of specific vegetables and spices should be identified.

There should be also a research on the cultural taboos that hinder women's participation and benefits. Appropriate regulations should be identified to eliminate these cultural taboos and practices and government has to monitor how women are benefiting at grass root level.

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## APPENDICES

**Appendix 1.** Role of beneficiary women headed households and women in mal headed households in the value chains of vegetables and spices (%)

Activity type in the value chain of vegetables and spices	Female headed households				Male headed households				
	Woman	Children	Relatives	Hired labor	Woman	Man	Children	Relatives	Hired labor
Seed, seedling, farm implements, fertilizer and chemical purchasing	85	15	0	0	25	70	5	0	0
Seed bed preparation	80	10	10	0	30	60	10	0	0
Seedling management	85	15	0	0	70	20	10	0	0
Selling of seedlings in the market	90	10	0	0	60	30	10	0	0
Buying seedlings	90	10	0	0	20	70	10	0	0
Land preparation/cultivation	10	20	40	30	0	80	20	0	0
Planting/transplanting of seedlings	50	20	10	20	30	50	20	0	0
Vegetable/spice watering	70	20	10	0	30	50	20	0	0
Guarding/fencing	80	20	0	0	50	30	20	0	0
Harrowing	65	15	10	10	30	50	10	0	10
Harvesting	80	10	10	0	50	30	20	0	0
Cleaning	80	10	10	0	60	10	30	0	0
Grading/sorting	80	10	10	0	60	25	15	0	0
Transporting produce to market	80	20	0	0	30	50	20	0	0
Selling the produce at nearby market	90	10	0	0	50	40	10	0	0
Selling produce in Atsbi or other market	80	10	10	0	30	60	10	0	0
Selling produce in bulk	80	10	10	0	10	70	20	0	0
Retailing the produce	90	10	0	0	70	10	20	0	0



**Appendix 2\_** Comparison of area coverage, yield and income of different vegetables and spices in Atsbi Wemberta, 2007

Crop type	No. Of participants		Irrigated						Number of participant		Rain fed					
			Area (tsmdi/HH)		Yield (quintal)		Income/HH (Birr)				Area tsmdi/HH		Yield (quintal)		Income/ HH (Birr)	
			FHHs	MHHs	FH Hs	MHH s	FHHs	MHH s			FHHs	MHH s	FHH s	MH Hs	FHHs	MHH s
	FH Hs	MH HS					FH Hs	M HH								
Tomato	17	24	0.32	0.64	5.1	18.9	1986.6	7321.3	0	1	0	0	0	0	0	0
Potato	0	20	0	0.56	0	6.1	0	2609.3	3	0	0.25	0	4.2	0	1791.7	0
Onion	13	2	0.2	0.13	4	0.58	1404.2	312.5	0	0	0	0	0	0	0	0
Pepper	1	5	0.25	0.21	1	2.96	400	2900.2	0	0	0	0	0	0	0	0
Cabbage	23	28	0.33	0.38	10.7	14.7	2748.5	3684.8	0	1	0	0.13	0	2	0	500
S.chard	13	10	0.16	0.19	4.1	3.44	1111.4	853.8	0	1	0	0.13	0	7	0	1650
Fenugreek	9	0	0.18	0	1.1	0	394	0	0	1	0	0.5	0	0.5	0	1206.7
<b>average</b>			<b>0.24</b>	<b>0.35</b>	<b>4.3</b>	<b>7.78</b>	<b>1339.1</b>	<b>2947</b>			<b>0.25</b>	<b>0.25</b>	<b>2.25</b>	<b>3.2</b>	<b>1791.7</b>	<b>966.7</b>

## Appendix 3. Interview schedule

### Survey on the role of women in the value chain systems of vegetables and spices in Atsbi Wemberta woreda

#### Questionnaire 1. For female-headed households beneficiaries on the value chains of vegetables and spices for 2007 cropping season

Tabia \_\_\_\_\_

Kushet \_\_\_\_\_

Date of interview \_\_\_\_\_

Name of interviewer \_\_\_\_\_

Household head ID \_\_\_\_\_

#### Part 1. Household demographic information

##### 1. Household demographic information

Name of household head (HHH)	Age of HHH	Education level of HHH (1)	Religion of HHH (2)	Number of children	* Number of working age HHH members (3)		* Number of dependants in the household (4)	
					Female (1)	Male (2)	Female (1)	Male (2)

\*Note: -working age means between 14 and 64 years of age inclusive.

-Dependant means below the age of 14 and above the age of 64.

- If a question is not applicable for the respondent say note applicable (N.A)

Code 1 education: 1=Illiterate 2= Literacy programme completed 3= Primary education(1-6) 4=Junior (7-10) 5= 10<sup>th</sup> grade complete 6= other (specify)

Code 2 religion: 1= Orthodox 2= Muslim 3=Catholic 4=Protestant 5=other(specify)

Code 3 working age: 1= Female 2= Male

Code 4 dependants: 1= Female 2= Male

#### Part 2. Land use and crop production

2. Do you have your own land? 1=no 2=yes

3. What is the total size of your cultivable land in Tsmdi (1tsmdi=0.25 ha)? \_\_\_\_\_

4 How do you evaluate the quality of your land compared to others?

1=low 2=medium 3= high



13. If your answer fro Q.12 is yes refer the next table.

	Major crops grown in 2007 in share cropped land	Yield in quintal in 2007				Your share was (1)		Your contribution (2)
		Rain fed		Irrigated				
		Total yield	Income in Birr	Total yield	Income in Birr	Share on produce/ yield	Share on crop residues/animal feed	
I	Vegetables/spices							
a								
b								
c								
d								
II	Other crops							
a								
b								
c								
d								

Code 1: 1= 1/4 2=1/2 3=3/4 4= other (specify)

Code 2: 1=Money 2=Labor 3=Manure 4= Seed 5=Fertilizer 6=other (specify)

14. Did you sell seedlings of vegetables in 2007? 1= No 2=yes

15. If your answer for Q.14 is yes how much did you earn from sales of seedlings?

1= (10-50 Birr) 2= (51-100 Birr) 3= (101- 150 Birr) 4= (151-200 Birr)

5=(>201 Birr)

16. If your answer for Q. 14 is no why did not you sale seedlings? \_\_\_\_\_

17. Which types of vegetable seedlings did you sale commonly?

18. How many times did you produce vegetables/spices in 2007?

1=once 2=twice 3=three times 4=other (specify)\_\_\_\_\_

19. To whom did you sell your vegetable/spice produce? (Multiple responses is possible)

1= consumers 2= intermediaries 4=combination of 2 or more answers

2= retailers 3=whole sellers

20. Which one is more profitable for you? (Multiple responses is possible)

1= selling to consumers 4= selling to whole sellers

2=selling to retailers 5= combination of 2 or more answers

3= selling to intermediaries

21. Did you store vegetables? 1= No 2=Yes

22. If your answer for Q.21 is yes which types of vegetables did you store?

23. Did you experience any problem/lose with regard to storage of vegetables?

1=No 2=Yes

24. If your answer for Q 23 is yes can you calculate the loss in terms of cost?

25. How did you solve these problems? \_\_\_\_\_

**Part 3. Role and level of participation**

26. What was your role and level of participation in the value chains of vegetables and spices in 2007? For those who cultivated their own land: (use 1-10 scale)

	Value chain/Activity type	Level of participation					
		Women	Girls	Boys	Relatives	Hired labor	Other
1	Deciding what, when and how to produce						
2	Seed, seedling, farm implements, fertilizer and chemical purchasing						
3	Seed bed preparation						
4	Seedling watering						
5	Land preparation/cultivation						
6	Planting /transplanting of seedlings						
7	Weeding						
8	Harrowing						
9	Vegetable/spice watering						
10	Selling of seedlings in the market						
11	Guarding/fencing						
12	Harvesting						
12	Grading/sorting						
13	Cleaning						
14	Transporting to market						
15	Deciding what and how much to sell						
16	Selling the produce at nearby market						
17	Selling produce in Atsbi or other market						
18	Selling produce in bulk						
19	Retailing the produce						
20	Deciding on the use of income from vegetables and spices						

Codes: 1=0 2= (1-20%) 3= (21-40%) 4= (41-60%) 5= (61-80%) 6= (>81%)

**Part 4. Decision making power**

27. Do you think that there is difference in the decision making power of FHHs and women in MHHs on the production process of vegetables and spices? 1= No 2=Yes

28. Do you think that there is difference in the decision making power of FHHs and women in MHHs on the income obtained from vegetables and spices? 1= No 2=Yes

29. If your answer for Q.27 or 28 is yes can you elaborate the differences? \_\_\_\_\_

30. If your answer for Q.27 or 28 is yes what is the reason for the difference? (Multiple responses is possible)

1=cultural influence

5=presence/absence of matured children

2=religious influence

6=wealth status of women's parents

3=wealth status of the household

7= combination of 2 or more answers

4= presence/absence of male relatives of the women

31. What do you suggest as a solution to alleviate these decision-making power differences?

By women themselves \_\_\_\_\_

By men \_\_\_\_\_

By government \_\_\_\_\_

### **Part 5. Benefits**

32. Did you preserve vegetables in time of surplus in dried form? 1= No 2=Yes

33. If your answer for Q. 32 is yes which types of vegetables did you preserve? \_\_\_\_\_

34. If your answer for Q. 32 is no what is the reason? \_\_\_\_\_

35. Was there any difference in productivity between the irrigated and rain fed vegetables/ spices? 1= No 2=Yes

36. Was there any difference in profitability between the irrigated and rain fed vegetables/ spices? 1= No 2=Yes

37. If your answer for Q.33&36 is yes what makes the difference?

37.1 Difference in productivity \_\_\_\_\_

37.2 Difference in profitability \_\_\_\_\_

38. Of the irrigated and rain fed vegetables and spices which one was more labor intensive?

1=Irrigated 2=Rain fed 3= They are equal

39. If there was difference why? \_\_\_\_\_

40. How much of the total produce of vegetables and spices did you sell in 2007?

40.1 Vegetables: 1= All 2= Two third 3= Half 4= One third 5= Other (specify)

40.2 Spices: 1= All 2= Two third 3= Half 4= One third 5= Other (specify)

41. For what purpose did you use the money obtained from sell of vegetables and spices? (Multiple responses is possible)

1=Saving

4= School fee

7= all

2=Buying food items

5= House construction

8=combination of 2 or more

3=Buying cloths

6= Buying house furniture

42. What additional advantages did you obtain by participating in vegetables and spices



**Part 7. Off farm income generating activities**

53. Did you have other sources of income in 2007? 1=no 2=yes
54. If your answer is yes what are these sources of income? (Multiple responses is possible)  
1= remittance 2=food aid 3= off farm income generating activities  
4= combination of 2 or more
55. If your answer for Q.54 is off farm income-generating activities what were these activities? (Multiple responses is possible)  
1=Food for work 3= Small and medium enterprises 5= combination of 2 or more  
2= Daily labor 4= Marketing
56. If your answer for Q.54 is off farm income generating activities who was involved on these activities? (Multiple responses is possible)  
1=Yourself 3= your daughters  
2= your sons 4= combination of 2 or more
57. What percent of your household expenditure was covered by---
- 57.1 off farm income generating activities \_\_\_\_\_
- 57.2 remittance \_\_\_\_\_
- 57.3 food aid \_\_\_\_\_

**Part 8. Information flow and service provision**

58. How do you prefer to grow vegetables and spices? (Multiple responses is possible)  
1= through training 4=by observing its market profitability  
2=information from DAs 5= combination of 2 or more  
3= information from neighbors and friends
59. In which aspect do you have better information? (Multiple responses is possible)  
1=Management of vegetables / spices 5= Pesticide use of vegetables / spices  
2=Fertilizer use of vegetables / spices 6= Market information of vegetables / spices  
3= Improved seeds of vegetables / spices 7= all  
4=Treadle and water pump use 8. Combination of 2 or more
60. How did you get this information? (Multiple responses is possible)  
1=Extension agents 3= Radio 5= Neighbors and friends 7= parents  
2=Training 4= Field day 6= Posters 8= combination of 2 or more
61. If you get information from extension agents how many times did you contact with the extension agents in 2007? \_\_\_\_\_



62. Do you think that women need additional extension service that can address their needs and problems other than the common ones? 1=no 2=yes

63. If your answer for Q.62 is yes which extension services do women need to address their special need and problems? \_\_\_\_\_

64. Which type of vegetables/spices training did you get in 2007? (Multiple responses is possible)

- 1= on management of vegetables /spices
- 2= on marketing of vegetables /spices
- 3= on harvesting of vegetables /spices
- 4=composition of all
- 5= combination of 2 or more answers

65. If you get training in 2007 how many times did you get? \_\_\_\_\_

66.1 If you get training in 2007 for how long did you get? \_\_\_\_\_

67. Was the training you get easily understandable and practicable? 1= no 2= yes

68. If your answer for Q.67 is no how should be the way of training in order you to understand and practice it easily? \_\_\_\_\_

69. Did you visit a demonstration site or other farmers' fields of vegetables/spices to get experience in 2007? 1=no 2=yes

71. If you get training /visit demonstration site or other farmers' fields of vegetables/spices what was its contribution to your production process of vegetables and spices? \_\_\_\_\_

70. If you did not get training/visit demonstration site or other farmers' fields in 2007 what is the reason? (Multiple responses is possible)

- 1=Cultural restriction
- 2=Undermining women's participation
- 3= lack of time
- 4=to look after my children and my house
- 5= since I am poor
- 6= combination of 2 or more answers

71. Rank out the assistance you obtained in the value chain systems of vegetables /spices?

Assisting body	Input supply	Management	Formal training	Market access/information	Credit
Woreda OoARD					
Extension agent					
NGOs (Specify)					
Neighbors					
Relatives					
Other (specify)					

72. Is there any female development agent in your tabia? 1=no 2= yes

73. From whom do you think women farmers could get better extension service?

1= female extension agents      2= male extension agents      3=from both equal

74. Why? \_\_\_\_\_

75. Is there any difference in extension service provision between women and men?

1=no    b=yes

76. If your answer for Q. 75 is yes was this difference in service provision intentional?

1=no    2=yes

77. Does this difference in service have impact on your productivity? 1=no    2=yes

78. If there is difference in extension service provision what are the services provided separately?

Women focused services \_\_\_\_\_

Men focused services \_\_\_\_\_

Common services provided for both women and men \_\_\_\_\_

79. What do you think is the reason for the difference in services? \_\_\_\_\_

80. What do you suggest the solution for these problem? \_\_\_\_\_

81. Can you rank out the extension service provision to women?

1= low      2= medium      3= good

### **Part 9. Access to credit and inputs**

82. Do you think that credit will help to improve your vegetable/spice productivity?

1=no    2=yes

83. If your answer is yes can you clarify how credit contribute to your vegetable/spice production? \_\_\_\_\_

84. How do you evaluate the opportunity /access to credit for women compared to men?

1= low      2= medium      3= high

85. Did you borrow money in 2007 for vegetable/spice production? 1=no      2=yes

86. If your answer for Q. 85 is yes from where did you get credit? (Multiple responses is possible)

1=Debit institution of credit and saving    3=other banks                      5= cooperatives

2=Individuals                                      4= Credit and saving association    6=other (specify)

87. If your answer for Q. 85 is yes have you paid the loan? 1=no      2=yes

88. If your answer for Q.85 is no what is the reason? \_\_\_\_\_

89. Which inputs did you use to produce vegetables and spices? (Multiple responses is possible)



3= lack of man power to go to market    6= inaccessibility of the market

104. How do you transport your produce to the market?

1=using pack animals

3= cars

2=carrying

4= combination of 2 or more answers

105. Was there any problem you faced in vegetables/ spices market?    1=no    2=yes

106. If your answer for Q.105 is yes what was the problem? \_\_\_\_\_

107. How did you solve these problems? \_\_\_\_\_

108. Can you rank your wealth status in your society?    1=poor    2=medium    3= rich

**Questionnaire 2. For women beneficiaries in male headed households in the value chains of vegetables and spices**

Tabia \_\_\_\_\_

Kushet \_\_\_\_\_

Date of interview \_\_\_\_\_

Name of interviewer \_\_\_\_\_

Respondent ID \_\_\_\_\_

**Part 1. Household Demographic Information**

1. Household demographic information

Name of household head (HHH)	Age of (HHH)	Education level of (HHH) (1)	Religion of (HHH) (2)	Number of children	*Number of working age HH members (3)		*Number of dependants in the household (4)	
					Female (1)	Male (2)	Female (1)	Male (2)

\*Note: - working age means between 14 and 64 years of age inclusive

- Dependants means below the age of 14 and above the age of 64

- If a question is not applicable for the respondent say note applicable (N.A)

Code 1 education: 1=Illiterate 2= literacy program completed 3= Primary education

(1-6) 4=Junior (7-10) 5= 10<sup>th</sup> grade complete 6= other (specify)

Code 2 religion: 1= Orthodox 2= Muslim 3=Catholic 4=Protestant 5=other

(specify)

Code 3 working age: 1= Female 2= Male

Code 4 dependants: 1= Female 2= Male

**Part 2. Land use and crop production pattern**

2. Do you have your own cultivable land? 1=no 2=yes

3. What is the total size of your cultivable land in Tsmdi (1tsmdi=0.25 ha)? \_\_\_\_\_

4 How do you evaluate the quality of your land compared to others?

1=low 2=medium 3= high

5. If you have your own land what are the major crops grown and yield in 2007?

	Major crops grown	Cultivated land in tsmdi		Yield in quintal			
		Rain fed	Irrigated	Rain fed		Irrigated	
				Yield	Income Birr	Yield	Income Birr
I	Vegetables/spices						
1							
2							
3							
4							
5							
6							
II	Other crops						
7							
8							
9							
10							
11							

N.B. 1 Tsmdi = 0.25 hectare (ha)

1 quintal =100kg

1=tomato

7=fenugreek

2=potato

8=barley

3=onion

9=wheat

4=pepper

10=field pea

5=cabbage

11=other crops (garlic, carrot, fababean, lentil, flax and so on)

6=swiss chard

6. Did you cultivate additional land either by rented in/share cropping from others?

1=no 2= yes

7. When did you start producing vegetables and spices? \_\_\_\_\_ Year

8. Why you prefer to grow these vegetables/spices than the others? \_\_\_\_\_

9. Did you sell seedlings of vegetables in 2007? 1=no 2=yes

10. If your answer for Q.9 is yes how much did you earn from sales of seedlings?

1= (10-50 Birr) 2= (51-100 Birr) 3= (101- 150 Birr) 4= (151-200 Birr) 5=(>201 Birr)

11. Which types of vegetable seedlings did you sell commonly? \_\_\_\_\_

12. If your answer for Q. 9 is no why are you not selling vegetable seedlings? \_\_\_\_\_

13. How many times did you produce vegetables/spices in 2007?

1=once 2=twice 3=three times 4=other (specify) \_\_\_\_\_

14. To whom did you sell your vegetable/spice produce? (Multiple responses is possible)

1= consumers

3= intermediaries

5=combination of 2 or more answers

2=retailers                      4=whole sellers

15. Which one is more profitable for you? (Multiple responses is possible)

- 1= selling to consumers                      4= selling to whole sellers
- 2=selling to retailers                      5= combination of 2 or more answers
- 3= selling to intermediaries

16. Did you store vegetables? 1=no      2=yes

17. If your answer for Q.16 is yes which types of vegetables did you store? \_\_\_\_\_

18. Did you experience any problem with regard to storage of vegetables?

1=no      2=yes

19. If your answer for Q 18 is yes can you calculate the loss in terms of cost?

20. If your answer for Q.18 is yes how did you solve these problems? \_\_\_\_\_

**Part 3. Participation and decision making level**

21. Who decides and uses on the income obtained from vegetables and spices sales?

		Decision making level	Beneficiary of the money	Purchasing of items
1	Husband			
2	Wife			
3	Children			
4	Relatives			
5	Others specify			

Codes: 1=0    2= (1-20%)    3= (21-40%)    4= (41-60%)    5= (61-80%)    6= (>81%)

22. Do you think that there is difference in the decision making power of FHHs and women in MHHs on the production process of vegetables and spices? 1= No    2=Yes

23. Do you think that there is difference in the decision making power of FHHs and women in MHHs on the income obtained from vegetables and spices? 1= No    2=Yes

24. If your answer for Q.22 or 23 is yes can you elaborate the differences? \_\_\_\_

25. If your answer for Q.22 or 23 is yes what is the reason for the difference? (Multiple responses is possible)

- 1=cultural influence                      5=presence/absence of matured children
- 2=religious influence                      6=wealth status of women’s parents
- 3=wealth status of the household                      7= combination of 2 or more answers
- 4= presence/absence of male relatives of the women

26. What do you suggest as a solution to alleviate these decision-making power differences?

By women themselves \_\_\_\_\_

By men \_\_\_\_\_

By government \_\_\_\_\_

27. Can you rank out your over all decision making level in the house?

		Financial aspects (1)	Farming aspects (2)	Kitchen utensils (3)	Social/ Community issues (4)	Participation in training/ Meeting (5)	Children's situation including schooling (6)	House equipments with bigger value (7)
1	Husband							
2	Wife							
3	Children							

Codes: 1=0 2=(1-20%) 3=(21-40%) 4=(41-60%) 5=(61-80%) 6=(>81%)

28. Is there any situation that you do not decide at all?

1=no 2=yes

29. If your answer for Q. 28 is yes can you specify it? \_\_\_\_\_

30. Can you rank out your decision making level on what, when and how to produce vegetables/spices?

1=0 2=(1-20%) 3=(21-40%) 4=(41-60%) 5=(61-80%) 6=(>81%)

31. What is your level of participation in the value chains of vegetables/ spices?

Code: 1=0 2=(1-20%) 3=(21-40%) 4=(41-60%) 5=(61-80%) 6=(>81%)

	Value chain/ activity type	Level of participation				
		Husband	Wife	Children	Relatives	Hired labor
1	Deciding what, when and how to produce					
2	Seed, seedling, fertilizer and chemical purchasing					
3	Seed bed preparation					
4	Seedling watering					
5	Selling of seedlings					
6	Land preparation/cultivation					
7	Planting /transplanting					
8	Weeding					
9	Harrowing					
10	Watering of vegetables and spices					
11	Guarding/fencing					
12	Harvesting					
13	Sorting/ grading					
14	Cleaning					
15	Transporting to the market					
16	Selling the produce in nearby market					
17	Selling the produce in Atsbi/other market					
18	Selling produce in bulk					
19	Retailing the produce					
20	Deciding & using on the income from vegetables and spices					







these activities? (Multiple responses is possible)

1=Yourself                      3= your daughters              4= combination of 2 or more  
2=your husband              4= your sons

57. What percent of your household expenditure was covered by---

57.1 Off farm income generating activities \_\_\_\_\_

57.2 remittance \_\_\_\_\_

57.3 food aid \_\_\_\_\_

### **Part 7. Information flow and service provision**

58. How do you prefer to grow vegetables and spices? (Multiple responses is possible)

1= through training    4=by observing its market profitability

2=information from DAs    5= other (specify)

3= information from neighbors and friends

59. In which aspect do you have better information? (Multiple responses is possible)

1=Management of vegetables / spices                      5= Pesticide use of vegetables / spices

2=Fertilizer use of vegetables / spices                      6= Market information of vegetables / spices

3= Improved seeds of vegetables / spices                      7= all

4=Treadle and water pump use    8. combination of 2 or more answers

60. How did you get this information? (Multiple responses is possible)

1=Extension agents    3= Radio                      5= Neighbors and friends    7= parents

2=Training                      4= Field day                      6= Posters                      8= combination of 2 or more

61. If you get information from extension agents how many times did you contact with the extension agents in 2007? \_\_\_\_\_

62. Do you think that women need additional extension service that can address their needs and problems other than the common ones? 1=no 2=yes

63. If your answer for Q.62 is yes which extension services do women need to address their special need and problems? \_\_\_\_\_

64. Which type of vegetables/spices training did you get in 2007? (Multiple responses is possible)

1= on management of vegetables /spices                      4= I did not get training

2= on marketing of vegetables /spices                      5= holistic training

3= on harvesting of vegetables /spices                      6= combination of 2 or more answers

65. If you get the training in 2007 did you get the training with your husband or alone?

1=with husband              2= alone



82. Is there any difference in extension service provision between women and men?  
1=no 2=yes
83. If your answer for Q. 82 is yes was this difference in service provision intentional?  
1=no 2=yes
84. Does this difference in service have impact on your productivity? 1=no 2=yes
85. If there is difference in extension service provision what are the services provided separately?  
Women focused services \_\_\_\_\_  
Men focused services \_\_\_\_\_  
Common services provided for both women and men \_\_\_\_\_
86. What do you think is the reason for the difference in services? \_\_\_\_\_
87. What do you suggest the solution for these problem? \_\_\_\_\_
88. Can you rank out the extension service provision to women?  
1= low 2= medium 3= good

**Part 8. Access to credit and inputs**

89. Do you think that credit will help to improve your vegetable/spice productivity?  
1=no 2=yes
90. If your answer is yes can you clarify how credit contribute to your vegetable/spice production? \_\_\_\_\_
91. How do you evaluate the opportunity /access to credit for women compared to men?  
1= low 2= medium 3= high
92. Did you borrow money in 2007 for vegetable/spice production? 1=no 2=yes
93. If your answer for Q. 92 is yes from where did you get credit? (Multiple responses is possible)  
1=Debit institution of credit and saving 3=other banks 5= cooperatives  
2=Individuals 4= Credit and saving association 6=other (specify)
94. If your answer for Q. 92 is yes have you paid the loan? 1=no 2=yes
95. If your answer for Q.92 is no what is the reason? \_\_\_\_\_
96. Do you have equal power to decide on the money you obtained from credit schemes?  
1=no 2=yes
97. If your answer for Q.96 is no what is the reason? \_\_\_\_\_
98. Which inputs did you use to produce vegetables and spices? (Multiple responses is possible)



2= no place in the market for selling    5= no difference in price  
3= lack of man power to go to market    6= inaccessibility of the market  
7= combination of 2 or more answers

113. How do you transport your produce to the market?

1=using pack animals                      3= cars  
2=carrying                                      4= combination of 2 or more answers

114. Was there any problem you faced in vegetables/ spices market?    1=no    2=yes

115. If your answer for Q.114 is yes what was the problem? \_\_\_\_\_

116. How did you solve these problems? \_\_\_\_\_

117. Can you rank your wealth status in your society?    1=poor    2=medium    3= rich

### Questionnaire 3. For non beneficiary FHHs in the value chains of vegetables and spices

Tabia \_\_\_\_\_

Kushet \_\_\_\_\_

Date of interview \_\_\_\_\_

Name of interviewer \_\_\_\_\_

Household head ID \_\_\_\_\_

#### Part 1. Household Demographic information

##### 1. Household demographic information

Name of household head	Age of household head	Education level of household head (1)	Religion of household head (2)	Number of children	*Number of working age HH members (3)		*Number of dependants in the household (4)	
					Female (1)	Male (2)	Female (1)	Male (2)

- \*Note: -working age means between 14 and 64 years of age inclusive.  
 - Dependants means below the age of 14 and above the age of 64.  
 - If a question is not applicable for the respondent say note applicable (N.A)

Code 1 education: 1=Illiterate 2= literacy programme completed 3= Primary education(1-6) 4=Junior (7-10) 5= 10<sup>th</sup> grade complete 6= other (specify)

Code 2 religion: 1=Orthodox 2= Muslim 3=Catholic 4=Protestant 5=other (specify)

Code 3 working age: 1= Female 2= Male

Code 4 dependants: 1= Female 2= Male

#### Part 2. Land use pattern and production

2. Do you have your own land? 1=no 2=yes

3. If your answer to Q. 2 is no what is your source of income?

- 1=renting in/share copping land      4=food aid      7= hand crafts  
 2=daily labor      5=food for work      8= other specify  
 3= remittance      6=small and medium enterprises

4. If your answer for Q.2 is yes do you cultivate / manage your land by your self?



1=no 2=yes

5. If your answer for Q. 4 is yes why are you not growing vegetables and spices?

1= lack of interest

5= lack of knowledge

2=lack of labor

6=lack of inputs and technologies

3= inaccessibility of the land to irrigation schemes

7= It is not profitable

4=disease and insect problem

8= other (specify)

6. If you are not cultivating your land by yourself what is the reason?

1=lack of labor

3= lack of seed and fertilizer

2= lack of oxen

4= other (specify)

7. If you are not cultivating your land by yourself is it---

1=temporarily rented

3= other (specify)

2= share cropped

8. If it was leased out what was your annual income in 2007? \_\_\_\_\_ Birr

9. If you manage your land by yourself or share cropped it to others refer to the next table. Crops grown in 2007 and yield obtained in quintal

S.no	Major crops grown	Own managed land			Share cropped to others		
		Area planted in tsmdi	Yield in quintal	Income Birr	Area planted in tsmdi	yield in quintal	Income Birr
a							
b							
c							
d							
e							
f							

N.B. 1 Tsmdi = 0.25 hectare (ha)

1 quintal = 100kg

### Part 3. Benefits

10. Do you think that growing vegetables and spices can bring change in your income?

1=no 2=yes

11. If your answer to Q. 10 is yes how? \_\_\_\_\_

12. If your answer to Q. 10 is no why? \_\_\_\_\_

13. Do you know any woman who gets more income by producing or selling vegetables and spices? 1=no 2=yes

14. If your answer for Q.13 is yes what changes have you seen from this income on that

woman as compared to your situation? \_\_\_\_\_

**Part 5. Household asset condition**

15. Do you have your own house? 1=no 2=yes
16. If your answer for Q.15 is yes what type of house you have?  
1= Corrugated iron roof 3= "Hidmo" (soil covered, mud)  
2=Thatched roof 4= other (specify)
17. If your answer for Q.15 is no what is the reason? \_\_\_\_\_

**Part 6. Off farm income generating activities**

18. Did you perform other off farm income generating activities in 2007? 1=no 2=yes
19. If your answer is yes what are these sources of income? (Multiple responses is possible)  
1= remittance 2=food aid 3= off farm income generating activities 4= other (specify)
20. If your answer for Q.21 is off farm income-generating activities what were these activities? (Multiple responses is possible)  
1=Food for work 3= Small and medium enterprises 5= other (specify)  
2= Daily labor 4= Marketing
21. If your answer for Q.20 is yes who was involved on these activities?  
1=yourself 3= your daughter  
2= your son 4= other (specify)
22. What percent of your household expenditure was covered by these off farm income generating activities cover? \_\_\_\_\_

**Part 7. Information flow and service provision**

23. In which aspect do you have better information?  
1= Production of vegetables/ spices 5= Improved seeds of vegetables / spices  
2=Management of vegetables / spices 6= Pesticide use of vegetables / spices  
3=Fertilizer use of vegetables / spices 7= Market information of vegetables / spices  
4=Treadle and water pump use
24. How did you get this information? (Multiple responses is possible)  
1=Extension agents 3= Radio 5= Neighbors and friends 7= parents  
2=Training 4= Field day 6= Posters 8= other (specify)
25. If you get information from extension agents how many times did you contact with the extension agents in 2007? \_\_\_\_\_
26. Is there any female development agent in your tabia? 1=no 2= yes
27. From whom do you think women farmers could get better extension service?

1= female extension agents      2= male extension agents

28. Why? \_\_\_\_\_
29. Do you think that women need additional extension service that can address their needs and problems other than the common ones? 1=no 2=yes
30. If your answer for Q.31 is yes which extension services do women need to address their special need and problems? \_\_\_\_\_
31. If you get training in 2007 for how long and how many times did you get the training?
32. Was the training you get easily understandable and practicable? 1= no 2= yes
33. If your answer for Q.34 is no how should be the way of training in order you to understand and practice it easily? \_\_\_\_\_
34. Which type of vegetables/spices training did you get in 2007? (Multiple responses is possible)
- 1=on production of vegetables /spices      4= on marketing of vegetables /spices  
2= on management of vegetables /spices      5=other (specify  
3= on harvesting of vegetables /spices      6=composition of all
35. If you got training in 2007 why you did not produce vegetables and spices?
36. If you did not get training in 2007 what is the reason? (Multiple responses is possible)
- 1=Cultural restriction      4=to look after my children and my house  
2=Undermining women's participation      5= since I am poor  
3= lack of time      6= other (specify)
37. Did you visit a demonstration site or other farmers' fields of vegetables/spices to get experience in 2007? 1=no 2=yes
38. If your answer for Q .37 is no what is the reason behind?
- 1=Cultural restriction      4=to look after my children and my house  
2=Undermining women's participation      5= since I am poor  
3= lack of time      6= other (specify)
39. If you get the chance of participating in the value chains of vegetables and spices in which chain would you like to participate?
- 1=as producer      3=as retailer      5=other (specify)  
2=as whole seller      4=as broker
40. Why? \_\_\_\_\_
41. Have you ever seen women who are participated in the value chains of vegetables/ spices facing problem? \_\_\_\_\_

42. What are these problems? \_\_\_\_\_
43. What do you suggest the solution to solve these problems? \_\_\_\_\_
44. Can you rank your wealth status in the society? 1=poor 2=medium 3= rich

## Questionnaire 4. For non beneficiary women in MHHs in the value chains of vegetables and spices

Tabia \_\_\_\_\_

Kushet \_\_\_\_\_

Date of interview \_\_\_\_\_

Name of interviewer \_\_\_\_\_

Respondent ID \_\_\_\_\_

### Part 1. Household Demographic information

#### 1. Household demographic information

Name of respondent	Age of respondent	Education level of respondent (1)	Religion of respondent (2)	Number of children	*Number of working age HH members (3)		*Number of dependants in the household (4)	
					Female (1)	Male (2)	Female (1)	Male (2)

\*Note: - working age means between 14 and 64 years of age inclusive.

-Dependants means below the age of 14 and above the age of 64.

- If a question is not applicable for the respondent say note applicable (N.A)

Code 1 education: 1=Illiterate 2= literacy programme completed 3= Primary education(1-6) 4=Junior (7-10) 5= 10<sup>th</sup> grade complete 6= other (specify)

Code 2 religion: 1= Orthodox 2= Muslim 3=Catholic 4=Protestant 5=other(specify)

Code 3 working age: 1= Female 2= Male

Code 4 dependants: 1= Female 2= Male

### Part 2. Land use pattern and production

2. Do you have your own land? 1=no 2=yes

3. If your answer to Q. 2 is no what is your source of income?

1=renting in/share copping land

5=food aid

2=daily labor

6=food for work

3= remittance

7= hand crafts

4=small and medium enterprises

8= combination of 2 or more answers

4. If your answer for Q.2 is yes do you cultivate / manage your land by your self?

1=no 2=yes

5. If your answer for Q. 4 is yes why are you not growing vegetables and spices?

- 1= lack of interest
- 2= lack of knowledge
- 3=lack of labor
- 4= inaccessibility of the land to irrigation schemes
- 5=lack of inputs and technologies
- 6=disease and insect problem
- 7= It is not profitable
- 8= combination of 2 or more answers

6. If you are not cultivating your land by yourself what is the reason?

- 1=lack of labor
- 2= lack of oxen
- 3= lack of seed and fertilizer
- 4= other (specify)

7. If you were not cultivating your land by yourself is it--- in 2007?

- 1=temporarily rented
- 2= share cropped
- 3= other (specify)

8. If it was leased what was your annual income? \_\_\_\_\_Birr

9. If you managed your land by yourself or share cropped it to others refer to the next table.

Crops grown in 2007 and yield obtained in quintal

S.no	Major crops grown	Own managed land			Share cropped to others		
		Area planted	Yield	Income Birr	Area planted	Yield	Income Birr
a							
b							
c							
d							
e							

N.B. 1 Tsmdi = 0.25 hectare (ha)

1 quintal = 100kg

a=barley      c=field pea      e=other cereals  
 b=wheat      d=faba bean

**Part 3. Benefits**

10. Do you think that growing vegetables and spices can bring change in your income?

1=no 2=yes

11. If your answer to Q. 10 is yes how? \_\_\_\_\_

12. If your answer to Q. 10 is no why? \_\_\_\_\_

13. Do you know any woman who gets more income by producing or selling vegetables and spices? 1=no 2=yes

14. If your answer for Q.12 is yes what changes have you seen from these income on that

woman as compared to your situation?

**Part 5. Household asset condition**

15. Do you have your own house? 1=no 2=yes

16. If your answer for Q.15 is yes what type of house you have?

1= Corrugated iron roof 3= "Hidmo" (soil covered, mud)

2=Thatched roof 4= other (specify)

17. If your answer for Q.15 is no what is the reason? \_\_\_\_\_

**Part 6. Off farm income generating activities**

18. Did you perform other off farm income generating activities in 2007? 1=no 2=yes

19. If your answer is yes what are these sources of income? (Multiple responses is possible)

1= remittance 2=food aid 3= off farm income generating activities

4= combination of 2 or more answers

20. If your answer for Q.19 is off farm income-generating activities what were these activities? (Multiple responses is possible)

1=Food for work 3= Marketing 5= combination of 2 or more answers

2= Daily labor 4= Small and medium enterprises

21. If your answer for Q.18 is yes who was involved on these activities?

1=yourself 3= your daughter 5= combination of 2 or more answers

2= husband 4= your son

22. What percent of your household expenditure was covered by these off farm income generating activities cover? \_\_\_\_\_

**Part 7. Information flow and service provision**

23. In which aspect do you have better information?

1=Management of vegetables / spices 5=Pesticide use of vegetables / spices

2=Fertilizer use of vegetables / spices 6= Market information of vegetables / spices

3=Treadle and water pump use 7=combination of 2 or more answers

4= Improved seeds of vegetables / spices

24. How did you get this information? (Multiple responses is possible)

1=Extension agents 3= Radio 5= Neighbors and friends 7= parents

2=Training 4= Field day 6= Posters 8= combination of 2 or more answers

25. If you get information from extension agents how many times did you contact with the extension agents in 2007? \_\_\_\_\_

26. Is there any female development agent in your tabia? 1=no 2= yes

27. From whom do you think women farmers could get better extension service?  
 1= female extension agents      2= male extension agents    3=both are equal
28. Why? \_\_\_\_\_
29. Do you think that women need additional extension service that can address their needs and problems other than the common ones? 1=no    2=yes
30. If your answer for Q.29 is yes which extension services do women need to address their special need and problems? \_\_\_\_\_
31. If you get training in 2007 for how long and how many times did you get the training?
32. Was the training you get easily understandable and practicable? 1= no    2= yes
33. If your answer for Q.32 is no how should be the way of training in order you to understand and practice it easily? \_\_\_\_\_
34. Which type of vegetables/spices training did you get in 2007? (Multiple responses is possible)  
 1= on management of vegetables /spices      4=composition of all  
 2= on harvesting of vegetables /spices      5=other (specify  
 3= on marketing of vegetables /spices
35. If you got training in 2007 why you did not produce vegetables and spices?
36. If you did not get training in 2007 what is the reason? (Multiple responses is possible)  
 1=Cultural restriction      4=to look after my children and my house  
 2=Undermining women's participation      5= since I am poor  
 3= lack of time      6= combination of 2 or more answers
37. Did you visit a demonstration site or other farmers' fields of vegetables/spices to get experience in 2007? 1=no    2=yes
38. If your answer for Q .37 is no what is the reason behind?  
 1=Cultural restriction      4=to look after my children and my house  
 2=Undermining women's participation      5= since I am poor  
 3= lack of time      6= combination of 2 or more answers
39. If you get the chance of participating in the value chains of vegetables and spices in which chain would you like to participate?  
 1=as producer      3=as retailer    5= combination of 2 or more answers  
 2=as whole seller      4=as broker



40. Why? \_\_\_\_\_
41. Have you ever seen women who are participated in the value chains of vegetables/  
spices facing problem? 1=no 2= yes
42. If your answer for Q. 41 is yes what are these problems? \_\_\_\_\_
43. What do you suggest the solution to solve these problems? \_\_\_\_\_
44. Can you rank your wealth status in the society? 1=poor 2=medium 3= rich

## **Survey on the role of women in the value chain systems of vegetables and spices in Atsbi Wemberta woreda**

### **Questions for focus group discussion**

Distance from tabia center to infrastructure and services (for DAs and tabia administration)

	Type of infrastructure/service	One walking time in minutes/Km	Remark
1	Drinking water point		
2	Input distribution fertilizer, seed, herbicides or pesticides		
3	Credit institution		
4	Development agents office/FTC		
5	All weather road		
6	Seasonal road		
7	Atsbi Market		
8	Other nearby market		
9	Health post		
10	Clinic		
11	Primary school		
12	Junior school		
13	Grain mill		
14	Fuel wood sources		
15	Telecommunication center		
16	Others, specify		

### **A. General**

1. Was there any difference in the area of land covered by vegetables and spices production between FHHs and MHHs in 2007? What was the reason behind?
2. Is the land covered by vegetables and spices increasing or decreasing in FHHs or MHHs or both from time to time? What was the reason?

3. Was there any difference in the type of vegetables and spices produced in FHHs and MHHs? Which type of vegetables and spices are mostly produced by FHHs? Why? Rank out

Type of HH	Types of vegetables/spices							
	Onion	Tomato	Pepper	Cabbage	Swiss chard	Other (specify)	Cumin	Fenugreek
FHHs								
MHHs								

### B. Benefits

4. Do you think that there is difference of income between FHHs and MHHs those who grow vegetables and spices? What is the reason behind?

5. Can you rank the livelihood situation of beneficiary FHHs and MHHs?

Household type	Poor	Medium	Rich
FHHs			
MHHs			

6. Which value chain of vegetables and spices do you think is more profitable and easier for women to participate and manage? Why?

7. Of the vegetables and spices produced in irrigated and rain fed in 2007 which one was more profitable? why?

8. Who was benefiting more from the value chains of vegetables and spices FHHs or MHHs? why?

9. Is there difference in livelihood between beneficiary and non-beneficiary women in the value chains of vegetables and spices? What is the difference?

10. What changes of livelihood have you seen on the beneficiary women from the value chains of vegetables and spices? FHHs, MHHs? Rank out

Household type	Livelihood changes							
	House construction	Sending children to school	Saving	Buying animals	Buying house furniture	Buying jewellery	Buying cloths	
FHHs								
MHHs								

### C. Level of participation

11. How do you rank the participation of women in the value chains of vegetables and spices?

	Activity type	Level of participation		
		Female headed households		Women in MHHs
		Self cultivated	Leasing/share cropping their land	
1	Deciding what, when and how to produce			
2	Seed, seedling, implements, fertilizer and chemical purchasing			
3	Seed bed preparation			
4	Seedling management			
5	Selling of seedlings			
5	Buying of seedlings			
6	Land preparation/cultivation			
7	Planting /transplanting			
8	Watering of vegetables/spices			
9	Fencing/guarding			
10	Harrowing			
11	Harvesting			
12	Cleaning			
13	Sorting/grading			
14	Transporting to the market			
15	Selling the produce in market			
16	Deciding and using income from vegetables and spices			

Codes: 1= 0    2= (1-20%)    3= (21-40%)    4= (41-60%)    5= (61-80)    6= (>81%)

12. Do you think women are participating efficiently in the value chains of vegetables and spices? If not what is the reason?

13. What should be done to improve participation and efficiency of women in the value chains of vegetables and spices?

### D. Decision making

14. How do you rank the decision making power of beneficiary and non-beneficiary women in the value chains of vegetables and spices on monetary and other household aspects?

	Decision making level		
	Low	Medium	High
Beneficiaries			
Non beneficiaries			

15. Is there any difference in decision-making power between the women in FHHs and those in MHHs? What makes the difference? How can you explain the difference?

Type of household	Decision making level		
	Low	Medium	High
FHHs			
Women in MHHs			

16. Can you mention the areas where a woman in MHHs and FHHs can decide equally?

17. Can you mention the areas where a woman in MHHs never decides at all?

18. Do you think that growing of vegetables and spices can improve the decision making power of women in MHHs? How?

19. Do you think vegetables and spices value chains can empower women economically and socially? How?

**E. Work load**

20. Did the participation of women in the value chains of vegetables and spices increase or decrease their workload?

21. Enumerate the relationship between vegetable/spice value chains and workload?

	Increase work load	Decrease work load	Equal
FHHs			
Women in MHHs			

22. If women's participation in value chains of vegetable and spices increase their workload what should be done to minimize the workload and women participate efficiently?

**F. Opportunities and challenges**

23. What are the opportunities for women's participation in the value chains of vegetables and spices?

24. What are the challenges for women's participation in the value chains of vegetables and spices?

25. What measures do you think can alleviate these challenges?

26. What problems are facing women in the marketing of vegetables and spices?

27. What are the solutions for these problems by women themselves, community and government?

**G. Information and extension services**

28. Priority of access to extension service provision to FHHs and MHHs

Type of service	FHHs	MHHs
Credit		
Training		
Field supervision		
Consultation		
Input supply		
Marketing services		
Field day and experience sharing		
Other (specify)		

29. Do you think that the presence of female DAs can increase participation and efficiency of women farmers in the value chains of vegetables /spices?
30. Did women get enough information in the value chains of vegetables and spices?
31. Is there any different mechanism of information dissemination about value chains of vegetables and spices to women?
32. Is there any extension service provided to women farmers only? Why?
33. How this discrepancy of service provision could be alleviated?
34. Do you think that development agents assist women and men farmers equally? If not what is the reason?
35. Do women have equal access of training with men especially women in MHHs? If not what is the reason?
36. Do you think that the training that women get was easily understandable and practicable with regard to their low education level? 1= no 2= yes
37. What do you suggest the way of training should be for women in order understand and practice it easily? \_\_\_\_\_
38. What supports are given to women who are participating in vegetable and spice marketing?

39. Do you think that women have equal opportunity of visiting demonstration site or other farmers' fields of vegetables/spices with men? Does it contribute to their productivity?

40. Do you think that if husbands get training they share the information that they obtained from the training to their wives efficiently? 1=no 2=yes

41. How do you evaluate the opportunity /access to credit for women compared to men?

Type of household	Level of credit access		
	Low	Medium	High
FHHs			
MHHs			

42. Can you rank out the information dissemination mechanisms of value chains of vegetables and spices to farmers?

Household type	Information dissemination mechanisms							
	Training	Meeting	Field day & experience sharing	Personal consultation	Radio	Posters & Brochures	DA	other
FHHs								
MHHs								