

**POSITION OF WOMEN IN FRUITS AND VEGETABLES VALUE CHAIN:
A CASE STUDY OF CHALINZE AND KIWANGWA WARDS IN COAST REGION
OF TANZANIA**

BY

MARTHA SWAMILA



**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN
AGRICULTURAL ECONOMICS OF SOKOINE UNIVERSITY OF
AGRICULTURE. MOROGORO, TANZANIA.**



2012

ABSTRACT

Using the baseline survey data, this study was set out to establish the baseline position of women in fruits and vegetables value chain at Chalinze and Kiwangwa wards in the coast region of Tanzania. By intergrating gender (taking men into an account), the study specifically aimed at identifying activities done by women and men in fruits and vegetables value chain, determining the profit margin accrued by women and men in fruits and vegetables value chain and identifying socio economic factors influencing women and men position in fruits and vegetables value chain. The study results are expected to expand the knowledge of policy makers and development practitioners on the position of women in fruits and vegetables value chain in the specified research areas which consequently will lead them to make the informed decisions regarding women empowerment in FVV. Purposive sampling was used to select wards and villages basing on the concentration of women economic groups involved in fruits and vegetables value chain and simple random sampling was used to select households and 239 respondents for the interview. SPSS and STATA softwares were used to analyse data. The study found that, land preparation, planting/sowing, weeding, fertilizer application and harvesting were done by both women and men. However women were less participating in transporting fruits and vegetables produce to the market places for trading. Value adding activities were not highly practiced in the study areas. With the exception of amaranthus, the gross margins accrued by female respondents in pineapples, banana and mangoes were relatively lower than those accrued by male respondents. Education level and membership in farmers' associations were found to influence both women and men position in FVV while position in the household was found to influence women position and access to market information was found to influence men position in FVV. The study recommends the provision of education, training on agricultural and business skills, strengthening of farmers' associations and promotion of

women members in farmers' associations in order to improve their positions in fruits and vegetables value chain.

DECLARATION

I, MARTHA SWAMILA, do hereby declare to the Senate of the Sokoine University of Agriculture that the work presented here is my own original work, and has neither been submitted nor being concurrently submitted for a higher degree at any other institution.

..*swamila*.....

Martha Swamila

(MSc candidate)

9/11/2012.....

Date

The above declaration is confirmed by:

AA Temu.....

Dr. Anna A. Temu

(Supervisor)

9/11/2012.....

Date

COPYRIGHT

No part of this dissertation may be produced, stored in any retrieval system or transmitted in any form or by any means, mechanical, electronic, photocopying or otherwise without prior written permission of the author or Sokoine University of Agriculture on that behalf.

ACKNOWLEDGEMENTS

I owe the heartfelt thanks to the Lord my God for his unfailing love for me. He bestowed all necessary energy and strength to me so as to make this thoughtful task accomplished (Philippians 4:13). Be glorified Lord!

I feel indebted to my supervisor Dr. Anna A. Temu for her pardon and constructive criticisms which have brought this work to this far. May God bless whatever your hands find to do.

I am also grateful to NUFU project on women empowerment of Sokoine University of Agriculture for funding this research. Also, grateful to members of the research team, specifically Mr. Mgeni Charles who assisted me in many ways during data analysis

Martha Kibona, John David Mwakitolo, Said Jonas and Denis I. Mwashia are thanked for data collection work.

Special thanks should also go to my parents (Alphonse Swamila and Ruth Mojogoro) for undertaking their parental responsibilities with the great zeal and enthusiasm that have made me to be who I am today. The blessed be you.

The contribution of Chalinze and Kiwangwa leaders (wards and village leaders) on the success of the baseline survey is also noted with thanks.

DEDICATION

I dedicate this work to my lovely mother (Ruth Majogoro) who has been the best mama to me since childhood. I promise to love her to death.

TABLE OF CONTENTS

ABSTRACT.....	ii
DECLARATION.....	iv
COPYRIGHT.....	v
ACKNOWLEDGEMENTS	vi
DEDICATION.....	vii
TABLE OF CONTENTS	viii
LIST OF TABLES.....	xiii
LIST FIGURES.....	xv
LIST OF APPENDIX	xvi
LIST OF ABBREVIATIONS AND ACRONYMS	xvii
 CHAPTER ONE	 1
1.0 INTRODUCTION.....	1
1.1 Background of the Study	1
1.2 Problem Statement and Justification.....	3
1.3 Objectives of the Study	5
1.3.1 General objective	5
1.3.2 Specific objectives	5
1.4 Hypotheses of the Study	5
1.5 Research Questions.....	5
1.6 Conceptual Framework.....	6
 CHAPTER TWO	 8
2.0 LITERATURE REVIEW	8
2.1 Value Chain Concept.....	8

2.2 Fruits and Vegetables Value Chain in Tanzania.....	9
2.3 Men and Women Participation in Value Chain Positions	10
2.3.1 Input suppliers.....	10
2.3.2 Small-holder farmers	11
2.3.3 Producer associations.....	12
2.3.4 Transporters	12
2.3.5 Processors	12
2.3.6 Exporters	13
2.4 Barriers to Women’s Involvement in Value Chains	13
2.4.1 Limits on property ownership and decision Making	13
2.4.2 Women’s separation from financial aspects of value chains	14
2.4.3 Gender bias and restricted female mobility	14
2.4.4 Beliefs and perceptions	15
2.4.5 Access to education and information	15
2.5 Gender Inequality in Modern Agricultural Value Chain	16
2.6 Women Economic Empowerment	17
2.7 Women Empowerment in Agriculture.....	20
 CHAPTER THREE.....	22
3.0 METHODOLOGY	22
3.1 Description of the Study Area.....	22
3.3 Sampling Method.....	24
3.4 Data Collection	24
3.5 Data Processing and Analysis.....	24

CHAPTER FOUR.....	26
4.0 RESULTS AND DISCUSSION.....	26
4.1 Introduction.....	26
4.2 Demographic Characteristics of Respondents	26
4.3 The Average Monthly Income of Respondents from Fruits and Vegetables.....	29
4.4 Respondents' Trained Skills	30
4.5 Respondents' Main Occupation.....	32
4.6 Respondents' Position in the Household	33
4.7 Respondents' Fruits and Vegetables Produce.....	34
4.8 Factors Attracting Customer's to Purchase Respondent's Fruits and Vegetables Produce.....	34
4.9 Major Point of Sell.....	35
4.10 Membership in Farmers' Groups	36
4.11 Participation in Making Production Decision.....	38
4.11.1 Jointly owned plot.....	38
4.11.2 Self owned plot(s) of fruits and vegetables.....	39
4.11.3 Spouse owned plot(s).....	40
4.11.4 Other household members owned fruits and vegetables plots.....	40
4.12 The Need of Making Women Participate in Production Decision(s)	41
4.13 Participation in Making Market Decisions	42
4.14 Who Makes Production Decisions in your Household	43
4.15 Participation in Production Activities During the Peak Production Season	44
4.15.1 Land Preparation.....	44
4.15.2 Planting/Sowing.....	45
4.15.3 Weeding	45
4.15.4 Fertilizer application	46

4.15.5 Harvesting	46
4.16 Participation in Value Adding Activities During the Peak Production Season	47
4.16.1 Drying	47
4.16.2 Grading	48
4.16.3 Packaging.....	48
4.16.4 Transportation.....	48
4.17 Respondents' Perception on who gets the Highest and the Lowest Returns	49
4.18 Perception of Respondents Towards the Influence of the Socio-economic Factors on an Individual's Position in Fruits and Vegetables Value Chain	51
4.19 Gross Margin Analysis	53
4.19.1 Gross margin for pineapples	53
4.19.2 Gross margin analysis for banana	55
4.19.3 Gross Margin Analysis for Mangoes	56
4.19.4 Gross Margin for Amaranthus	58
4.20 The Logistic Regression Model	59
4.20.1 The model	59
4.20.3 Hypothesized outcome for independent variables	60
4.20.4 Logistic regression results for female respondents.....	62
4.20.5 Logistic regression results for male respondents.....	64
4.20.6 Logistic regression results for both female and male respondents	65
4.20.7 Multi co linearity Diagnosis.....	67
 CHAPTER FIVE	 68
5.0 CONCLUSIONS AND RECOMMENDATIONS.....	68
5.1 Conclusions.....	68
5.2 Recommendations.....	69

5.2.1 To promote women in higher level positions of fruits and vegetables value chain	69
5.2.2 To improve women returns in fruits and vegetables value chain	69
5.2.3 To foster women's participation in producer and worker organizations and decision-making processes.....	70
5.2.4 To Reduce Gender Inequalities in Fruits and Vegetables Value Chains	71
REFERENCES.....	72
APPENDICES	78

LIST OF TABLES

Table 1:	Model description	25
Table 2:	Demographic characteristics of respondents	29
Table 3:	Monthly income from fruits and vegetables (in Tshs).....	30
Table 4:	Respondents' other trained skills.....	31
Table 5:	Respondents' main occupation	32
Table 6:	Respondents' position in the household	33
Table 7:	Enough produce to meet the demand for fruits and vegetables	34
Table 8:	Factors attracting customers to purchase respondents' fruits and vegetables produce.....	35
Table 9:	Major point of sell.....	36
Table 10:	Membership in Farmers' associations	38
Table 11:	Participation in production decision making	41
Table 12:	The need of making women participate in decision making	42
Table 13:	Participating in making market decision.....	43
Table 14:	Who makes production decisions in the household	44
Table 15:	Respondents' perception on who gets the highest and the lowest returns.....	50
Table 16:	Gross margin Analysis for pineapples	55
Table 17:	Gross margin analysis for banana.....	56
Table 18:	Gross margin for mangoes.....	57
Table 19:	Gross margin for amaranthus.....	59
Table 20:	Measurement of Independent Variables	60
Table 21:	Estimated coefficients of women position in fruits and vegetables value chain using binary logistic model	63
Table 22:	Estimated coefficients for men position in fruits and vegetables value chain using binary logistic model	65

Table 23: Estimated coefficients both men and women position in fruits and vegetables value chain using binary logistic model.....	66
Table 24: Multicollinearity Diagnosis	67

LIST FIGURES

Figure 1: Conceptual framework of the study	7
Figure 2: The Map of Bagamoyo District to Show the Study Areas (Chalinze and Kiwangwa).....	23
Figure 3: Participation in production activities	49
Figure 4: Respondents' perception on the influence of independent variables on individual's position in FVV	53

LIST OF APPENDIX

Appendix 1: Study Questionnaire.....	78
--------------------------------------	----

LIST OF ABBREVIATIONS AND ACRONYMS

CRSP	Collaborative Research Support Program
FAO	Food and Agricultural Organization of the United Nations
FFS	Farmers' Field School
FVV	Fruits and Vegetables Value Chain
GATE	Greater Access to Trade Expansion
MKUKUTA	Mpango wa Taifa wa Kukuza Uchumi na Kufuta Umaskini
NBS	National Bureau of Statistics
NTAE _s	Non-traditional Agricultural Exports
REPOA	Research on Poverty Alleviation
RLDC	Rural Livelihood Development Company
SACCOS	Savings and Credit Cooperative Societies
SIDA	Swedish International Development Agency
SPSS	Statistical Package for Social Sciences
TAHA	Tanzania Horticultural Association
TGNP	Tanzania Gender Network Program
URT	United Republic of Tanzania
USAID	United State Agency for International Development
VIF	Variance Inflation Factor

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Horticulture is the fastest growing agriculture sub-sector in Tanzania, with export growth estimated at 10% per year (TAHA, 2010). Tanzania has a large potential for the production of tropical, sub-tropical and temperate fruits, vegetables and flowers to cater for the largely growing domestic demand and eventually tap export market (Ndaba, 2001).

Climatic condition in Tanzania is favourable for growing different types of fruits and vegetables especially in the coastal belt, central plateau, Lake Zone, northern and southern highlands (Mbelwa, 1999). According to Tanzania national agricultural policy report of 1997, the most important fruits produced in Tanzania include pineapples, passion fruits, oranges, mangoes, peaches, pears, avocado and bananas. Key vegetables are tomatoes, spinach, amaranth, sweet potatoes and leaves, cabbages, onions, irish potatoes, carrots, beans and others (Ndaba, 2001).

Fruits and vegetables contribute considerably to improving income (TAHA 2010; USAID, 2005; 2009). Tanzania's horticultural industry has recently been recognized and prioritized by key stakeholders including the government, as a significant contributor to the national income, economic growth and poverty alleviation strategy. The industry is estimated to earn the country about U\$ \$ 340 million per year and benefits directly more than 300,000 citizens (TAHA, 2010).

Many parts of the developing world have a relative advantage in the production of horticultural crops by virtue of the relatively high labor-to-land ratio. Small growers can

usually earn much higher farm incomes cultivating horticultural products compared to cereal crops, and horticultural production results in rural economic growth and the creation of off-farm jobs through value-added industries and the local marketing of these goods (USAID, 2005).

Women are increasingly being involved in horticultural sector than in grain production (FAO, 2010; USAID, 2009, 2005). In the developing world, women provide as much as 90% of the labor for the production of horticultural crops (CRSP, 2004). Although men are increasingly moving into food crops as returns to export crops fall, women often remain the main drivers of traditional value chains in local markets for fresh or processed foods such as vegetables and fruits (FAO, 2010).

In many parts of the world, including Tanzania, horticultural crops are called “women’s crops” (USAID, 2005). Women are important as producers and workers in most value chains, supplying national and international markets with both traditional and high-value products. However, there is evidence that women are often marginalized from the more profitable positions of agricultural and manufacturing chains (Mayoux, 2009). Women are actively involved in agricultural value chains as unpaid household workers, wagedworkers, entrepreneurs, and leaders (Khodamoradi and Abedi, 2011; FAO, 2010; USAID, 2009).

Greater women's participation in the production chains of high-value agricultural exports raises important questions for international financial institutions such as the World Bank. In Tanzania, various interventions like Women’s Empowerment Development Grants and Greater Access to Trade Expansion (GATE) project have been initiated to empower women in value chains (USAID, 2009). Moreover, SIDA commits to stress the importance

of developing a gender perspective in agricultural sector, focusing in particular on women farmers (Schmitz and Tornqvist, 2009).

However, despite the official commitments most of the interventions carried out by development agencies continue to ignore gender issues. As a result, women are not only often excluded from more profitable value chain positions, but also gender inequalities actually increase, which further contributes to the unacceptably high gender disparities on all human development indicators (Mayoux, 2009). This study sought to establish the baseline position of women in fruits and vegetables value chain in the Coast region of Tanzania by using survey data from the study areas.

1.2 Problem Statement and Justification

Many analysts acknowledge that women participate in most value chains including horticultural value chain as producers and workers. However many women concentrate in early lower steps, less profitable and temporary positions in most value chains (Khodamoradi and Abedi, 2011; Mihran and Parto, 2010; FAO, 2010; Mayoux, 2009; USAID, 2005, 2009; World Bank, 2005, 2009; Dolan and Tewari, 2001; Barrientos *et al.*, 2000, 2003). One of the critical gaps identified is that participation of women decreases along the chain towards the higher levels where value is added significantly (Mihran and Parto 2010; Sisay, 2010). As horticultural products move down the value chain and closer to sale at market women's involvement tends to diminish (RLDC, 2011; World Bank 2009).

In Chalinze and Kiwangwa wards, both women and men were found to participate in fruits production (particularly in pineapples production at Kiwangwa ward). However, women were less involved in transporting fruits to the various markets for sell. Majority of

vegetable growers were found to be women who were as well less involved in transporting vegetables to various markets for sell.

Though various interventions have been initiated in Tanzania to empower women in value chains, yet women are often excluded from more profitable value chain positions (Mayoux, 2009). Interventions to improve productivity and income in some value chain nodes can increase workloads for men or women. Problems can arise if women's workloads are increased but the benefits (income) go to men (FAO, 2010).

Yet little is known on factors influencing women position in fruits and vegetables value chain. Gender value chain analysis is very much in its infancy and all researchers and practitioners are on a steep learning trajectory.

This study aimed at providing the relevant information on the baseline position of women in fruits and vegetables value chain and social economic factors influencing their position at Chalinze and Kiwangwa wards in Bagamoyo district in the coast region of Tanzania. This information is expected to expand knowledge of policy makers and development practitioners on position of women in fruits and vegetables value chain and factors underlying their position hence informed decisions on women empowerment in fruits and vegetables value chain will be made using that knowledge.

Poverty reduction strategy through horticultural industry should target at empowering women to be involved in the higher positions of the value chain since women comprise large percentage of employees in horticultural sub sector (USAID, 2009). A more profound strategy need to bring more women at higher level of the chain such as processing, leadership and marketing (Sisay, 2010). Empowerment will give rise to women's

economic independence and enhancement of their participation in social and economic development of their communities (IPMS, 2011).

1.3 Objectives of the Study

1.3.1 General objective

- (i) The overriding objective of this study was to establish the baseline position of women in FVV.

1.3.2 Specific objectives

Specifically, this study aimed at;

- (i) Identifying the activities done by women and men in FVV
- (ii) Determining the profit margin accrued by women and men in FVV
- (iii) Describing socio - economic factors influencing women and men position in FVV.

1.4 Hypotheses of the Study

- (i) Socio economic factors like education, income and marital status have no influence on women and men individual's position in FVV
- (ii) There is no significance difference between the profit margin accrued by women and that accrued by men in FVV.

1.5 Research Questions

- (i) What activities are done by women and men in fruits and vegetables value chain?
- (ii) What strategies should be taken to empower women in higher levels of the fruits and vegetables value chain?

1.6 Conceptual Framework

The value chain for any agricultural product involves several interconnected stages. It is a continuum between farm input procurement and final consumption. Each stage of the chain involves different actors with different functions/activities that add value to the product or service. In order to achieve the general and specific objectives of the study, the developed conceptual framework in figure 1 was applied.

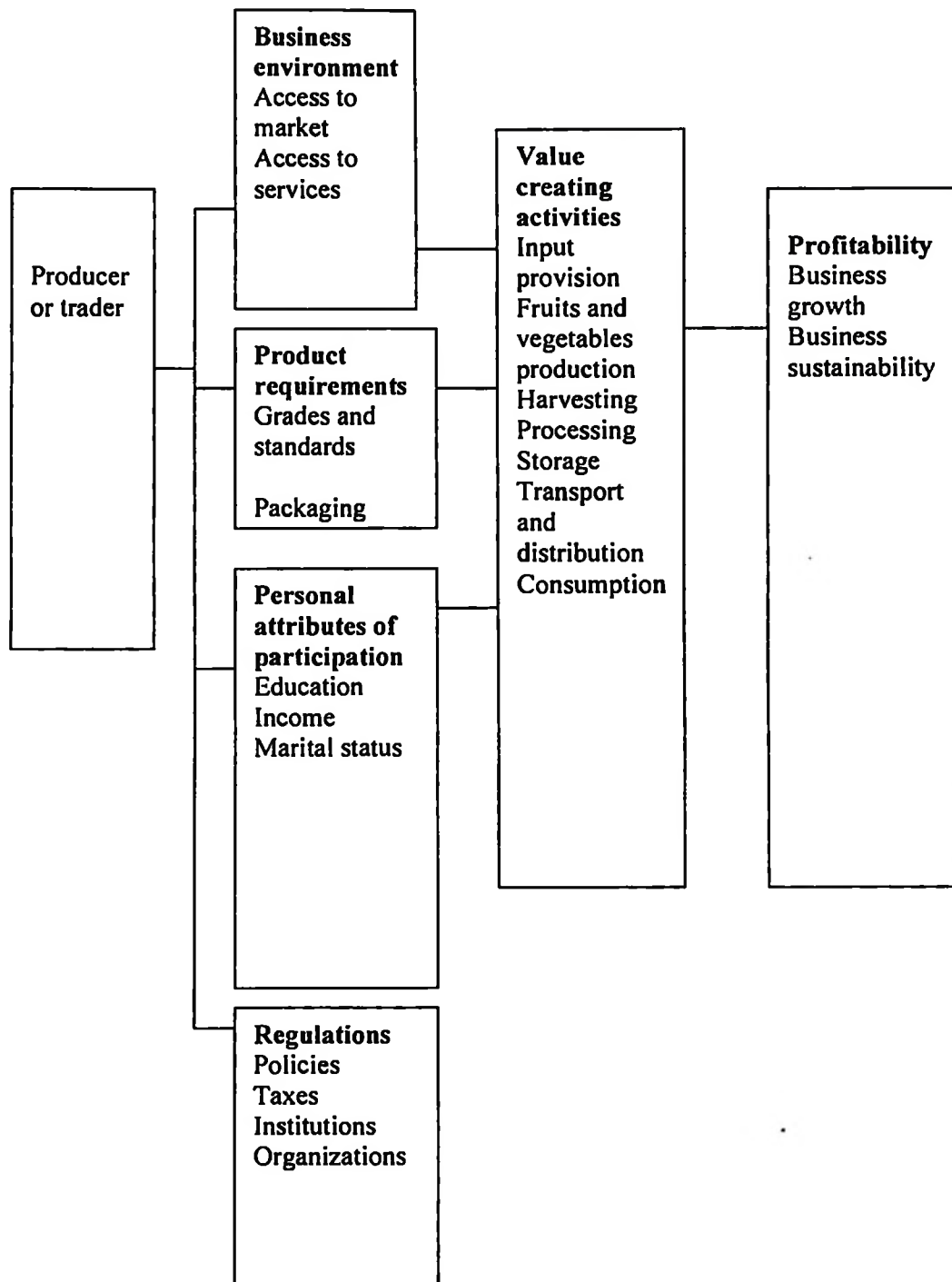


Figure 1: Conceptual framework of the study

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Value Chain Concept

Value chain describes full range of activities that are required to bring a product from its conception to its end use, through the different phases of production (involving a combination of physical transformation and the inputs of various producer services), delivery to final consumers, and final disposal after use (Kaplinsky and Morris, 2001). These services involve design, production, marketing, distribution and support to the final consumer.

A 'value chain' in agriculture identifies the set of actors and activities that bring a basic agricultural product from production in the field to final consumption, where at each stage value is added to the product. A value chain can be a vertical linking or a network between various independent business organizations and can involve processing, packaging, storage, transport and distribution. The terms "value chain" and "supply chain" are often used interchangeably (FAO, 2010).

Traditional agricultural value chains are generally governed through spot market transactions involving a large number of small retailers and producers. Modern value chains are characterized by vertical coordination, consolidation of the supply base, agro-industrial processing and use of standards throughout the chain (ibid).

In agricultural value chains, primary actors perform a selection of (primary) functions, which typically include input supply, production, processing, storage, wholesale (including export), retail and consumption. Actors who perform similar functions are regarded as

occupying the same functional ‘node’, referred to as, for example, the input supply node, production node, retail node, and so on (Coles and Mitchell, 2010).

Secondary actors, or ancillary workers, perform (secondary) service roles that support primary functions, such as transportation, brokerage and service processing. As goods are exchanged and transformed they ‘flow downstream’ in a series of transactions that add value and costs to them. The metaphor used is of a stream running from the beginning of a production process downstream towards the final market – the sea (ibid).

Activities that comprise a value chain can be contained within a single firm or divided among different firms. Value chain activities can be contained within a single geographical location or spread over wider areas (USAID, 2006). Porter (1998) describes the value chain as system of independent activities which are connected by linkages. Linkages exist when the way in which one activity is performed affects the cost or effectiveness of other activities. “Linkages” illustrate how the single activity affects other activities, thus serving as an important source of value adding (Porter, 1998).

According to Ansari and Bell (1997), the ultimate goal of the value chain is to manage costs so that the targeted margin will be achieved by the active members. This is achieved by managing customer demand, by using technology efficiently, by avoiding waste through using the right processes, and by being conscious of the basic functions and principles of the dynamic value chain.

2.2 Fruits and Vegetables Value Chain in Tanzania

In Tanzania, marketing of horticultural produce has never been under control of the government, instead it has been and continuous to be entirely conducted by the private

sector and operates as a free market where the laws of supply and demand regulate prices (Nyange *et al.*, 2000).

Mbelwa (1999) found that about 70% of horticultural produce are marketed through collection points whereby farmers bring their produce and wait for traders. Wholesalers buy the produce and sell it through commission agents, retailers and to the final consumers. Only 10% of the produce is traded directly from producers to consumers, Fruits and vegetable marketed from producers to exporters and processors are 2% and 4% of all the produced fruits and vegetables respectively. The marketing operations involved in the movement of vegetables and fruits included packaging, assembling and physical handling, storage, transporting and selling. Ashimogo and Lazaro (1989) when studying vegetable marketing in Morogoro district found that the marketing channel consists of producers, village middlemen, transporters and retailers in urban markets.

2.3 Men and Women Participation in Value Chain Positions

Women and men are both actively involved in the horticulture sub-sector. Reports indicate, though, that men and women's roles and responsibilities differ throughout the value chain (USAID, 2009; World Bank, 2005).

2.3.1 Input suppliers

Seventy percent of input supply stores are owned by men. Within the supply shops, men and women are hired for different tasks. Women occupy positions in accounting and sales; men are hired as drivers, porters, and extension agents. Few women possess the qualifications and certifications required for technical positions such as agro-vets and extension workers. While women are physically capable of undertaking the tasks as

porters, general social norms deem it unacceptable for women to load trucks (USAID, 2009).

Input suppliers report that men and women's purchasing patterns and use of inputs differ. Men are typically owners of larger plots, while women possess small gardens. Their purchases also differ by scale. Even though women purchase fewer inputs, on average, they display more interest in learning the proper use of the inputs bought. Women are perceived as more likely to follow instructions provided by an agro-vet than men (ibid).

2.3.2 Small-holder farmers

Men own approximately 90 percent of all smallholder farms. Legislation stipulates equal inheritance rights for children, indiscriminate of sex. Yet, women seldom inherit on an equal basis with their brothers. Women are expected to marry and gain access to land through their husband's families. Women operate approximately one-third of all agriculture enterprises, but receive less than ten percent of agriculture extension services (USAID, 2009).

Family members provide the majority of labor required on smallholder farms. Men and women's participation varies by job. Women often perform labor-intensive tasks such as planting, transplanting, weeding, and harvesting vegetables and fruits. Men provide most of the labor working on field preparation. Women are perceived as more adept at post-harvest handling. There are cultural beliefs that link the sensitive care that horticultural products require with women's domestic work (RLDC, 2011; Afzal *et al.*, 2009; USAID, 2009).

2.3.3 Producer associations

The vast majority of smallholder farmers receive inputs, market information, and training services through producer associations. Women's participation in producer associations varies greatly throughout the country based on the requirements for membership. Where membership is based on formal land ownership, women are often constrained from becoming full and active members. In associations with high rates of participation for women, this does not necessarily translate into leadership roles. It is often believed, though, that women are more transparent, more effective communicators, and make better association officers (USAID, 2009).

2.3.4 Transporters

The majority of transportation companies are owned by men. Over 90 percent of drivers are men. While women are often seen driving small cars, it is uncommon for a woman to drive a large truck. Women who attend the National Service Driving School are capable of demonstrating the same driving skills as men. Transporters often hire young men, who work in the markets, to pack and load the fruits and vegetables. These men are perceived as energetic and hardworking in comparison with their rural counterparts who are deemed lazy (Mihran and Parto, 2010; USAID, 2009).

2.3.5 Processors

Sex segmented employment patterns are present in processing factories. Men dominate management and technical positions, while women occupy low skilled factory positions. Social conditions restrict employment opportunities for women in senior management and technical positions in processing firms. It is believed that women are incapable of managing men. In addition, perceptions concerning the appropriateness of heavy lifting and

machinery operation limit women's opportunities in processing plants. Reports indicate that sexual harassment of women is common (ibid).

2.3.6 Exporters

The owners of most export firms are men, who are more likely to have the financial knowledge, access to capital, and wider social networks to establish these types of companies. Women work in clerical positions and some younger women who have completed study courses in business are moving into management slots (USAID, 2009).

2.4 Barriers to Women's Involvement in Value Chains

2.4.1 Limits on property ownership and decision making

Women's lack of secure land tenure is another serious impediment to improving the productivity and income of women working in agriculture. Though women represent the majority of the agricultural labour force yet their lack of access to land reduces their access to credit (Afzal *et al.*, 2009; USAID, 2009). Women nearly always have less access than men to assets, credit, services, markets and information on new technologies, consumer preferences and export trade requirements. This reduces their chances of entering into contract farming agreements (FAO, 2010) Even though they play a significant role in agricultural productivity, carrying out an estimated 40% to 60% of all agricultural labour (World Bank 2008a), they suffer from unequal access to resources and capacity-building opportunities on a number of levels (IPMS, 2011).

Women have no or limited access to and control over the important agricultural resources such as land and farm tools (IPMS, 2011). Though it is reported that, only in female-headed households do women control the decisions regarding use of agricultural

technologies but yet this still tends to be in consultation with their male relatives (IPMS, 2011).

Afzal *et al.* (2009) considers major determinants of women's practice of power (such as decision making power) to be age, education, annual income, and landholding of the household.

2.4.2 Women's separation from financial aspects of value chains

Although women play an important role in vegetable and fruit production, they are for the most part excluded from the financial aspects (World Bank, 2009). Women are deprived in a sense of what the product should cost, or even what their labor might be worth relative to the cost of inputs. This leaves women with few reference points regarding how to maximize income from any part of production.

Control over the benefits of production also varies between women and men, partly reflecting their labour input, but also reflecting the use of produce at home or for sale, cultural norms regarding 'women's' and 'men's' enterprises, and also influenced by the wealth of the household (IPMS *et al.*, 2011).

2.4.3 Gender bias and restricted female mobility

The degree to which women and girls are excluded from the higher value-added ends of production chains varies from place to place, it is also not surprising that, exclusion is positively correlated with restrictions on female mobility (World Bank, 2009). As horticultural products move down the value chain and closer to sale at market through harvesting, food processing, packing, and finally marketing – women's involvement tends to diminish (World Bank 2009, Schmitz and Tornqvist, 2009).

2.4.4 Beliefs and perceptions

All societies have beliefs. Beliefs guide business enabling environment. It is often expected for girls and boys to learn about different aspects of agricultural production and marketing practices. Social beliefs also shape economic opportunities available to men and women. For example, beliefs about the appropriateness of women in managerial roles may restrict women from decision-making positions. Further, beliefs shape men's and women's access to assets (USAID, 2009).

In agricultural value chains, beliefs and perceptions affect: the gendered division of labour in the household and on the farm, ideas about the appropriateness of employment opportunities for men and women and expectations about men's and women's behaviour which shape their interactions with institutions governing the business enabling environment (ibid).

2.4.5 Access to education and information

Low educational attainments imply severe limits on the degree to which women can access and absorb information on new agricultural technologies and techniques for more efficient and lucrative production. Low educational attainment is among factors that limit women's access to an agricultural paid economy. In addition, women are not sufficiently targeted by extension training in agriculture and livestock production, which could help them learn new techniques and expand their knowledge despite lack of schooling (World Bank, 2009). The development and sustainability of female-operated enterprises are often stunted through the lack of skills and control over their direction (O'Riordan *et al.*, 1997; Gergis, 1999).

The analysis of men and women's social and information networks clearly demonstrates that women have limited access to information, technologies and provision of the necessary

knowledge and skills which is a central component for increasing productivity and effective marketing (IPMS *et al.*, 2011).

Education creates conditions for full and equal participation of people in discussions and decisions, and at the same time empowers all people to act for change to see themselves as creators of culture, history, and an alternative social vision (Arnold *et al.*, 1991 cited by Gergis, 1999).

2.5 Gender Inequality in Modern Agricultural Value Chain

In modern value chains, men are concentrated in higher status, more remunerative contract farming since they generally control household land and labour, while women predominate as wage labourers in agro-industries (Khodamoradi and Abedi, 2011; Mihran and Parto, 2010; FAO, 2010; Mayoux, 2009; USAID, 2005, 2009; World Bank, 2005, 2009; Dolan and Tewari, 2001; Barrientos *et al.*, 2000, 2003).

Women workers are generally segregated in certain nodes of the chain (e.g. processing and packaging) that require relatively unskilled labour, reflecting cultural stereotypes on gender roles and abilities (FAO, 2010; Hashimi *et al.*, 2009 Mayoux, 2009).

Such gender-biased segregation is often used to legitimize the Payment of lower wages to women even with exceptions for some non-traditional agricultural exports (NTAEs). Women's wages are 50% of men's wages in Pakistan in sugarcane production, but reach 80% of men's in the Mexican flower industry, and are similar to men's wages in modern horticulture supply chains (French beans or tomatoes) in Senegal (FAO, 2010).

Segregation and the casual or temporary nature of contracts limit women's opportunities to acquire new technical and entrepreneurial skills, increasing the risk of redundancy if their jobs are automated or if men are favoured in technical training (IPMS, 2011; FAO, 2010).

Laws and regulations against gender discrimination and sexual harassment are often inadequate or not effectively enforced. However, many multinational and national firms have a good record in applying international labor standards and codes of conduct that improve working conditions and wages in agro-industries (FAO, 2010).

Women workers, especially in the informal sector, often do not belong to labour unions and thus have little opportunity to fight for their labour rights (ibid).

2.6 Women Economic Empowerment

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

World Bank defines empowerment as the expansion of freedom of choice and actions and increasing one's authority and control over the resources and decisions that affects one's life (World Bank, 2001). Empowered people have freedom of choice and action. This in turn enables them to better influence the course of their lives and the decisions which affect them (World Bank, 2008).

World Bank definition focuses principally on markets, that is, “making markets work for women and empowering women to compete in markets”. Access to markets is important because inequality prevents women from having equal access to productive resources and economic opportunities (World Bank, 2007).

SIDA’s definition of women’s economic empowerment goes beyond the market and also encompasses change in relation to access to and control over critical economic resources and opportunities; it also addresses the need to eliminate structural gender inequalities in the labour market and reduce women’s unpaid work. SIDA defines women’s economic empowerment as the process which increases women’s real power over economic decisions that influence their lives and priorities in society (Schmitz and Tornqvist, 2009). Women’s economic empowerment can be achieved through equal access to and control over critical economic resources and opportunities, and the elimination of structural gender inequalities in the labour market, including a better sharing of unpaid care work (Schmitz and Tornqvist, 2009).

In the sphere of economic power, gender gap between men and women has been increasing. For example, the African Gender Index (Tanzania chapter) (TGNP: 2005), revealed that between 1995 and 2000, the overall equality in economic power that is, opportunities between women and men decreased by 10%. This is attributed to the fact that income and time use or employment, between women and men as well as wages remained the same while equality in access to resources deteriorated by 50%. This index further revealed improvement by 20% in relative equality between women and men in the public sector component and a 10% improvement in relative equality between women and men in civil society component. However, despite these slight improvements, the inequality gap between women and men in Tanzania is still wide.

The Tanzanian government has taken several measures to address the issue of economic empowerment of women in collaboration with various development partners like SIDA. These include provision of credit facilities which are accessible by women, engendering macro economic framework such as MKUKUTA, providing Gender Budget Guidelines directing sector ministries to mainstream gender budgets in their sector ministries as well as revision of sector policies to facilitate gender mainstreaming in the policies and plans as well as developing a gender policy.

Women's economic empowerment is the single most important factor contributing to equality between women and men. A specific focus on women is necessary given the reality that women comprise the majority of economically disadvantaged groups (Schmitz and Tornqvist, 2009).

Gender equitable and competitive value chain practitioners consider how to empower women economically as lead entrepreneurs—setting an example for other women, contributing to upgrading, and leading systemic change in agricultural value chains (USAID, 2009).

Gergis (1999) points out six main categories for economic empowerment strategies. These are:

- (i) Financial intervention to assist local business activities (increased access to credit);
- (ii) Enterprise development for citizens (increased access to skills, business and management training and improved production technologies).
- (iii) Marketing strategies for locally produced goods and services (increased access to markets).

- (iv) Bargaining strategies (for higher prices, higher wages, better working conditions, etc.) for citizen employees and for business people.
- (v) Job creation (promotion of labor intensive projects)
- (vi) Training and Education that is responsive to skill requirements in the economy.

Some of the constraints that women economic association and their members are facing. Some of the problems include, lack of information and credit, lack of appropriate and affordable technologies, unavailability of testing centres near production points and lack of rules and regulations supporting micro and small producers (USAID, 2009).

SIDA pointed out, female illiteracy, women's lack of access to information, and gender discriminatory norms that prevent women from using and/or owning land as examples of obstacles that limit their access to and control of economic resources. Exploitative and discriminatory working conditions, gender segregation in the labour market, restricted mobility, women's double work burden and diminished health – caused by gender-based violence, for instance – are examples of factors that limit Women's ability to access and/or enjoy the returns on their work. Unpaid work, both in the productive and domestic spheres (Schmitz and Tornqvist, 2009).

2.7 Women Empowerment in Agriculture

Women's work in agriculture is essential for poverty reduction, food security and rural growth. In developing countries, women are responsible for 60–80 percent. Women's participation in agricultural production is consistently expanding and in the face of this, women continue to face traditional restraints.

Women lack access to input supplies, extension advice, credit and the most important agricultural resource-land. This continues despite their increased participation rates.

Women now have heavier responsibilities and perhaps a strong presence but their say is still largely unheard. Rural women still don't have ownership on land and due to this they can't take independent decisions on various agricultural aspects (Afzal *et al.*, 2009)

According to (NSO. 2006), perceived obstacles to women participation in decision to be overall literacy level in the villages, low literacy level among women, lack of legal, economic and political literacy, informal patrilineal rules, lack of job opportunity for women, women job in less valued disciplines and sectors, lack of confidence, transportation difficulties for women, low payment of work for women, women work not recognized, violence against women, lack of media information, social conflicts, poor economic conditions and lack of social interaction.

Study done by Afzal *et al.* (2009) found major constraints to women empowerment in Agriculture to be; poor economic conditions, lack of social interaction social conflicts, education and low payment of work for women

Afzal *et al.* (2009) recommend policy makers to strengthen the women organizations and rural areas must be provided with work opportunities for women. Policies should also be made to recognize women's work and offering of adequate wages for them. These policies may help to reduce the poor economic situation of the rural areas and empowerment of women particularly in agricultural decision making activities

CHAPTER THREE

3.0 METHODOLOGY

This chapter covers description of the study area, research design, Sampling, data collection and data analysis methods.

3.1 Description of the Study Area

Coast region is on the Eastern part of Tanzania mainland and a large part of the region is situated along the Indian Ocean coastal belt. Bagamoyo district is among districts in Coast region where the study areas (Chalinze and Kiwangwa) are found. It is located between the longitude 38°00' and 39°00' East and the latitude 5°30' and 7°00' South. It's economy depends heavily on agriculture, natural resources, livestock and mining (NBS, 2007). The region is potential for production of wide range of horticultural products including fruits and vegetables (Mbelwa, 1999). It is estimated that out of 141,052 tons of major cash crops produced in Coast region in 2005, 69,928 tons were of fruits (NBS, 2007).

By 2005, there were 986 women economic groups in the Coast region. 166 of the total regional groups were found in Bagamoyo district (NBS, 2007). The women groups engage in various Income Generating activities, the major one being agriculture. Among crops which they engage mostly in producing are fruits and vegetables.

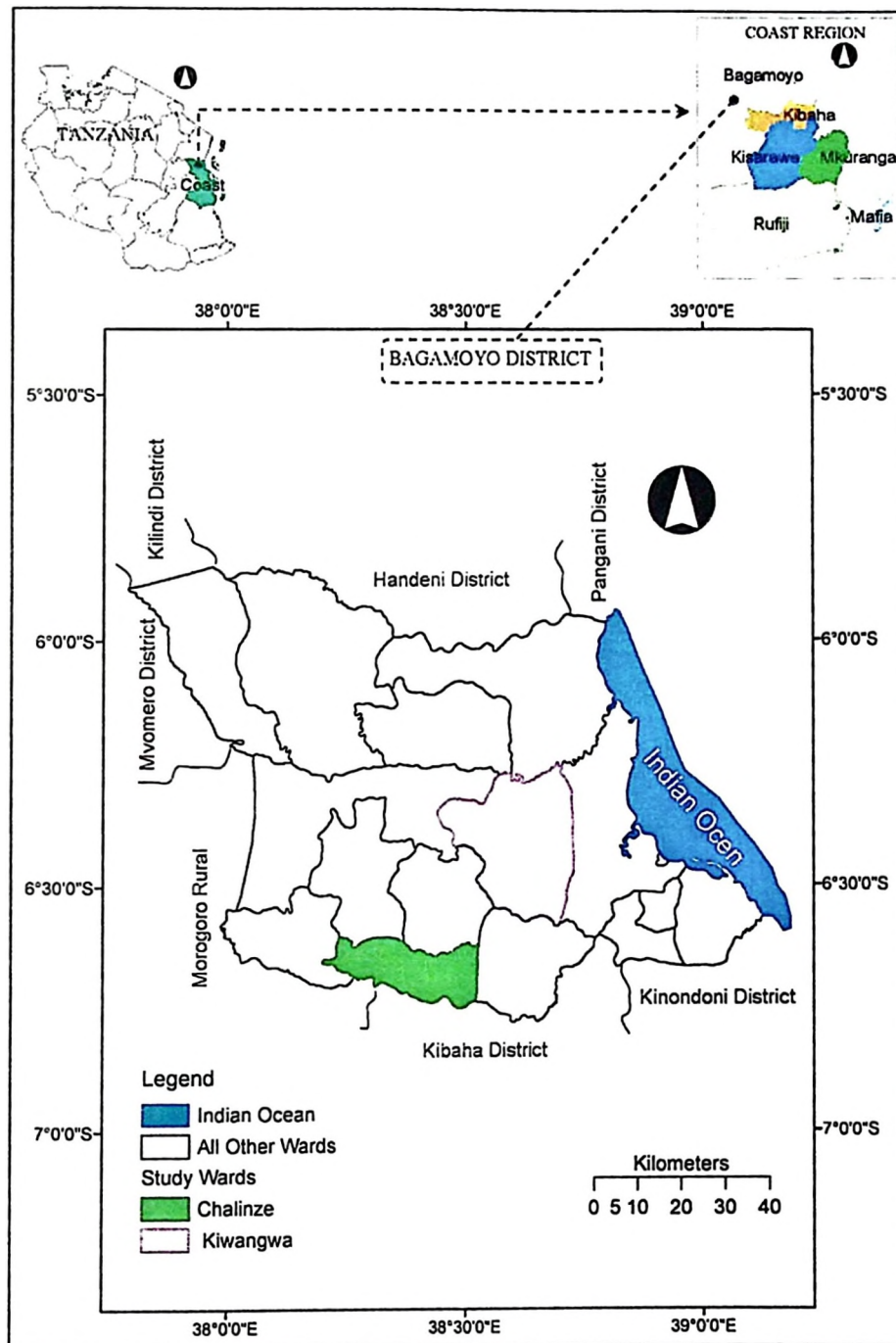


Figure 2: The Map of Bagamoyo District to Show the Study Areas (Chalinze and Kiwangwa).

Source: Bagamoyo District Council

3.2 Research Design

The research design was a cross sectional survey. The design consists asking questions to representative sample of the population at single point in time (Babbie, 1990).

3.3 Sampling Method

Purposive sampling technique was used to select wards and villages in Chalinze and Kiwangwa wards basing on the presence of women and men economic groups involved in fruits and vegetables value chain (particularly in processing fruits and vegetables) then followed by the simple random sampling which was employed to obtain the respondents for interview.

3.4 Data Collection

Primary data were collected by interviewing female and male respondents in Chalinze and Kiwangwa wards who were involved in fruits and vegetables value chain by using Structural questionnaire which was administered (by the trained enumerators) to 121 and 118 female and male respondents respectively.

3.5 Data Processing and Analysis

The data was analysed using Statistical package for social scientist (SPSS) and STATA.

Logit model and profit margin analysis was employed to identify factors influencing women position in fruits and vegetables value chain and to determine the profit margin accruing women actors in various levels of the value chain respectively.

Logistic regression model:

$$\ln(P_i/1-P_i) = \alpha + \beta_i X_i + \varepsilon \dots\dots\dots(1)$$

Whereby, P_i = Probability of women to occupy higher level positions (Positions close to market from intermediary trader to retailer) $1-P_i$ = Probability of women to occupy lower positions (Positions not close to market, that is below intermediary trader); α = constant (Y-intercept), β_i = Coefficients of independent variables (slope coefficients); $\beta_i = \beta_1, \beta_2, \beta_3, \beta_6$; $X_i = X_1, X_2, X_3, \dots, X_6$; X_1 = Education level; X_2 = Marital status X_3 = income X_4 = Position in the household X_5 = Land ownership X_6 = Access to market information X_7 = membership in farmers' association ϵ = Error term.

Table 1: Model description

Predictors	Expected influence on position in fruits and vegetables value chain
X_1 = Education level (Years of formal schooling)	Respondents with higher education level are more likely to occupy higher levels in fruits and vegetables value chain
X_2 = Marital status	Single respondents are more likely to occupy higher levels in fruits and vegetables value chain
X_3 = Income	Respondents with the higher level of income are more likely to occupy higher level positions in fruits and vegetables value chain
X_4 = Position in the household	Respondents who occupy the higher positions in the household (like head of household) are more likely to occupy the higher level positions in fruits and vegetables value chain
X_6 = Land ownership	Respondents who own larger land size are more likely to be positioned in higher levels of fruits and vegetables value chain.
X_2 = Access to market information	Respondents who access market information are more likely to be positioned in higher levels of fruits and vegetables value chain
X_4 = Access to market	Respondents who are distanced nearby the market place are more likely to be positioned in higher levels
Membership in farmers, associations	Respondents who are members of various farmers associations are more likely to occupy the higher level positions in fruits and vegetables value chain

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Introduction

This chapter covers the presentation of survey data results and their discussion with respect to the study objectives which were: to identify activities done by women and men in fruits and vegetables value chain, to determine the profit margin accrued by women and men in fruits and vegetables value chain and to identify factors influencing women and men position in fruits and vegetables value chain

4.2 Demographic Characteristics of Respondents

Table 2 shows that, the most of both female and male respondents in all wards were aged from 26 to 55 years with more male respondents than female respondents in this age group (84% comparing with 75%). None of the female respondents interviewed in all wards was under 18 years (0%) while (2%) of male respondents (all coming from Kiwangwa ward) were under 18 years. More female than male respondents were 56 years and above (9% comparing with 6%). In their related study to the Factors Hampering Women Empowerment in Agricultural Decision Making in Pakistani, (Afzal *et al.*, 2009) found most respondents in the young age group (up to 30 years).

A large majority of both female and male respondents were married (Table 2), however there were more married male respondents than female respondents (87% comparing with 76%). This represents that, many farmers who were involved in fruits and vegetables sectors in the areas surveyed were married. Probably the married especially female respondents encounter so many family responsibilities which would likely to position them in the lower levels of fruits and vegetables value chain. Some normal married women's

domestic chores are cooking, taking care of children, elderly and disabled; fetching water and fuel, cleaning and maintaining the house Afzal *et al.* (2009). Women marriage and the general responsibility of the family cause to decrease their labor participation rate and in contrast, the divorced or single people, have the higher labor participation rate because they have enough time to work outdoors and need financing to fund its life (Aly and *et al.*, 2000 cited by Khodamoradi and Abedi, 2011). Customary laws and social attitudes in some of the more rural parts further restrict women's mobility and opportunities to work outside the home after marriage (USAID, 2009). Hence probably restricted women mobility might also position women in the lower levels of fruits and vegetables value chain

There were more single male respondents than female respondents (9% comparing with 7%). May be this is because women are supposed to be married at the younger age. According to USAID (2009), women are expected to marry soon after reaching 18 years of age; men tend to marry in their mid-20s. There were more widow female respondents than widower male respondents (7% comparing with 2%). There were more divorced female respondents than male respondents (9% comparing with 3%), (Table 2). According to Aly and *et al.* (2000) cited by Khodamoradi and Abedi, (2011) divorced and single people have high degree of labor participation rate.

Education level of the most of male and female respondents in all wards was the primary education level with more male respondents than female respondents at this level (83% comparing with 74%). However there were reported drop out cases commonly at standard four. There were more illiterate female respondents (no formal schooling) than male respondents (21% comparing with 8%), there were more male respondents with secondary (ordinary level) education than female respondents (8% comparing with 3%), approximately an equal number of female and male respondents attended adult education

(2%), however at Chalinze male respondents who attended adult education outnumbered female respondents (5% comparing with 2%). Moreover, there was a female respondent from Kiwangwa ward with the diploma (0.8%) while none of male respondents had the diploma (0%). Afzal *et al.* (2009) found majority of respondents illiterate.

Women and girls remain among those with the lowest educational levels and are hardly represented at all in a number of tertiary educational sectors. Under prevailing economic conditions girls' already marginal access to post-primary and higher education is being eroded (O'Riordan *et al.*, 1997). The knowledge intensive nature of horticulture will require that women have access to educational opportunities and that technical information is delivered in a gender sensitive manner (USAID, 2005).

Perhaps low level of education caused farmers particularly women farmers to lack various skills like business skills, processing skills that would position them in the higher levels in the fruits and vegetables value chain. Access to relevant education has been identified as critical in contributing to the potential of the informal sector enterprises operated by women to realize their transformative potential in increasing entrepreneurs' economic positions and, therefore, decreasing their vulnerability to poverty (O'Riordan *et al.*, 1997). A lack of education disempowers individuals at the chain management level, reducing their ability to communicate with buyers and suppliers and limiting their bargaining power (FAO, 2010). Education opportunities available to men and women can facilitate access to employment along (towards the higher levels) the value chain (USAID, 2009).

Gendered education systems affect the way men and women gain from their participation in value chains in several ways – firstly, women's income is often limited by their occupancy of lower skilled roles; secondly, the less educated are less able to access training

and thereby upgrade their skills and knowledge; thirdly, they are less able to access and process market and financial information. Thus, women, on aggregate tend to earn less than men even in similar roles (World Bank 2001, 2007).

Zareen and colleagues in their paper study to the economic participation of women in Pakistan show that the financial position of households, education and marital status have positive effect (Zareen *et al.*, 2002). These factors might also influence women participation in various levels of fruits and vegetables value chain and hence influence their position.

Table 2: Demographic characteristics of respondents

Age(years)	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
<18	0.0	0.0	0.0	0.0	2.1	1.7
18-25	23.3	11.5	15.7	19.0	6.2	8.5
26-55	65.1	80.8	75.2	76.2	85.6	83.9
>55	11.6	7.7	9.1	4.8	6.2	5.9
Marital status						
Single	9.3	6.4	7.4	19.0	6.2	8.5
Married	72.1	78.2	76.0	76.2	89.7	87.3
Widow (er)	7.0	7.7	7.4	0.0	2.1	1.7
Divorced/Separated	11.6	7.7	9.1	4.8	2.1	2.5
Education level						
Illiterate	34.9	12.8	20.7	19.0	5.2	7.6
Adult classes	2.3	1.3	1.7	4.8	1.0	1.7
Primary school	62.8	79.5	73.6	76.2	84.5	83.1
Secondary	0.0	5.1	3.3	0.0	9.3	7.6
Diploma	0.0	1.3	0.8	0.0	0.0	0.0

4.3 The Average Monthly Income of Respondents from Fruits and Vegetables

Table 3 shows, the average monthly income from fruits and vegetables earned by male respondents was relatively higher than that earned of the female respondents (Tshs 252

647.32 comparing with Tshs 68 766.08 per month). The deviation from the average income was higher for male than female respondents (Tshs 428 796.32 comparing Tshs 139 864.95 per month). The minimum income was higher for male than female respondents (Tshs 8500 comparing with Tshs 4166 per month). Moreover, the maximum monthly income was higher for male than female respondents (Tshs 3 216 666.67 comparing with Tshs 1 245 166.67).

The results from t-test show that, the difference in income between female and male respondents is statistically significant at 5% level of significance. This is in consonance with many number of studies which found women in less profitable positions in many agricultural value chains despite their higher participation rate (Abedi and Khodamoradi, 2011; Mihran and Parto, 2010; FAO, 2010; Mayoux, 2009; USAID, 2005, 2009; World Bank, 2005, 2009; Dolan and Tewari, 2001; Barrientos *et al.*, 2000).

Table 3: Monthly income from fruits and vegetables (in Tshs)

Income	Female	Male
Mean	68 766.08	252 647.32
Std. Deviation	139 864.95	428 796.70
Minimum	4 166.67	8 500
Maximum	1 245 166.67	3 216 666.67

t-test significance difference in income (0.000)

4.4 Respondents' Trained Skills

The large number of both female and male respondents in all wards had Agricultural Management skills with more male than female respondents with these skills (56%

comparing with 39%), more male than female respondents had business skills (6% comparing with 3%), approximately an equal number of female and male respondents had other skills like driving skills and mechanical skills for male and tailoring and catering for female (38%), none (0%) of male respondents interviewed in all wards reported to lack at least one skill while 21% of female respondents reported to lack at least one skill (Table 4).

At Chalinze, none of female respondents reported to have business skills (0%) while 5% of their counterpart (male respondents) reported to have business skills.

Probably, lack of various skills in combination, like agricultural skills and business skills, limits farmers (especially women farmers) position in the fruits and vegetables value chain thus it becomes hard to find them in the higher level positions. Lack of business skills is a key constraining factor to the development of informal sector enterprises operated by women (O’Riordan *et al.*, 2010). According to USAID (2009), business skills opportunities facilitate men and women employment along the value chain.

Table 4: Respondents’ other trained skills

Skills	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Agricultural						
skills	37.2	39.7	38.8	85.7	49.5	55.9
Business skills	0.0	3.9	2.5	4.8	6.2	5.9
Others	44.2	34.6	38.0	9.5	44.3	38.2
No any skill	18.6	21.8	20.7	0.0	0.0	0.0

4.5 Respondents' Main Occupation

The most of both female and male respondents stated farming as their main occupation with more female (all of them) than male respondents (100% comparing with 98%). Approximately an equal number of female and male respondents (1%) all coming from Kiwangwa ward stated business as their main occupation. One percent of female respondents (coming from Kiwangwa ward) stated the other main occupation besides farming and business. Upon probing, the other occupation that was done by the respondent was catering (Table 5).

Neither female nor male respondents (0%) at Chalinze ward stated business and/or others as the main occupation(s). Moreover no male respondents in all wards who stated other occupations as the main ones besides farming and business

Respondents reported that they had no other occupation(s) alternatives because they lacked various professional skills which consequently limited them to be formally employed. A few of respondents (especially female) had business skills consequently a few of them managed to do business.

Table 5: Respondents' main occupation

Occupation	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Farming	100.0	97.4	98.4	100.0	99.0	99.2
Business	0.0	1.3	0.8	0.0	1.0	0.8
Others	0.0	1.3	0.8	0.0	0.0	0.0

4.6 Respondents' Position in the Household

Results in Table 6 show that more male than female respondents were clan or household heads (94% comparing with 8%). The large number of female respondents in all wards (76%) were spouse while none of female respondents in all two wards reported to be a spouse (0%). More female than male respondents were the other members of the clan or households (12% comparing with 8%). Upon probing it was found that, the other members of the households were the relatives mainly of the clan or household head. It is also shown in Table 6 that, there were more sons than daughters (4% comparing with 3%)

Probably the fact that most female were not clan or household heads caused them to occupy the lower level positions in the fruits and vegetables value chain since this might caused them lack decision making power, might limited their access to various assets and resources like land and also might made them to have restricted mobility consequently limited their access to market and various services.

Table 6: Respondents' position in the household

Position	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Son/daughter	4.7	2.6	3.3	9.5	3.1	4.2
Head of clan	4.7	10.2	8.3	66.7	92.8	94.1
Spouse	72.0	78.2	76.0	0.0	0.0	0.0
Others	18.6	9.0	12.4	23.8	4.1	7.7

4.7 Respondents' Fruits and Vegetables Produce

When asked on whether they had constantly enough fruits and vegetables produce to meet the increased demand for fruits and vegetables, more female than male respondents claimed to have no enough produce to cater the demand for fruits and vegetables for all months in a year (63% comparing with 57%). This may be attributed to seasonality of various fruits and vegetables. Upon probing, many respondents mentioned shortage of fertilizer, shortage of labor and drought as the reasons for not having enough produce in all times in a season. Table 7 summarizes responses given by respondents.

Table 7: Enough produce to meet the demand for fruits and vegetables

Responses	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Yes	23.3	37.2	32.2	42.9	42.3	42.4
No	76.7	62.8	67.8	57.1	57.7	57.6

4.8 Factors Attracting Customer's to Purchase Respondent's Fruits and Vegetables

Produce

Respondents were asked on what they were normally doing in order to attract customers to purchase their fruits and vegetables produce. Results in Table 8 show that, majority of both female and male respondents, but male being more than female respondents (53% comparing with 51%) in all wards stated that, they normally ensured the better quality of their fruits and vegetables produce. Upon probing on how respondents ensured the better quality of their produce, many respondents reported that, they normally improved the physical appearance of their produce by (for example) washing vegetables to make them

clean, they also used to remove the top leaves of pineapples, they produced fresh green vegetables and they were also producing the big size of pineapples.

Table 8: Factors attracting customers to purchase respondents' fruits and vegetables produce

Factors	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Better quality	53.5	50.0	51.2	47.6	54.7	53.4
Affordable price	32.5	38.5	39.4	42.9	30.9	33.1
Market convenient	0.0	5.1	3.3	0.0	7.2	5.9
Others	14.0	6.4	9.1	9.5	7.2	7.6

4.9 Major Point of Sell

The most of both female and male respondents (66% and 51% respectively) sold their fruits and vegetables produce mainly at farm (Table 9), representing that the major point of selling fruits and vegetables produce was at farm for both women and men. More female than male respondents as shown in Table 9, sold their produce at farm implying that, many women than men made farm as the major point of sell. Upon probing, majority of female respondents reported that, they were restricted to travel out of their home to search for the market places because of family responsibilities they had encountered. Probably this might caused many women to be positioned in lower level positions in fruits and vegetables value chain. However, there were variations of responses across wards as explained below:

At Chalinze, the large number of female respondents (42%) sold their produce at home while the large number of male respondents (43%) sold their fruits and vegetables produce at the market. This represents that, the major point of selling fruits and vegetables produce for women was at home and on the other hand the major point of selling fruits and vegetables produce for men was at the market.

At Kiwangwa, the large proportion of both female and male respondents, female respondents being more than male respondents in this case, (80% comparing with 58%) sold their fruits and vegetables produce at farm, representing that the major point of selling fruits and vegetables for both women and men was at farm (Table 9).

Table 9: Major point of sell

Point of selling	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Farm	41.9	79.5	66.1	23.8	57.7	51.7
Market	2.3	2.5	2.5	42.9	15.5	20.3
Home	55.8	18.0	31.4	33.3	26.8	28.0

4.10 Membership in Farmers' Groups

The large proportion of both female and male respondents were non members of SACCOS with more female respondents than male respondents (93% comparing with 90%). More male respondents than female respondents were SACCOS members (10% comparing with 7%). At Chalinze none of the interviewed female and male respondents (0%) was found to be a SACCOS member (Table 10).

Also Table 10 indicates that, the large proportion of both female and male respondents were not members of FFS with more female respondents than male respondents who were not members (90% comparing with 81%). More male respondents than female respondents were members of FFS (19% comparing with 10%).

The most of both male and female respondents as shown in able 10 were not members of other farmers' groups like ROSCA with more male non members than female non members in this case (94% comparing with 92%). More female than male respondents were members of other farmers' groups (8% comparing with 6%)

Upon probing, many respondents reported that, they were not aware of the established farmers' groups in their areas that is why they were not members of any farmers' group. For those who were aware of the existence of farmers' groups reported that farmers' groups were not well established in their areas. The established groups faced many problems like lack of members' cooperation, lack of members' and leaders' commitment and poor members' financial contributions. These reasons made some respondents who were aware of the existence of established farmers' groups to choose not to be members of any group

In order to be able to address the problems and challenges facing farmers (particular women farmers) and promote them in the higher levels of the fruits and vegetable values chain, there should be mobilization of farmers' groups. World Bank (2009) recommends Strengthening of female community-based organizations to help women articulate their needs and identify solutions.

Table 10: Membership in Farmers' associations

	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
SACCOS						
Belong	0.0	10.3	6.6	0.0	12.4	10.2
Not belong	100.0	89.7	93.4	100.0	87.6	89.8
FFS						
Belong	7.0	11.5	9.9	4.8	21.6	18.6
Not belong	93.0	88.5	90.1	95.2	78.4	81.4
Others						
Belong	0.0	12.8	8.3	0.0	7.2	5.9
Not belong	100.0	87.2	91.7	100.0	92.8	94.1

4.11 Participation in Making Production Decision

The control of household level decisions and productive resources determine benefits of women's participation in agricultural value chains. Where both sexes play a role in decision making generic interventions, or even those applied to men only, can benefit both sexes (FAO, 2011). Table 11 sets out data on the participation of the respondents in production decision(s) making for jointly, self, spouse and the other household members owned fruits and vegetables plots.

4.11.1 Jointly owned plot

Table 11 shows that, majority of female respondents (55%) did not participate in making production decisions on the jointly owned plot(s) of fruits and vegetables. On the other hand, majority of male respondents (70%) participated in making production decision on the jointly owned plots of fruits and vegetables. This is representing that, fewer female respondents had decision making power on the jointly owned plot(s) of fruits and vegetables. Variations of responses occurred across wards as follows:

At Chalinze, the large proportional of female respondents (67%) did not participate in making production decision(s) on the jointly owned plot(s) of fruits and vegetables. On the other hand the large proportion of male respondents (71%) participated in making various production decisions for the jointly owned plot(s) of fruits and vegetables. Hence fewer women at Chalinze had the decision making power on the jointly owned fruits and vegetables plot(s) while men did have the production decisions making power on the jointly owned fruits and vegetables plots

At Kiwangwa, the large proportion of both female and male respondents (53% and 69% respectively) had the production decision(s) making power on the jointly owned plot(s) of fruits and vegetables. Hence both men and women at Kiwangwa had the production decisions making power on the jointly owned plot(s) of fruits and vegetables.

4.11.2 Self owned plot(s) of fruits and vegetables

The large number of both female and male respondents in all wards (62% and 86% respectively) had the production decision(s) making power on the self owned fruits and vegetables plot(s) hence they participated in making production decisions on the self owned plot(s) of fruits and vegetables. However, there were more male respondents than female respondents in this case, representing that, many men than women participated mostly in making various production decisions. Upon probing, many female respondents who had no production decision(s) making power reported that, production decision(s) for their self owned fruits and vegetables plots were made by their husbands and adult male relatives of their husbands. On the other hand, many male respondents reported that, the production decision(s) for their self owned fruits and vegetables plots were made by their adult relatives like father and grandfather.

4.11.3 Spouse owned plot(s)

The large proportion of female respondents (72%) in all wards had no production decision(s) making power on the spouse owned plot(s) of fruits and vegetables hence did not participate in making production decisions on the spouse owned fruits and vegetables plot(s). On the other hand, the large proportion of male respondents (64%) in all wards had the production decision making power on their spouse owned plot(s) of fruits and vegetables hence they participated in making production decisions on the spouse owned plot(s) of fruits and vegetables.

4.11.4 Other household members owned fruits and vegetables plots

The large number of female respondents (99%) in all wards had no production decisions making power on the other household members' fruits and vegetables plot(s) hence they did not participate in making production decisions on those plots. On the other hand, majority of male respondents (98%) had the production decision making power on the other household member's plots of fruits and vegetables hence they participated in making production decisions on others household members owned fruits and vegetables plot(s)

NSO (2006) conducted a survey in Pakistan related to the obstacles to the participation of women at decision-making positions. According to the survey findings, major obstacles faced by women in obtaining a decision-making or managerial position: 84% of women indicated childcare responsibilities as a barrier, while 82% of women cited the lack of partner's support. More women than men stated that long working hours (76% of women, compared with 69% of men) and age (46% of women, compared with 38% of men) represent significant obstacles for women in their pursuit of posts with greater responsibilities. About 30% of the survey respondents believed that women were

disadvantaged due to their sex; this reason was given more often by women than men (Whitehead, 2003),

Table 11: Participation in production decision making

Jointly owned plot	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total
Yes	32.6	52.7	45.5	71.4	69.1	69.5
No	67.4	47.3	54.5	28.6	30.9	30.5
Self owned plot						
Yes	74.4	65.4	62.3	76.2	87.6	85.6
No	25.6	34.6	34.7	23.8	12.4	14.4
Spouse owned plot						
Yes	20.9	32.1	28.1	85.7	58.8	63.5
No	79.1	67.9	71.9	14.3	41.2	36.4
Others' owned						
Yes	0(0.0)	1.3	0.8	100.0	97.9	98.3
No	100.0	98.7	99.2	0.0	2.1	1.7

4.12 The Need of Making Women Participate in Production Decision(s)

When asked on whether there was a need of making women participate in making various production decisions the large number of both female and male respondents (58% and 87% respectively) reported that there was a need of doing so since women were involved more in the production of fruits and vegetables. In this case there were more male respondents than female respondents implying that, men had started being transformed and they were moving towards women empowerment in agricultural decision making (Table 12).

However, (36%) of female respondents had no opinion on the importance of their participation in the production decision making. Upon probing many of these respondents reported that they lacked control over agricultural land because they were only given land to produce by their husbands when they got married which probably they might be required

to give back to their husbands or husband's relatives some days in future when they will be divorced or after their husband's death respectively.

Table 12: The need of making women participate in decision making

Response	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Yes	55.8	59.0	57.9	76.2	89.7	87.3
No	4.7	6.4	5.8	23.8	10.3	12.7
No opinion	39.5	34.6	36.3	0.0	0.0	0.0

4.13 Participation in Making Market Decisions

Table 13 sets out data on respondents' participation in making various market decisions like making market selling price decision. When asked whether they participated in making various market decisions for their fruits and vegetables produce more male respondents than female respondents had the yes vote (95% comparing with 67%). This indicates that, men had higher degree of participation in making various market decisions than women. This might reduce women chance of participating in higher levels of fruits and vegetables value chain.

Many female and male respondents who had no market decision(s) making power particularly on the market selling price reported that, they sold their fruits and vegetables produce following the price which prevails in the market. This can be associated with the market forces of demand and supply.

Table 13: Participating in making market decision

Responses	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Yes	67.4	66.7	66.9	90.5	95.9	94.9
No	32.6	33.3	33.1	9.5	4.1	5.1

Source: survey data 2010/2011

4.14 Who Makes Production Decisions in your Household

Table 14 shows that, majority of both female and male respondents (41% and 60% respectively) in all wards stated that, the husband was the one who was responsible for making most of the production decisions. It was reported by many respondents that, the husband had all rights to make production decisions to other members of the household because he had the control of the agricultural land. The husband (head of the clan/ household) was the one also responsible for dividing the agricultural land and give it to the other household members.

More female than male respondents stated that the wife is the one who made most of the household production decisions (22% comparing with 5%). More male than female respondents stated both husband and wife as the ones who made most of the production decisions in the household (30% comparing with 28%). Moreover, more female than male respondents stated other people like husband's relatives as the ones who made most of the production decisions in the household (8% comparing with 5%). One percent of female respondents (from Chalinze ward) stated adult male relative while 0% of male respondents stated that.

Table 14: Who makes production decisions in the household

Responses	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Husband	39.5	42.3	41.3	52.4	61.9	60.2
Wife	23.3	20.5	21.5	14.3	3.1	5.1
Husband and wife	20.9	32.1	28.1	23.8	30.9	29.6
Others	14.0	5.1	8.3	9.5	4.1	5.1
Adult male	2.3	0.0	0.8	0.0	0.0	0.0

4.15 Participation in Production Activities During the Peak Production Season

Gender roles play out in the division of labor in the household, the basic unit of economic production in agriculture, and in gender segregation of tasks along product value chains. Women and girls are delegated tasks that can be performed in or around the household on a recurrent daily basis, including farm-based activities like seedbed preparation, weeding, horticulture, and fruit cultivation (World Bank, 2005). Women participate in the early stages of horticultural production: planting, weeding, and watering (World Bank, 2009). Fig. 3 sets out data on who between men and women participate in land preparation, planting, weeding, fertilizer application and harvesting during the peak production season of fruits and vegetables.

4.15.1 Land Preparation

The most of respondents (51%) stated both men and women participated in doing land preparation representing that, land preparation activity during the peak production season was mostly done by both (men and women). Thirty three percent and sixteen percent of respondents stated men and women respectively as the ones who participated mostly in doing land preparation during the peak production season (Fig. 3).

However at Chalinze ward where vegetable production is dominating, land preparation was reported by many respondents to be done mostly by women. Upon probing, it was found that, more women than men were involved in vegetables production

4.15.2 Planting/Sowing

The most of the respondents stated that, planting/sowing of fruits and vegetables during the peak production season was mostly done by both men and women (52%) followed by 29% and 18% of respondents who stated that, planting of fruits and vegetables during the peak production season was mostly done by men and women respectively (Fig.4). This is representing that, planting/sowing of fruits and vegetables during the peak production season was done by (both men and women).

4.15.3 Weeding

A large majority of respondents (51%) stated both (men and women) as the ones who participated mostly in weeding during the peak production season generally implying that, weeding during the peak production season of fruits and vegetables was mostly done by both (men and women). Thirty one percent and nineteen percent of respondents stated men and women respectively as the ones who participated mostly in weeding during the peak production season of fruits and vegetables. This is in consonance with (Mihran and Parto, 2010) results who found that Weeding or breaking of the soil crust was carried out by both (men and women).

However at Kiwangwa ward where pineapple production is dominating, many respondents reported men as the ones who participated mostly in weeding. Upon probing on the reason for this, the most of respondents reported weeding of pineapples to be the task that is not favorable to women because of thorns that are associated with leaves of pineapples.

4.15.4 Fertilizer application

The large number of respondents (48%) stated both (men and women) as the ones who participated mostly in fertilizer application during the peak production season representing that, fertilizer application was mostly done both (men and women). Thirty one percent and sixteen percent of respondents stated fertilizer application was done by men and women respectively. Five percent of respondents stated that fertilizer application was not practiced.

However, at Chalinze, where vegetable production is dominating, many respondents stated women as the ones who were mostly involved in fertilizer application during the peak production season. The reason for this as reported by many respondents upon probing is that, vegetable production at Chalinze was women's duty. Female respondents being more than male respondents, it is representing that, fertilizer application was mostly done by women.

4.15.5 Harvesting

A large majority of respondents (49%) stated that, harvesting during the peak production season of fruits and vegetables was mostly done by both (men and women) followed by 32% and 19% of respondents who stated that harvesting was mostly done by men and women respectively (Fig. 3). Mihran and Parto (2010) in their related study to the Value Chain Governance and Gender: Saffron Production in Afghanistan, found harvesting/collecting of saffron flowers was done mostly by women and children.

Upon probing, many respondents reported that, both men and women had the responsibility of harvesting in their own fruits and vegetables plot hence they both participated in harvesting.

4.16 Participation in Value Adding Activities During the Peak Production Season

Women carry out the bulk of the value activities as domestic chores while the trading and marketing of finished agricultural products are carried out almost exclusively by men who are also the main financial beneficiaries of the process (Mihran and Parto, 2010). Two Key factors contributing to these inequitable arrangements are gender bias based on deeply ingrained cultural norms and the highly informal agricultural economy (Byravan 2008). Table 16 sets out data on who between men and women participate mostly in doing various value adding activities during the peak production season.

Respondents were asked on who between men and women participate mostly in value adding activities during the peak production season of fruits and vegetables. Fig. 4 shows distribution of respondents in response to this question.

4.16.1 Drying

The most of respondents (71%) stated that drying of fruits and vegetables was not practiced in their areas, representing that, drying of fruits and vegetables was not practiced in the study areas. Twenty two percent, five percent and three percent of respondents stated drying of fruits and vegetables was mostly done by women, both (men and women) and men respectively. (Mihran and Parto, 2010) found both men and women took part in drying saffron stigmas.

It was reported by many respondents that, they did not practice drying of fruits and vegetables because they had no skills and they lacked facilities for fruits and vegetables drying.

4.16.2 Grading

A large majority of respondents (72%) stated that grading of fruits and vegetables was not practiced in their areas representing that, grading was not practiced in the study areas. Upon probing, many respondents reported that, they lacked skills for grading hence they failed to practice it in their areas.

Thirteen percent of respondents stated that, grading of fruits and vegetables was mostly done by men. Approximately an equal number of respondents (8%) stated that grading of fruits and vegetables was mostly done by women and both (men and women).

4.16.3 Packaging

Data in fig. 4 represent that, packaging of fruits and vegetables products was not practiced in the study areas since a large majority of respondents stated that, drying was not practiced in their areas. Twenty nine percent, twenty eighty percent and six percent of respondents stated that, drying of fruits and vegetables products was mostly done by men, both (men and women) and women respectively. (Mihran and Parto, 2010) in their related study to the Value Chain Governance and Gender: Saffron Production in Afghanistan found women were the main workers in packaging and work mainly in the processing centers set up by these businesses

4.16.4 Transportation

Fig.4 shows that, transportation of fruits and vegetables was mostly done by men since a large majority of respondents stated so (43%). This is in consonance with (USAID, 2009) who states that, majority of transporting companies are owned by men. Twenty seven percent, eighteen percent and thirteen percent of respondents stated that, transportation of fruits and vegetables was not practiced, was mostly done by both (men and women) and women respectively.

Upon probing, female respondents reported that, family responsibilities and their marital status caused them to have limited mobility hence they could not participate mostly in transporting fruits and vegetables.

4.17 Respondents' Perception on who gets the Highest and the Lowest Returns

Results in table 17 shows that majority of both female and male respondents at all wards (50% and 42% respectively) stated that, intermediary traders were the ones who received the highest returns. Many respondents reported that, intermediary traders used to buy fruits and vegetables produce at the very low price(s) and they used to sell them at the very.

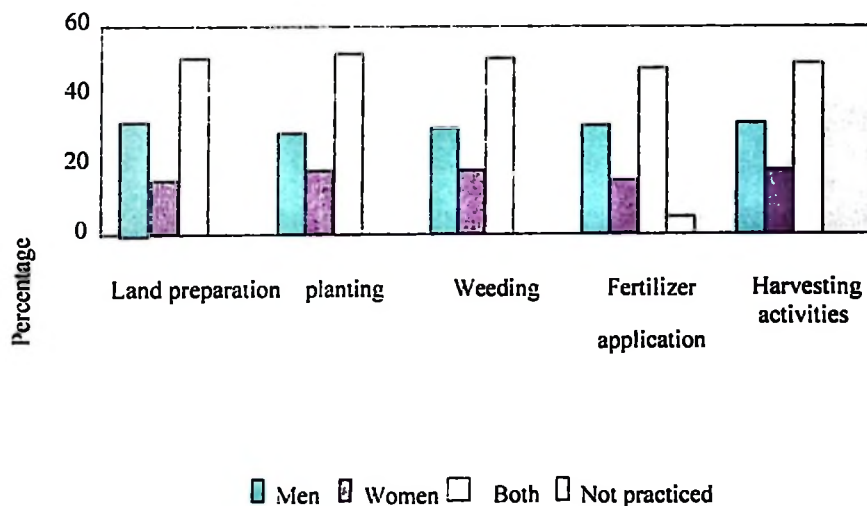


Figure 3: Participation in production activities.

More male than female respondents perceived farmers as the ones who received the highest returns (9% comparing with 7%). Also more male than female respondents mentioned processors as the ones who received the highest returns (26% comparing with 22%). More female than male respondents perceived retailers as the ones received the highest returns

(10% comparing with 7%). 0.8% of male respondents did not know who received the highest returns

Majority of both female and male respondents perceived farmers as the ones who received the lowest returns with more female than male respondents (91% comparing with 84%). Approximately an equal number of female and male respondents (7%) perceived intermediary trader as the one who received the lowest returns. More male than female respondents perceived retailer as the one who received the lowest returns (3% comparing with 1%). More male than female respondents perceived whole seller as the one who received the lowest returns (3% comparing with 2%). One Percent of male respondents stated that they did not know the one who received the lowest returns while 0% of female respondents stated that.

Table 15: Respondents' perception on who gets the highest and the lowest returns

Highest returns	Female (%)			Male (%)		
	Chalinze (n=43)	Kiwangwa (n=78)	Total (n=121)	Chalinze (n=21)	Kiwangwa (n=97)	Total (n=118)
Farmer	9.3	5.1	6.6	19.0	7.2	9.3
Intermediary trader	39.5	55.1	49.6	57.1	39.2	42.4
Processor	14.0	26.9	22.3	14.3	28.9	26.3
Retailer	23.2	2.6	9.9	4.8	7.2	6.8
Whole Seller	14.0	10.3	11.6	4.8	16.5	14.4
Don't know	0.0	0.0	0.0	0.0	1.0	0.8
Lowest returns						
Farmer	86.0	93.6	90.9	81.0	84.5	83.8
Intermediary trader	9.3	5.1	6.6	14.3	5.2	6.7
Retailer	0.0	1.3	0.8	0.0	3.1	2.5
Whole seller	4.7	0.0	1.6	4.7	3.1	3.3
Do not know	0.0	0.0	0.0	0.0	1.0	0.7

4.18 Perception of Respondents Towards the Influence of the Socio-Economic Factors on an Individual's Position in Fruits and Vegetables Value Chain

Respondents were asked about their perception towards the influence of various socio-economic factors on the individual's position in fruits and vegetables value chain. Fig. 5 summarizes the responses.

The most of respondents (68%) stated that, education level of an individual mostly influences his or her position in fruits and vegetables values chain. Eighty percent of respondents stated that, education level moderately influences individual's position in FVV while 24% of respondents stated that, education level does not influence individual's position in fruits and vegetables value chain.

When respondents were asked on the influence of income, the most of them (80%) stated that income mostly influences individual's position in fruits and vegetables value chain, 12% of respondents stated that income moderately influences individual's position in fruits and vegetables value chain while 13% of respondents stated that, income does not influence individual's position in fruits and vegetables value chain.

Respondents were also asked on the influence of marital status on individual's position in fruits and vegetables value chain and the following responses were obtained; 45% of respondents stated that marital status does not influence individual's position while 34% and 18% of respondents stated that, marital status influences mostly and moderately respectively individual's position in fruits and vegetables value chain implying that, marital status influences individual's position in fruits and vegetables value chain since number of respondents who stated so exceeds 50%.

Respondents' responses on the influence of land ownership were as follows; The most of them (54%) stated that, land ownership does not influence individual's position in fruits and vegetables value chain while 26% and 20% of respondents stated that land ownership moderately and mostly influences individual's position in fruits and vegetables value chain respectively.

Respondents' responses on the influence of the individual's position in the household were as follows: 41%, 36% and 23% of respondents stated it mostly influences, does not influence and moderately influences respectively individual's position in fruits and vegetables value chain implying that, position of the individual in the household influences his or her position in fruits and vegetables value chain since more than 50% of respondents stated so.

More than 50% of respondents (30% and 22%) of respondents stated that access to market information moderately and mostly influences individual's position in fruits and vegetables value chain respectively. Access to market information influences individual's position in fruits and vegetable value chain since 30% and 22% of respondents Forty eight percent of respondents stated that it does not influence individual's position in fruits and vegetables value chain.

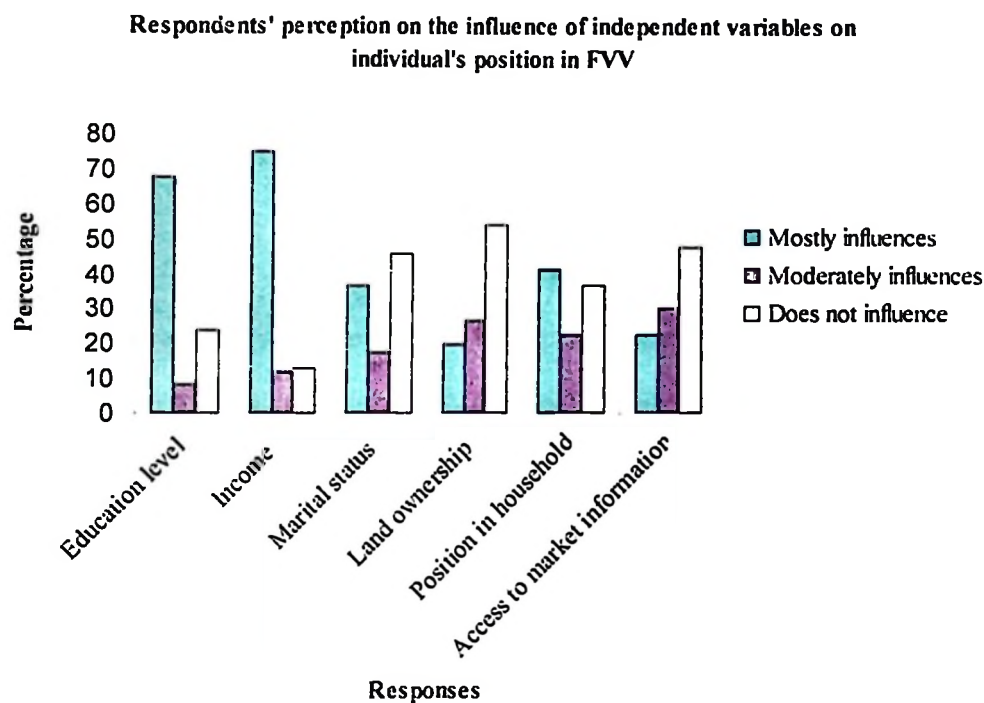


Figure 4: Respondents' perception on the influence of independent variables on individual's position in FVV

4.19 Gross Margin Analysis

The profitability of major fruits and vegetables produced was estimated using the Gross margin analysis (GM). Data presented revealed the major picture at the time of interview which is subject to change as a result of seasonality of supply that influences prices.

4.19.1 Gross margin for pineapples

The common unit of selling pineapples was a pineapple (per pineapple) in all wards surveyed for both female and male respondents. It is shown in Table 19 that, male respondents received the relatively higher average gross margin from pineapples than that received by female respondents (Tsh 589 195.00 per acre per year comparing with Tsh 1 520 240.00 per acre per year). The results from t-test show that, the difference is significant

at 5% level. This shows that, men earned relatively higher profit than women from pineapples.

The average pineapple yields were relatively higher for male respondents than female respondents (11 848 pineapples comparing with 4283 pineapples per acre per year). Likewise, the average selling price was relatively higher for male respondents than female respondents (Tshs 261.00 per pineapple comparing with Tshs 254.00 per pineapple). The higher the average pineapple yields and the higher the average selling price consequently made male respondents to have the relatively higher amount of revenue from pineapples than female respondents (Tsh 4 141 056 comparing with Tsh 1 905 483.33 per acre per year).

The total average variable cost which includes costs of farm inputs (seeds, fertilizer and pesticides/herbicides), transport and loading costs, labour costs, costs due to loss/damage (perishability), market fee and other costs like emergence and insurance was higher for male respondents than female respondents (Tsh 1 520 240 Comparing with Tsh 498 686.92 per acre per year). The results from t test show that, the difference in the average pineapple yields, the average revenue and the average gross margin between female and male respondents is statistically significant at 5% level of significance. The difference in the total variable cost and the average selling price between female and male respondents is statistically significant at neither 5% nor 10% level of significance.

Table 16: Gross margin Analysis for pineapples

Description	Female GM (n=86)	Male GM (n=109)	Significance
Average yield (pineapples/acre)	4283	11 848	0.015
Average price (Tshs/pineapple)	254.00	261.00	0.47
Average revenue (Tshs/acre)	1 087 882.00	3 092 328.00	0.02
<i>Less</i>			
Average variable cost(Tshs/acre)	498 687.00	1 572 088.00	0.305
AGM (Tshs/acre)	589 195.00	1 520 240.00	0.022

AGM= Average gross margin

4.19.2 Gross margin analysis for banana

A hand of banana was a common unit of selling banana for both male and female respondents in all areas surveyed. The results in table 20 show that, male respondents received the relatively higher average gross margin from banana than female respondents (Tshs 202 987.00 per acre per year comparing with Tsh 152 827.00 per acre per year) implying that, men earned relatively higher profit from banana than women. However, the results from t-test show that the difference in banana gross margin between female and male respondents is not statistically significant at 5% level of significance.

Male respondents had relatively higher banana yields than female respondents (89 hands comparing with 66 hands). They also sold a hand of banana at the relatively higher average price than female respondents (Tsh 2937 comparing with Tsh 3188 per hand). The revenue earned by male respondents was relatively higher than female respondents (Tshs 261 393.00 comparing with Tshs 210 408.00 per acre). Moreover male respondents encountered relatively higher average variable costs than female respondents (Tshs 58 405 per acre comparing with Tshs 57 581.00 per acre).

The results from t- test show that, the difference in the average banana yield, banana average price, banana average variable cost and the average gross margin from banana between male and female respondents is not statistically significant at 5% level of significance. However, there is the significant difference between the average revenue from banana between male and female respondents.

Table 17: Gross margin analysis for banana

Description	Female (n= 49)	Male (n=71)	Significance
Average yield (hands)	66	89	0.216
Average price (Tshs/hand)	3188.00	2937.00	0.263
Average revenue (Tshs/acre)	210 408.00	261 393.00	0.015
<i>Less</i>			
Average variable cost(Tshs/acre)	57 581.00	58 405.00	0.501
AGM (Tshs/acre)	152 827.00	202 987.00	0.134

AGM= Average gross margin

4.19.3 Gross Margin Analysis for Mangoes

A mango was a common unit of selling mangoes in all wards surveyed for both male and female respondents. Male respondents received the relatively higher gross margin from mangoes than female respondents (Tsh 823 699 comparing with Tsh 13 750.00 per acre per year).

Male respondents had relatively higher average mangoes yields than male respondents (5804 mangoes comparing with 850 mangoes per acre per year), Male respondents sold their mangoes at relatively higher average price than female respondents (Tshs 151.00/mango comparing with Tshs 40.00/mango), Moreover male respondents earned relatively higher average revenue from an acre of mangoes than female respondents (Tshs 876 404.00 comparing with Tshs 34 000.00 per acre per year). Male respondents encountered relatively higher production costs per acre than female respondents (Tshs 52 705 per acre per year comparing with Tshs 29 685.00 per acre per year).

The results from t test show that there is the significance difference in the average mangoes yield per acre, average revenue per acre of mangoes, average variable cost per acre and average gross margin per acre at 5% level of significance. However, there is no significance difference in the average selling price of a mango between male and female respondents.

Table 18: Gross margin for mangoes

Description	Female GM (n=34)	Male GM (n=51)	Significance
Average yield(Mangoes)	850	5804	0.046
Average price(Tshs/Mango)	40.00	151.00`	0.180
Average revenue (Tshs)	34 000.00	876 404.00	0.010
<i>Less</i>			0.015
Average variable cost (Tshs)	29 685.00	52 705.00	0.015
AGM (Tsh/acre)	13 750.00	823 699.00	0.003

Note: AGM= Average gross margin

4.19.4 Gross Margin for Amaranthus

A bunch which approximately weighs 0.72g was a common unit of selling amaranthus for both male and female respondents in the survey areas. Female respondents received relatively higher gross margin from amaranthus than male respondents (Tsh 1 926 621.87 per acre per year comparing with Tsh 1 377 762 per acre per year), (Table 19) The difference in gross margin may be attributed to the higher participation rate of female respondents than male respondents in production of amaranthus particularly at Chalinze ward.

Female respondents had relatively higher average amaranthus yields than male respondents (6168 bunches comparing with 4334 bunches). Female respondents sold their amaranthus at relatively higher average price than male respondents (Tsh 445.00 per bunch comparing with Tshs 341.00 per bunch). Moreover, female respondents earned relatively higher average revenue from amaranthus than male respondents (Tshs 2 744 760.00 per acre per year comparing with Tshs 1 477 894.00 per acre per year).

The results from t test show that there is the significance difference in the average amaranthus yield per acre, average amaranthus selling price per bunch, average variable cost per acre and average gross margin from amaranthus per acre between male and female respondents at 5% level of significance. However difference in the average revenue per acre of amaranthus between male and female respondents is not statistically significant at 5% level.

Table 19: Gross margin for amaranthus

Description	Female GM (n=97)	Male GM (n=63)	Significance
Average yield (bunches)	4334	6168	0.003
Average price (Tshs/bunch)	341	445.00	0.032
Average revenue (Tshs)	1 477 894	2 744 760	0.424
<i>Less</i>			
Average variable cost(Tshs)	100 132.00	818 138.13	0.005
AGM (Tshs/acre)	1 377 762.00	1 926 621.87	0.022

Note: *AGM= Average gross margin*

4.20 The Logistic Regression Model

This model was meant for assessing factors influencing women position in fruits and vegetables value chain for both female and male respondents.

4.20.1 The model

The proposed logistic model had the logic that the factors influenced farmers position in fruits and vegetables value chain (was expressed as the dichotomous variable basing on the perceived farmers position as 1= Positions close to market (from intermediary trader to retailer), 0= Otherwise (positions not close to market i.e. below intermediary trader position). Specification of the model is as follows:

$$\ln (P_i/1-P_i) = \alpha + \beta_i X_i + \varepsilon \dots \dots \dots (1)$$

Whereby, P_i = Probability of farmers to occupy higher level position $1-P_i$ = Probability of farmers to occupy positions close to market α = constant(Y-intercept), β_i = Coefficients of

independent variables (slope coefficients); $\beta_i = \beta_1, \beta_2, \beta_3, \dots, \beta_6$; $X_i = X_1, X_2, X_3, \dots, X_7$; X_1 = Education level; X_2 = Marital status; X_3 = Income X_4 = Position in the household X_5 = Land ownership X_6 = Access to market information; X_7 = Membership in farmers' associations ϵ = Error term.

Table 20: Measurement of Independent Variables

Independent variables	Measurement
Education level of respondents	Years of formal schooling
Marital status of respondents	Dummy: married/otherwise: 1/0
Income	'000Tshs
Position in the household	Head of clan or household/otherwise: 1/0
Land ownership	Acres
Access to market information	Dummy: access/otherwise: 1/0
Membership in farmers' associations	Dummy member/otherwise: 1/0

4.20.3 Hypothesized outcome for independent variables

The coefficient α : In the model represents autonomous odd ratio i.e. the value of odd ratio when all independent variables are assumed to be equal to zero. It is expected that in the absence of all independent variables, the position of farmers in the fruits and vegetables value chain will be higher. The odd ratio will be positive and thus the expected sign of coefficient (α) will be positive.

Education level: In the model, the coefficient β_1 attached to X_1 (education level) represents the marginal change in odd ratio due to unit change in position of respondents in fruits and vegetables value chain. It is expected that, as education level of respondent increases, the

probability of respondents to occupy the higher level position in fruits and vegetables value chain will increase. The expected sign of the coefficient is the positive sign.

Marital status: Coefficient β_2 attached to the variable X_2 (marital status) represents the marginal change in odd ratio resulting from the change in the individual's marital status. Single and divorced respondents are expected to have the higher probability to occupy the higher level positions in fruits and vegetables value chain. The coefficient is expected to have the negative sign.

Income: Coefficient β_3 attached to the variable X_3 (income) stands for marginal change in the odd ratio resulting from a unit change in the average income. It is assumed that as average income of respondents increases the probability of the respondents to occupy the higher levels in the fruits and vegetables value chain will also increase. The coefficient is expected to have the positive sign

Coefficient β_4 attached to the variable X_4 (position of the farmer in clan/household) shows that, as the farmer assumes the higher positions in the clan/household (position towards being the head of clan/household) his/ her probability to occupy the higher level positions in fruits and vegetables value chain will consequently increase. The coefficient is expected to have the positive sign.

Coefficient β_5 attached to the variable X_5 represents the marginal change in odd ratio resulting from a unit change (in acre) of the land owned by farmer. A unit increase in the land owned by the respondent is expected to raise him/her in the higher level positions in fruits and vegetables value chain. The expected sign of the coefficient is the positive sign.

Coefficient β_6 attached to the variable X_6 (Access to market information) stands for the marginal change in the odd ratio due to the increased access to the market information. It is assumed that the more the farmer accesses market information the higher the position in fruits and vegetables he/she will occupy. The expected sign of the coefficient is the positive sign

Coefficient β_7 attached to the variable X_7 (membership in farmers' association) stands for the marginal change in the odd ratio due to farmers being members of various farmers' associations. It is assumed that, farmers who belong to various farmers' associations have the greater chance to occupy the higher level positions in fruits and vegetables value chain. The expected sign of the coefficient is the positive sign

4.20.4 Logistic regression results for female respondents

It is clearly shown in table 21 that, education level, position of women in the household and membership in farmers association were statistically significant at 5% level of significance. While coefficients of education level and membership in farmers' association predicted positively the probability of women to occupy the higher level positions in fruits and vegetables value chain, position in the household predicted it negatively.

Marital status and income coefficients were in agreement with the hypothesized signs (negative and positive respectively) but were not significant at 5% level of significance. Land ownership and access to market information coefficients signs were negative (different from the expectations) and they were not significant at 5% level of significance. Table 21 also shows marginal effects of the independent variables which express how changes in those variables trigger changes in the probability of women to occupy the higher

level positions in fruits and vegetables value chain. Marginal probability for continuous variables is computed differently from the dichotomous variables.

The marginal probability of the positive increase in the probability of women to occupy the higher level positions in the fruits and vegetables value chain due to the addition of one year of formal schooling is 0.007% while the marginal probability of the positive increase in the probability of women to occupy the higher level positions in the fruits and vegetables value chain by being a member of farmers' associations is 0.167%.

The marginal probability of the decreasing in the probability of women to occupy the higher level positions in the fruits and vegetables value chain owing to the increase their position in the household is 0.147%.

Table 21: Estimated coefficients of women position in fruits and vegetables value chain using binary logistic model

Variable	Coefficients	Standard Error	Significance	Marginal Effect (dy/dx)
Education level	0.3142	1.2 052	0.015	0.00718
Marital status	-1.3474	1.205 163	0.264	-0.048807
Income	6.82e-07	5.01e-07	0.173	1.56e-08
Position in household	-2.3302	1.1 103	0.036	-0.1469684
Land ownership	-0.2753	0.395 304	0.486	0.0062929
Access to market information	-2.1547	1.278858	0.092	-0.045588
Membership in farmers' associations	3.0007	1.234134	0.015	0.1673521
Number of observations = 120				
Log likelihood = -18.385531				
Pseudo R-Squared = 0.5248				

4.20.5 Logistic regression results for male respondents

Education level, access to market information and membership in farmers' associations were statistically significant at 5% conventional level and expressed the positive signs of the coefficients as expected implying that, the probability of men to occupy the higher level positions in fruits and vegetables value chain increases with the increase in these variables by their values off marginal effects which are 0.002%, 2.78e-09 % and 0.107% respectively (Table 22).

Position in the household and land ownership coefficients expressed the negative signs (different from the hypothesized signs) and they were not statistically significant at 5% level of significance hence they are not statistically significant in explaining the reduction in the probability of men to occupy the higher level positions in fruits and vegetables value chain.

Marital status and income were not statistically significant at 5% level of significance though they expressed the expected signs of the coefficients (negative and positive sign respectively) hence they are not statistically significant in explaining the changes in the probability of men to occupy the higher level positions in fruits and vegetables value chain by their specified values of marginal effects (-0.0001% and 0.007% respectively).

Table 22: Estimated coefficients for men position in fruits and vegetables value chain using binary logistic model

Variable	Coefficients	Standard Error	Significance	Marginal Effect
Education level	0.6315	0.2042	0.002	0.0019
Marital status	-0.2639	0.1684	0.53	-0.0001
Income	1.24e-09	8.93e-08	0.166	0.0066
Position in household	-2.2180	1.2182	0.069	-0.1356
Land ownership	-0.2965	0.1585	0.065	0.0142
Access to market information	4.6931	1.6519	0.04	2.78e-09
Membership in farmers' association	2.0830	0.9685	0.031	0.1070
Number of observations = 116				
Log likelihood = -19.630074				
Pseudo R-Squared = 0.5553				

4.20.6 Logistic regression results for both female and male respondents

Education level, access to market information and membership in farmers' association were statistically significant at 5% conventional level. Education level and membership in farmers' association coefficients were positive indicating the positive relationship with the position of women in fruits and vegetables value chain as it was expected. This implies that, the probability of both women and men to occupy the higher level positions in fruits and vegetables value chain increases with their increase. The marginal probabilities of the positive increase in the probability of both women and men to occupy the higher level positions in fruits and vegetables value chain due to the increase in education level (increase in one year of formal schooling) and by being a member in farmers' associations

are 0.004% and 0.301% respectively. Access to market information coefficient sign (negative sign) turned out different from the expectations and the marginal probability of the decreasing in the probability of both women and men to occupy the higher level positions owing to its increase is 0.019%.

Marital status, income and position in the household though expressed the expected hypothesized signs of the coefficients (negative and positive sign respectively), they were not statistically significant at 5% level of significance hence they were not significant in explaining the decrease and increase in the probability of both women and men to occupy the higher level positions in the fruits and vegetables value chain.

Land ownership expressed the different sign (negative sign) of the coefficient from the expectations and was not statistically significant at 5% level of significance.

Table 23: Estimated coefficients both men and women position in fruits and vegetables value chain using binary logistic model

Variable	Coefficient	Standard Error	Significance	Marginal Effect (dy/dx)
Education level	0.5164	0.1291	0.000	0.0041
Marital status	-0.9105	1.2782	0.476	-0.0100
Income	1.59e-07	9.18e-08	0.083	1.25e-08
Position in household	2.3448	1.1338	0.039	0.0245
Land ownership	-0.2367	0.1371	0.084	-0.0019
Access to market information	-2.3503	0.8108	0.004	-0.0185
Membership in farmers' association	4.4135	0.9340747	0.000	0.3006
Number of observation = 239				
Log likelihood = -27.843735				
Pseudo R-Squared = 0.6038				

4.20.7 Multi co linearity Diagnosis

Multicollinearity is the problem which occurs when two or more predictors in the model are correlated and provide redundant information about the response.

VIF was used to test for the presence of multicollinearity problem. VIF greater than 5 indicates the presence of multicollinearity problem. Since all independent variables for female, male and both female and male presented in table 24 have VIF of less than 5 (Table 24), multicollinearity problem was not encountered in the model.

Table 24: Multicollinearity Diagnosis

Variables	Female	Male	Both
Education level	1.084	1.197	1.596
Marital status	1.068	1.259	1.126
Income	1.014	1.219	1.249
Position in household	1.095	1.272	2.026
Land ownership	1.052	1.124	1.350
Access to market information	1.086	1.119	1.735
Membership in farmers association	1.029	1.068	1.103

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Women at Chalinze and Kiwangwa were positioned at the relatively lower level positions than men in fruits and vegetables value chain (positions close to farm) basing on their relatively lower gross margin than men, their less participation in higher levels activities of fruits and vegetables value chain (example transportation) compared to men and their relatively lower participation in decision making than their counterpart (men)

Both men and women at Chalinze and Kiwangwa were found to participate mostly in doing production activities which are land preparation, planting/sowing, weeding, fertilizer application and harvesting but they were less involved in transporting fruits and vegetables products to various market places for sell. However they were less involved in marketing of fruits and vegetables produces.

The profit margin accrued women actors in fruits and vegetables value chain was found to be relatively lower than the profit margin accrued men actors.

Education level (years of formal schooling) and membership in farmers associations were found to be factors which influence both women and men position in fruits and vegetables value chain. On the other hand, position in the household was found to affect only women position while access to market information was found to influence men position in fruits and vegetables value chain.

5.2 Recommendations

To ensure that the poor rural women at Chalinze, Kiwangwa and their communities benefit fully from fruits and vegetables value chain employment opportunities, a combination of measures should be considered by government, international agencies, the private sectors and civil societies.

5.2.1 To promote women in higher level positions of fruits and vegetables value chain

Women's access to technology, knowledge through education, certification of product quality and safety and markets should be improved.

Policies and actions to develop fruits and vegetables value chain should take account of the different gender responsibilities for whole value chains or nodes within chains, gender-specific agro-ecological knowledge and gender power relations.

Training on entrepreneurial skills should be provided to women in order to strengthen their businesses, increase their confidence and reduce their risk aversion.

5.2.2 To improve women returns in fruits and vegetables value chain

- Small farmers' productivity and product quality through better training, technologies, inputs (fertilizer, pesticides and herbicides) and storage should be improved, with special attention to women.
- Niche markets for women's fruits and vegetables products should be promoted.
- Women should be encouraged to form or join cooperatives to improve their access to transportation, storage, markets and processing for value-added

5.2.3 To foster women's participation in producer and worker organizations and decision-making processes

- Incentives should be provided to enhance women's participation in producer and worker organizations and capacity building training for women leaders, taking account of their workloads and cultural constraints.
- There should be analysis of the constraints in fruits and vegetables value chain and identification of ways of addressing these to promote gender equality by working with women's or mixed stakeholder groups
- Women have to be involved in farmer, worker, home-worker or micro-entrepreneur study groups, and be provided training in technical and negotiation skills, and help them to network amongst women and with men.
- Women should be supported in order to enhance their participation in agricultural policy and trade negotiations through their membership in collective organizations.
- Women's cooperatives have to be strengthened and supported to improve the development, branding, quality and marketing of their products, labour standards and price negotiation.
- Women have to be assisted to develop their own strategies to cope with constraints and maximize opportunities, taking account of the different needs of different socio-economic groups.

- Meetings at times and places that accommodate women's multiple responsibilities and travel constraints have to be arranged. If men are present, facilitation methods have to be used that encourages women to speak, challenge cultural prejudices and misconceptions and help negotiate improvements in women's positions in value chains.

5.2.4 To Reduce Gender Inequalities in Fruits and Vegetables Value Chains

- Rural women have to be encouraged to seize opportunities for education and training and develop their experience and skills to improve their position in fruits and vegetables value chain.
- Women have to be involved in making various decisions regarding the production and marketing of fruits and vegetables at various levels
- Agro-industries should be encouraged to give women workers training and promote them to more skilled or managerial jobs.

REFERENCES

- Abedi, M. and Khodamoradi, S. (2011). A review of theoretical and experimental factors affecting rural women's economic participation and employment. *Nature and Science Journal* 9(4): 46-50.
- Afzal, A., Ahmad, M., Niaz, S. K., Riaz, F. and Zafar, M. I. (2009). Identification of Factors Hampering Women Empowerment in Agricultural Decision Making and Extension Work in District Okara, Punjab and Pakistan. *Pakistan Agricultural Science Journal* 46(1). 64-68.
- Ansari, S. L. and Bell, J. E. (1997). *Target Costing-The Next Frontier in Strategic Cost Management*. Irwin, Chicago, IL.251pp.
- Ashimogo, G. C. and Lazaro, E. A. (1989). Vegetable marketing in Mgeta, Morogoro District Franco- Tanzania Horticulture Development project, Sokoine University of Agriculture [<http://www.actahort.org>] Site visited on 6/7/2010.
- Babbie, E. (1990). *The Practice of Social Research*. Seventh edition, Bettmont, C.A. Wadsworth Publishing Company Belmont, California. 101pp.
- Barrientos S., Dolan, C. and Tallontire, A. (2003). A gendered value chain Approach to codes of conduct in African horticulture. *World Development Journal* 31(9): 1511-1526.

- Barrientos, S., McClenaghan, S. and Orton, L. (2000). Ethical trade and South African deciduous fruit exports-addressing gender sensitivity. *European Journal of Development Research*, 12(1), 140–158.
- Byravan, S. (2008). “Gender and innovation in South Asia”. (OPawa: IDRC). [http://www.idrc.ca/en/ev-130670-201-1-DO_TOPIC.html,] site visited on June 15, 2011].
- Coles, C. and Mitchell, J. (2010). Gender and Agricultural Value Chain, A review of Current Knowledge and Practice and their Policy Implications. FAO, London. 32pp.
- CRSP (2004) Horticulture Collaborative Research Support Program: United State Agency for International Development and University of California Davis.
[<http://hortersp.ucdavis.edu/archive/pdf-docs/Executive%20Summary.pdf>] site visited on 18/6/2011.
- Dolan, C. and Tewari, M. (2001). From what we wear to what we eat: upgrading in global value chains. *IDS Bulletin*, 32(3), 94–104.
- FAO (2010). Agricultural Value Chain Development: Threat or opportunity for women’s employment. [<http://www.fao.org/docrep/013/i2008e/i2008e04.pdf>] site visited on 11/7/2011.
- Gergis, A. (1999). Citizen economic empowerment in Botswana: Concepts and Principles. BIDPA working paper No. 22. 1pp.

IPMS (2011). Empowering Women Through Value Chain Development: Good practices and lessons from IPMS experiences.

[<http://mahider.ilri.org/bitstream/handle/10568/3758/gender.pdf;jsessionid=257A9BF12B54E0193D4C2CF60D1C6577?>] site visited on 9/6/2011.

Kaplinsky, R. and Morris, M. (2000). A hand book for value chain Research. IDRC, Canada. 324pp.

Mayoux, L. (2009). Engendering benefits for all. Special report, Issue No. 16. 1 pp.

Mbelwa, R. J. (1999). Market Review of Horticulture. Policy and Planning Department of Agricultural Information Services, Dar es Salaam. 44pp.

Mihran, R. and Parto, S. (2010). Value Chain Governance and Gender: Sufforn Production in Afghanistan. APPRO, Afghanistan. 37pp.

National Bureau of Statistics (2007). Coast Region Socio-Economic Profile, 2nd Edition, Dar es Salaam. 127pp.

Ndaba, M. J .Z. (2001). *Impact of SPS on Fish and Horticultural Products from EAC*. Proceedings of EAC Workshop, Kampala, Uganda, 13 November, 2001. 8pp.

NSO. 2006. Survey Report on the Perceived obstacles to the participation of women in decision-making positions.

[<http://www.eurofound.europa.eu/ewco/2007/05/MT07050191.htm>] site visited on 13/8/2010.

Nyange, D., Duma, T. and Temu, A. E. (2000). Fresh Fruits Marketing in Tanzania: Prospectus for International Marketing. *Cases and Research in Agribusiness* 1: 201-235.

O’Riordan, J., Rugumyameho, A. and Swai, F. (1997). Educational Background Training and Their Influence on Female Operated Informal Sector Enterprises, Repoa Research Report No. 97.3, Dar es Salaam. 7pp.

Porter. M. E. (1998). On Competition. Harvard Business School Press, Boston.

RLDC (2011). Rice Sector Strategy: Improving rice profitability through increased productivity and better marketing focusing on Tanzania’s central corridor [<http://www.rldc.co.tz/docs/Rice.pdf>] site visited on 13/7/2011.

Schmitz, C. and Tornqvist, A. (2009). Women Economic Empowerment: Scope for Sida’s Engagement. SIDA, Geneva. 40pp.

Sisay, G. (2010). Women economic leadership in the honey value chain, promoted by Oxfarm GB in Ethiopia.
[[http://agrigender.wikispaces.com/file/view/WEL+in+Honey+ value chain+Case+study+final.pdf](http://agrigender.wikispaces.com/file/view/WEL+in+Honey+value+chain+Case+study+final.pdf)] site visited on 9/6/2011.

Tanzania Horticultural Association (2010). Horticultural Industry: Development, opportunities and challenges.

[<http://www.tanzaniahorticulture.com/TAHAREPORTS/>

PRESENTATIONS/HODECTMEETING.pdf] site visited on 10th June 2011.

United State Agency for International Development (2005). Global Horticulture Assessment. University of California, Davis, California. 144pp.

USAID (2006). *Analysis of the Integration of MSE in Value Chains : Tanzania Research Proposal*. The Louis Berger Group Inc., Washington DC. 38pp.

USAID, (2009). Promoting Gender Equitable Opportunities in Agricultural Value Chains. [[http://www.usaid.gov/our_work/cross-cutting_programs/wid/.](http://www.usaid.gov/our_work/cross-cutting_programs/wid/)] Site Visited on 6th August 2010].

Whitehead, A. 2003. Failing women, sustaining poverty: gender in poverty reduction strategy papers. A report by UK.

World Bank (2005). Afghanistan: National Reconstruction and Poverty Reduction – the Role of Women in Afghanistan’s Future. Washington, DC: World Bank.

World Bank (2009). Gender in Agriculture: Agriculture and Rural Development [<http://www.orlbank.org.genderinag>] site visited on 9/7/2010.

World Bank (2008a). Ethiopia at a glance. World Bank. Washington, DC. [<http://www.countrystudies.us/ethiopia>] site visited on 16/6/2011.

World Bank. (2007). World Development Report 2008. Agriculture for Development. Washington D.C.

Zareen F. Naqvi and Lubna Shahnazl (2002), How do women decide to work in Tanzania
Gender Networking Programme (TGNP) (2005). African Gender and Development
Index (Tanzania Chapter) ECA Report. [<http://www:\zareen\ZAREEN\PAPERS\SP\Women's PEA Paper.rtf>] site visited on 15/7/2011.

APPENDICES

Appendix 1: Study Questionnaire

General information

Questionnaire no. Date of interview.....

Interviewer's name..... Name of the Clan Head

Division..... Ward name.....

Village/town.....

Section 1: Farmer's characteristics (Fill the gap or circle one)

This section aims at mapping out farmers' characteristics, income activities, assets and ownership.

Sex ¹	Age ²	Marital ³ status	Education level ⁴	trained skills ⁵	Main occupation ⁶	Position in household ⁷

1) Codes: 1= male 2= Female

2) Codes: 1 = under 18 years (A child) 2= 18-25 years old (young adults) 3= 26-55 years old (adults) 4=above 55 years old (old person).

3) Codes: 1=Single 2=Married 3=Widow(er) 4=Divorced/Separated

4) Codes: 1= No formal schooling 2= Adult literacy classes 3= Primary school 4= Secondary school 5= Diploma 6= Degree

5) Codes: 1= Agricultural management skills; 2= Business skills; 3= others (specify)

6) Codes: 1=Farming; 2= business/trade; 3= Job employment

7) Codes: 1= Son/daughter; 2= Head of the clan; 3= Head of household; 4) Others specify)

1.11 If the main source of income is farming what type of crops are you producing? (Priorities 3 important)

Type	Priority 1	Priority 2	Priority 3
Fruits			
Vegetables			
Other cash crops			
Other food crops			
Others (specify)			

I.12 Which among the following assets are owned by your household?

Item	Quantity ¹	Value ²	How acquired ³	Actual owner ⁴
Land (in Acres)				
House				
Bicycle				
Radio				
Telephone				
Television				
Vehicle				
Livestock				
Business(type)				
Permanent crops				
Others(specify)				

1) Measure in number. If the respondent does not have access to the item, write 0

2) The worthiness of the item measured in amount in Tshs

3) *Codes:* 1= Bought; 2= Inherited; 3= rented; 4= others (specify)

4) *Codes:* 1-Head of household (female); 2-Head of household/clan (male); 3-Female spouse; 4-Adult male child; 5-Adult female child 6-others (specify)

Section 2: Production and Marketing pattern of fruits and vegetables

2.1 Production

2.1.1 What is total land area (farm size) under crop production for:

- i. Jointly farmed land by household Acres
- ii. Land farmed solely by respondentsAcres
- iii. Land farmed by the spouseAcres
- iv. Land farmed by other members of the household..... Acres
- v. Land jointly farmed by the groupAcres

2.1.2 What is the total land area under fruits and vegetables production?

Ownership	Fruits		Vegetables	
	Acres	How Acquired	Acres	How Acquired
Female owned				
Male owned				
Jointly owned by household				
Jointly owned by group				

Codes for 'how acquired'

1= Bought 2= Inherited 3= rented 4= Others (specify)

2.1.6 For fruits crops (pineapple, bananas, mangoes etc)

Type	Acre		Number of plants per plot	
	Own cultivated	Jointly cultivated	Own cultivated	Jointly cultivated
Pineapple				
Bananas				
Mangoes				
Others(specify)				

2.1.7 Output for main fruits and vegetables produced

Type	Quantity (Number Kg, bags, branches etc)		Peak months in season
	Owned plot	Jointly owned plot	
Pineapple			
Bananas			
Mangoes			
Leafy vegetables			
Others (specify)			

2.1.8 Do you normally have enough produce to meet the demand for fruits and vegetables?

1. Yes 2. No

2.1.9 If yes on qn.2.1.8 how do you ensure large supply of your produce?

.....

.....

2.2 Marketing

2.2.1 Who are the major buyers of your main produce?

Type of produce	Description of buyers	Major point of sell	Distance from farm to the point of sell	Mode of transport and time taken from farm to the point of sell	Destination of the sold product (Name of town and distance)	Costs of transport handling, and loading
Pineapples						
Banana						
Mangoes						
Leafy vegetable						

a. Description by age and gender

Codes: 1-Young men (up to 35 years of age) 2-Young women (up to 35 years of age) 3-Old men (above 35 years) 4-Old women (above 35 years)

b. Description by marital status

Codes: 5- Single 6.Married 7.Widow(er) 8. Divorced/Separated

c. Description by purchasing period

Codes: 9-Season buyers, 10-Buyers available in all times

d .Description by employment category

Codes: 11- Public official employers 12- businessmen and women 13-private official employers 14-others (specify)

e. Description by purchasing mode

Codes: 15-Contract buyers 16-Non contract buyers 17-Buyers paying cash immediately after purchasing 18- Buyers purchasing by loan

2.2.2 Revenue estimates from the main fruits and vegetables produced

Type	Estimates of sell per week/month (Kg, bags, number etc)		Selling price (Kg, bags)	Estimates of revenue per week/month in Tsh	
	owned plot	jointly owned plot		Owned plot	Jointly owned plot
Pineapples					
Bananas					
Mangoes					
Leafy vegetables					
Others (specify)					

2.2.3 Where do you normally contact your buyers?

1. At home 2. At the field/farm 3. At the market 4. Others (specify).....

2.2.4 In relation to others, what attracts buyers to purchase your products?

1. Better quality 2. Offer cheap and affordable prices 3. Markets convenient 4. Others (specify).....

2.2.5 What are the major challenges faced in fruits marketing?

Challenge	Response to challenge

2.2.6 What are the major challenges faced in vegetables marketing?

Challenge	Response to challenge

2.2.7 What opportunities are available in your area for fruits and vegetables marketing?

Opportunity	Fruits	Rank	Vegetables	Rank
Good infrastructure				
Good market environment				
High demand of fruits and vegetables in the market				
Good market regulations and policies				
Easy access of market information				
Others (specify)				

2.2.8 What should be done to improve fruits marketing?

- i.
- ii.
- iii.

2.2.9 What should be done to improve vegetables marketing?

- i.
- ii.
- iii.

Section 3: Marketing and Gross margins for fruits and vegetables farmers

3.0 Revenue and operational cost of fruits and vegetables production (in order to assess profitability of fruits and vegetables in your area)

Particulars (Tshs)	Units (quantity per month or annum)	Price/unit	Average price/kgs	Remarks
Selling price (Sp)				
Costs encountered				
Particulars (Tshs)	Units (quantity per month or annum)	Price/unit	Average price/kgs	Remarks
Cost of fertilizer, herbicides, pesticides etc				
Particulars (Tshs)	Units (quantity)	Price/unit	Average price/kgs	Remarks
Cost of farm implements				
Cost of maintenance				
Storage infrastructure cost (if hired)				
Loss due damage				
Labor/wage costs (if any)				
Cost of bags, string any protective materials (if any)				
Transport cost				
Taxes				
Insurance cost (if incurred)				
Other operational cost (specify)				
Total operational costs				
Gross Margin (GM)				

3.1 What kind of marketing costs do you incur in marketing your fruits and vegetables to your major point of sell?

Major point of sell (Name) Distance

Main transport type

Type of cost	Fruits	Unit	Tshs/unit	Vegetables	Unit	Tshs/unit
Transportation						
Market fee						
Labor charges						
Taxes						
Others (Specify)						
Total costs						

4.0 Farmer's associations

4.1 Do you belong to any of the following of farmers' associations?

Type	Member ¹	Position in a group ²	Activities done by the group ³
Savings and Credit Cooperative Societies			
Women farmers' association			
Farmers' groups			
Others (specify)			

1) Codes: 1=belong; 2= not belong

2) Codes: 1=leader; 2= member

3) Codes: 1=Delivery of savings and credit services 2= Production of crops 3= Processing fruits and vegetables 4= Support members in various social functions like wedding, funeral ceremony and so on

5.0 Participation in Fruits and Vegetables Value Chain

5.1 Participation in fruits and vegetables production decisions

5.1.1 Do you participate in making production decisions for the following plots?

Plot	Yes	No	If no why? ¹
Jointly owned plot			
Self owned			
Spouse owned			
Other (specify)			

1) *Codes*

1. According to our traditions and customs, women are prohibited to make decisions
2. Gender bias and discrimination
3. Due to division of labour, making decision is men's duty
4. Others (specify)

5.1.4 Do you see the need of women to participate in making such decisions?

- i. Yes (there is a need)
- ii. No (there is no need)

5.1.5 Explain why for your answer in qn 5.1.4

.....

5.2 Participation in fruits and vegetables production

5.2.3 Total size of land under crop production.....acre

5.2.4 Total size of land under fruits production.....acre

5.2.5 Total size of land under vegetables productionacre

5.3 Participation in fruits and vegetables marketing

Participation in making market decisions

5.3.1 Do you participate in making market decisions (setting price, deciding the selling quantity and so on)?

- i. Yes
- ii. No

If No for qn 5.3.2

5.3.2 Why do you not participate in making market decisions?

- i. According to our traditions and customs, women are prohibited to make decisions

- ii. Gender bias and discrimination
- iii. Due to division of labour, making decision is men's duty
- iv. Others (specify)

5.3.3 Who makes most of market decisions in your area?

- i. Individual owner of the produce
- ii. Farmer's group or associations
- iii. Traders (In case of selling the farm before harvested)

5.3.4 Who makes market decisions in your household?

- i. Man head of household
- ii. Woman head of household
- iii. Both husband and wife
- iv. Adult male relative
- v. Other (specify)

5.3.5 Do you see the need of women to participate in making market decisions?

- i. Yes (there is a need)
- ii. No (there is no need)

5.3.6 Explain for your answer in question 5.3.5

.....

6.0 Position of women in Fruits and Vegetables Value Chain

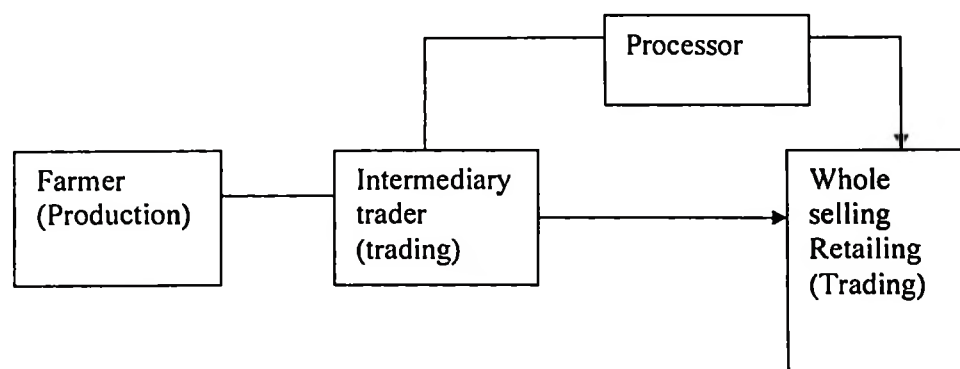
6.1 Who participate mostly in doing the following activities in fruits and vegetables value chain?

Activity	Men	Women	Both
Land preparation			
Planting			
Weeding			
Fertilizer and pesticide application			
Harvesting			
Drying fruits and vegetables			
Packaging			
Grading			
Transporting fruits and vegetables			

6.2 What challenges are faced in performing your roles in fruits and vegetables value chain

- i.
- ii.
- iii.

6.3 Consider the Value chain below and give answers to the questions that follows;



6.3.1 Who is perceived to get highest returns?.....

6.3.2 Who is perceived to get the lowest returns?.....

6.3.3 Where you are mostly positioned.....

6.3.4 Why you are not positioned in other levels of the chain?

i. Higher levels

.....

ii. Lower levels

.....

iii. Intermediate levels

.....

6.4 Factors influencing women position in fruits and vegetables value chain

Perceived factors	Rank ¹
Education level	
Income	
Access to market	
Access to market information	
Property ownership	
Marital status	
Gender bias	
Others (specify)	

1. Codes: 1= Mostly; 2= Moderately 3= Do not influence

General comments

.....

.....

With thanks