

**ASSESSMENT OF GENDER ROLES IN SUNFLOWER VALUE CHAIN:
THEIR POTENTIALS AND CONSTRAINTS IN MVOMERO DISTRICT,
MOROGORO REGION**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN
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ABSTRACT

This study on the assessment of gender roles in sunflower value chain was carried out in Mlali and Mzumbe wards to assess ones' involvement in sunflower value chain in Mvomero District, Morogoro, Tanzania. Many value chain programmes are commonly designed and implemented without taking into consideration of gender roles. Interest in this study was prompted by recognition that understanding women and men's relationships plays an important role in developing solutions to household problems, hence it was necessary to have a thorough understanding on how to change the present social constructed roles and activities which hinder the development of agricultural industry. The study assessed gender roles in sunflower value chain: their potentials and constraints in Mvomero District, Morogoro, Interest in this study was prompted by the recognition that equal involvement of males and females in the chain plays a great role to increase production and productivity as well as efficiency in sunflower value chain. Hence it was necessary to have a thorough understanding on how to go about implementing various activities in the chain. Sample size of the study consisted of 138 farmers, and 3 government extension staff. Descriptive analyses using SPSS version 12 was used as a tool of analysis. Structured questionnaire were used to collect relevant information from the respondents. Generally, the study revealed that males dominated in almost all nodes (input supply, packaging, transportation, marketing, and consumption) in the sunflower value chain while females, out of seven nodes, dominated in only two nodes (production and processing). The study therefore recommends specific considerations be taken to link females horizontally and vertically to other nodes in sunflower value chain.

DECLARATION

I, Juliana Jacob Khahima, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work done within the period of registration and that it has neither been submitted nor being concurrently submitted to any other institution.

Juliana Jacob Khahima
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Date

The above declaration is confirmed

Prof. M.R.S. Mlozi
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Date

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DEDICATION

This dissertation is dedicated to my parents who laid foundation of my education.

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LIST OF ABBREVIATIONS AND ACRONYMS

AEE	Agricultural Education and Extension
AMP	Agricultural Marketing Policy
EPINAV	Enhancing Pro-poor Innovation in Natural Resources and Agricultural Value Chain.
FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization of the United Nations
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
KIT	Kyoto Institute of Technology
MAFC	Ministry of Agriculture, Fisheries and Cooperatives
NBS	National Bureau of Statistics
NGOs	Non-Governmental Organizations
QDS	Quality Declared Seeds
SNAL	Sokoine National Agricultural Library
SNV	StichtingNederlandseVrijwillingers
SPSS	Statistical Package for Social Sciences
SUA	Sokoine University of Agriculture
Tshs	Tanzanian shillings
UNIDO	United Nations Industrial Development Organization
URT	United Republic of Tanzania
VCA	Value Chain Analysis
WB	World Bank

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Agriculture is the foundation of the Tanzanian economy, accounts for about half of the national income, and provides employment opportunities to about 80% of Tanzanians. The overall purpose of this study is to assess gender roles in sunflower value chain: their potentials and constraints in Mvomero District, Morogoro. However, knowledge among practitioners and policy makers on the gender aspects of value chain interventions is still limited and study coverage on gender categories will be limited to interventions if targeting only men and women adults without including male and female out of school youth, male and female school going youth, and male and female old persons who are involved in the chain. While acknowledging that men are sometimes disadvantaged in, or excluded from value chains, this study focuses on issues related to the impact of sunflower value chain interventions based on gender. This is because women are more disadvantaged than men in the context of value chain operations.

Sunflower (*Helianthus annuus L.*) is thought to have originated in Mexico and Peru and it is one of the first crops to be cultivated in the United States of America (Laven, 2011). However, Food and Agriculture Organization of the United Nations (FAOSTAT, 2012) reported the leading countries in sunflower seed production in the world are as follows: Ukraine, Russian Federation, Argentina, China and France. In the sub-saharan Africa, the main sunflower producing countries are Angola, Kenya, Malawi Mozambique, Sudan, Tanzania, Zambia and Zimbabwe. Furthermore, Tanzania is one of the countries among others in the world producing sunflower oilseeds for raw materials in processing cholesterol-free edible cooking oil with a by-product used as livestock feed. About 8

million smallholder farmers are involved in sunflower production in Tanzania (Enock and Ndongole, 2014). Currently sunflower oil makes about 13% of the world edible oil production (Ugulumu, 2008). According to the report by the Ministry of Agriculture Food and Cooperatives (2008) sunflower is one of the main cash crops in semi-arid areas of Tanzania including Mvomero District in Morogoro Region.

Gender issues were not always given due consideration in value chain interventions, which often focus on technical aspects rather than on people in complex livelihood systems (IFAD, 2008). Gender-specific roles and responsibilities along a value chain have impacts on the chain's functioning and inequalities can prevent its efficiency. The knowledge and responsibilities embodied in the different functions of a value chain are often gender-specific and this aspect has to be taken into account during value chain mapping and strategy design. Men and women control different assets and have different decision making roles and responsibilities, generally resulting in an unequal situation that is detrimental to women (IFAD, 2011). United Nations Industrial Development Organization (UNIDO, 2011) reported that value chain strategies have to take into account these inequalities in needs, capacities and access to knowledge, resources and livelihoods to ensure that women are fully included in value chain interventions. Gender status and roles influence the division of labour because labour is valued differently depending on who does it. March *et al.* (1999) found that as a result of women's low status in the community, the activities they perform tend to be valued less than men's and in turn their low status is perpetuated through the low value placed on their activities. Different roles, work and valuing of labour create differential access to decision-making, services and benefits. The differential valuing of work and access to decision making, resources and benefits reinforce existing power relations that in turn reinforce existing gender roles. Certain kinds of work have been stereotyped as being

‘male’ or ‘female’, because of the socialization process on the division of labour which stipulates different roles for men and women (Deere, 2005).

Apart from the government, value chain approach has been adopted by many development organizations, non-governmental organizations (NGOs), and research institutions. Other development programs that employ value chain approach include Enhancing Pro-poor Innovation in Natural Resources and Agricultural Value Chain (EPINAV). This programme is an initiative of Sokoine University of Agriculture and its partner institutions in Norway which include the Norwegian University of Life Sciences and Norwegian College of Veterinary Science. The program comprises of 15 projects that are implemented in various regions of Tanzania including Morogoro of which Mvomero and Kilosa districts are located. One of the projects is about “Enhancing Sunflower Production for Poverty Alleviation”. The main objective of this project is up-scaling of sunflower technologies and best practices. Specifically, the project among other things, intends to assess gender roles in sunflower value chain, which is the main focus of this proposed study. Production of sunflower is highly capital intensive and requires high technology and specialized knowledge for example, refining process produces sunflower oil which is used mostly for cooking.

1.1.1 Gender studies in Tanzania

1.1.2 Gender

Gender inequity in agricultural value chains is a missed business opportunity. Gender refers to socially constructed roles and status of men and women, and is a set of culturally specific characteristics defining the social behavior of men and women and the relationships between them (March *et al.*, 1999). Gender is an integral and inseparable part of rural livelihoods.

Gender roles assigned to men and women have an impact on their respective access to resources and the power to decide over the benefits of using those resources. They have an impact on women and men's differentiated roles and participation in the value chain and their respective control over decisions that affect the management of the chain as well as the use of benefits generated by the activity. Men and women have different assets, access to resources, and opportunities. Women rarely own land, may have lower education due to discriminatory access, and their access to productive sources as well as decision-making tends to occur through the mediation of men (Ellis, 2000). As indicated by Enock and Ndongole (2014), sunflower value chain development in Tanzania shows that women produce about 70% of all food crops and land is an important asset but to a large extent they do not have access and control over it.

According to Prowse (2012), gender involvement in structured market for sunflower seeds in Tanzania, women are the majority involved in the processing of sunflower oil. IFAD(2013) conducted a study on women's role in agricultural value chain development in Tanzania and found that, women had little opportunities to bring about significant changes in increasing economic activity and decision making in the household under their control because of the traditional gender roles and gender inequalities. Experience shows that substantial improvements in value chain can be realized when women's interests and capabilities are taken into account and when the roles of female and male farmers and entrepreneurs are acknowledged.

It is especially important for men to accept the gender mainstreaming concept and actively practice such ideas in their household and communities. Studies from Ileje women said, to improve information on women's contribution to agricultural production for gender-sensitive planning women must work throughout the year because

new opportunities often increase women's work load as a result of inflexible social perceptions (United Republic of Tanzania, 1998 and Food and Agriculture Organization, 1996).

1.2 Problem Statement and Justification

Most current value chain development has failed to integrate gender analysis despite the gender mainstreaming policies of the donor agencies and the gender commitments of the governments involved (Banye, 2012). The increasing number of value chain interventions has one thing in common which is lack of attention on gender issues in sunflower value chain. Programs working on sunflower sector concentrate on production and marketing issues without considering costs incurred or profits which are generated by parents, youth, and old persons (IFAD, 2013).

Gender differences and inequalities affect the ways in which value chains operate at every level and affect where power is located and how change can occur in order to translate chain upgrading into poverty reduction (Ndonole, 2014). Currently, not much has been documented on gender roles in sunflower value chain in Mvomero District. This study is an attempt to bridge the aforementioned gap and come up with interventions that are tailored to needs of smallholder male and female farmers with a view to improving their access to and involvement of female and male in sunflower value chain (FAO, 2013). Given this background, the study will be carried out based on the following objectives:

1.3 Objectives

1.3.1 Overall objective

The overall objective of this study is to investigate gender roles in sunflower value chain in Mvomero District.

1.3.2 Specific objectives

- (i) To examine gender roles in production in the sunflower value chain.
- (ii) To determine gender roles in input supply and transportation in the sunflower value chain.
- (iii) To assess gender roles in packaging, marketing and processing in the sunflower value chain.
- (iv) To identify potentials and constraints of gender roles in the sunflower value chain.

1.3.3 Hypotheses

- (i) Ho₁: There is no statistically significant difference in gender roles in production in the sunflower value chain.
- (ii) Ho₂: There is no statistically significant difference in gender roles in input supply and transportation in the sunflower value chain.
- (iii) Ho₃: There is no statistically significant difference in gender roles in packaging, marketing, and processing in the sunflower value chain.
- (iv) Ho₄: There is no statistically significant difference in potentials and constraints encountered by gender roles in consumers in the sunflower value chain.

1.3.4 The conceptual framework

The conceptual framework is the different perspectives through which gender issues are analyzed. The conceptual framework of this study is based on the assumption that

different roles in sunflower value chain are influenced by lack of attention in gender (parents – female and male, out of school youth – female and male, school going youth – female and male, and old person – female and male). That is, different gender categories are assumed to perform different roles in sunflower value chain such as production, input supply, processing, packaging, transportation, marketing, and consumption. However, these roles are interactive; therefore, it is further assumed that they are influenced by contextual factors like Tanzania's social economic, political, cultural, and environmental factors (Fig. 1).

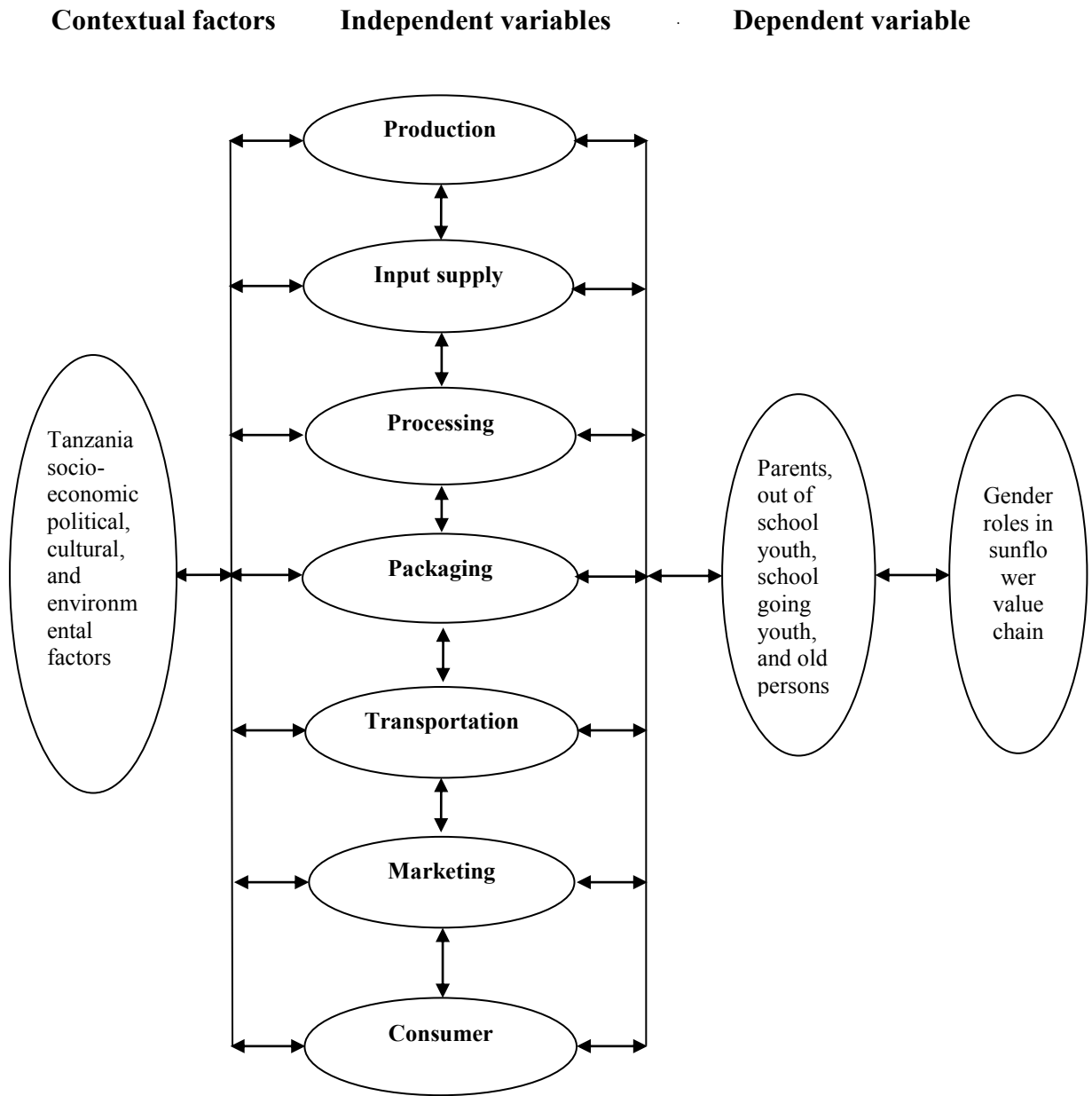


Figure 1: Conceptual framework of aspects influencing gender roles in the Sunflower value chain in Mvomero District.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overview

This Chapter summarizes literature relating to gender based roles in sunflower value chain.

2.2 Key Gender and Value Chain Issues

When discussing gender related issues to value chain, it is important to look upon three assumptions which guide much of the gender and value chain literature:

(i) Value chains are embedded in a social context and the functions and operations of the chain actors cannot be isolated from the gender roles and relations in the society. This assumption is rooted in the concept of the “gendered economy” which states that the operation of economic systems themselves (e.g., who takes what jobs) is a reflection of gender relations (Elson, 1999).

(ii) Value chain operations, in turn, influence gender roles and relations

Qualitative research has shown that increasing women’s participation in market-oriented production can either increase or decrease their access to and control over income, depending upon the character of their involvement and the specific characteristics of the chain (Hamilton *et al.*, 2002; Dolan and Sorby, 2003; Coles and Mitchell, 2011).

(iii) Gender equity and value chain competitiveness are mutually supportive goals.

Large-scale comparative studies have demonstrated that greater gender equality and economic growth can go hand in hand and that gender inequalities are costly and inefficient (World Bank, 2001; World Bank, IFAD and FAO, 2009).

2.3 The Concept of Value Chain

2.3.1 Value chain

In recent years, value chain analysis has been adopted by capacity development practitioners engaged in supporting poor farmers to enable them to participate more effectively in value chains and thus obtain a bigger piece of the economic pie. Value chain is defined as linking individuals or enterprises needed to move a product or service from production to consumption, along with related inputs and technical, business and financial services (Koenig, 2010). Each link in the chain is analyzed and used to identify possible points (opportunities) for intervention, such as providing markets or technology, improving institutional or policy frameworks or the business environment for poverty reduction.

The concept of value chain was introduced by Michael Porter in the 1980s as a means to understand links between producers and consumers, as well as the steps between them. The concept is now used by many enterprises, whatever their position in a chain, as a strategic planning tool to improve their competitive advantage. This concept was the forerunner of what is now known as value chain analysis (VCA). The agricultural value chain concept has been used since the beginning of the millennium, primarily by those working in agricultural development in developing countries. There is no lead firm that coordinates the chain in relation to markets, technology and other important information shared among actors. Consequently actors particularly farmers and processors receive no incentives for up-grading their products (Nang'oleet *al.*, 2011). According to Rural Livelihood Development Company (2010) report in Tabora-Western Tanzania, sunflower production and processing in 2013 was estimated 330000 tons of edible oil per annum, and consumption was growing by 3% annually. However, about half of the oil consumed in Tanzania is imported, e.g. 170000 tons in 2009 due to insufficient domestic

sunflower production. This means that sunflower production can contribute significantly to poverty reduction in the rural areas.

In Mvomero District, Morogoro Region, various organizations work to foster sustainable economic growth to reduce poverty and hunger including growing sunflower. Ministry of Agriculture, Fisheries and Cooperatives-(MAFC) through the District Agricultural Development Plans (DADPs) in Mvomero District had projects in tomato value chain in Dakawa and Dumila villages for boosting farmers' incomes and found that middlemen made profits in the value chains compared to farmers (Ng'atigwa, 2010).

2.3.2 Importance of value chain

There are three main reasons as to why value chain is important in this era of rapid globalization. They are: with the growing division of labour and the global dispersion of the production of components, systemic competitiveness has become increasingly important; efficiency in production is only a necessary condition for successfully penetrating global markets, and entry into global markets which allows for sustained income growth – that is, making the best of globalization - requires an understanding of dynamic factors within the whole value chain (Porter, 1985).

2.4 Gender and Value Chains

This practice briefly explores gender issues in agricultural value chains. Drawing on a wide variety of case studies, roles of female and male farmers are acknowledged but this briefly offers rich insights into the range of gender-specific strategies. These can be used to ensure that their involvement in the chain derive an equal share of the benefits through household incomes, and employment opportunities. However, value chain operations, in turn, influence gender roles and relations. Qualitative research has shown that increasing

women's participation in market-oriented production can either increase or decrease their access to and control over income, depending upon the character of their involvement and the specific characteristics of the chain (Hamilton *et al.*, 2002; Dolan and Sorby 2003; Coles and Mitchell, 2011).

2.4.1 Determinants of value chain participation/involvement

Women and men enter value chains as wage workers, farm managers, unpaid family workers, and entrepreneurs. Their opportunities are shaped by their physical, financial and human assets of which access to land and other productive assets (e.g., land, credit, extension, inputs) are key enabling factors. Human capital endowments and social beliefs and norms can also expand or limit the character and extent of men's and women's involvement. Women's formal participation in contract farming is mixed. Research by Masakure and Henson (2005) found that in Zimbabwe, 61 percent of contract farmers in vegetables were women, while Dolan (2001) found that women made up only 10 percent of the farmers in the fresh fruit and vegetable sectors in Kenya.

2.4.2 Access to the benefits of value chain participation

Men and women stand to benefit in a number of ways from participation in value chains through employment, wages or other income, and empowerment, all of which can accrue to an individual or a household. Accessing these benefits is determined by the type of participation (e.g., as a wage worker or unpaid family worker), and the gender dynamics and power relations at multiple levels of the value chain that determine who gains, and how these benefits are accessed and distributed. As Coles and Mitchell (2011), gendered patterns of benefit distribution are such that participation in the value chain does not always translate into gains, such as in the case in Kenya where women provided 72 percent of the labor but obtained only 38 percent of the income from their work

(Dolan,2001). At the same time, non-participation does not equate to a lack of benefit. What matters is not simply the level of income derived from value chain activities, but a combination of factors related to the perception of ownership or management of a particular commodity, the scheduling of payment, and the point of entry into the chain. As value chains have gained in popularity as an organizing framework for coordinating agricultural market relationships, questions have emerged about whether the framework would deliver not only on commercial goals but also poverty reduction and equity goals.

2.5 Gender Roles in Value Chain

2.5.1 Gender roles

This part introduces a gender perspective into value chain analysis in a systematic way. The analysis looks at women's and men's roles in the management of the chain (horizontal integration). Gender roles-evolved through social, cultural, economic and political process: different activities that men and women play in the society. As it is in many other production activities, men and women roles in value chains are very much affected by traditions Kyoto Institute of Technology (KIT *et al.*, 2012). To understand better on how gender roles, potentials and constraints change in the value chains it is important to combine both the value chain with the gender analysis on a development activity (Lavenet *al.*, 2009). The involvement of women in most value chains development interventions is based on what they already do in producing crops and other related products. As women are involved in value chain development activities the benefit obtained will also trickle down to women involved (Nang'oleet *al.*, 2011). Within the household, women traditionally bear the primary responsibility for preparing meals and caring for children and other family members, although men are assuming more responsibilities for these roles in many societies (FAO, 2013). However, traditional gender division of labour seems to be changing under the impact of labour mobility.

There is sufficient evidence to show that women are increasingly performing farm tasks that were formerly considered to be exclusively for men (FAO, 1989). A survey of over 200 rural families in Egyptian Delta found that nearly one half of all women interviewed were engaged in ploughing, traditionally a male task in that country.

2.5.2 Women roles in sunflower value chain

Women are essential to economic growth in developing countries. Moreover, investments in women often return multiple dividends in terms of helping to improve the well-being of their children, families, and communities. Women are also central wage earners. Their earnings and productive activities provide vital income to many households. Further, women make important and growing contributions to food production, processing, marketing and retailing, and other parts of the food system. Their roles vary considerably between and within regions and are changing rapidly in many parts of the world, where economic and social forces are transforming the agricultural sector (FAO, 2011). Gender status and roles influence the division of labour because labour is valued differently depending on who does it. March *et al.* (1999) found that as a result of women's low status in the community, the activities they perform tend to be valued less than men's and in turn their low status is perpetuated through the low value placed on their activities.

Different roles, work and valuing of labour create differential access to decision-making, services and benefits. The differential valuing of work and access to decision making, resources and benefits reinforce existing power relations that in turn reinforce existing gender roles. Certain kinds of work have been stereotyped as being 'male' or 'female', because of the socialization process on the division of labour which stipulates different roles for men and women. However, while there are significant variations in Africa,

there is the same division of roles in agriculture and women are to a large extent involved in almost all the sub-sectors of agriculture including farming, processing and distribution (Amu, 2005). Several studies have highlighted the need to recognize, appreciate and support the key roles played by African women in household food security, nutrition and health, population growth and environmental management.

2.6 Nodes in the Value Chain

2.6.1 Nodes

Nodes are points of intersection. The following nodes in the sunflower value chain (Production, input supply, processing, packaging, transportation, marketing, and consumption) influence the dependent variable.

2.6.2 Production

Sunflower producers do not benefit from engaging in sunflower value chain as a business because farmers do not participate in price setting for sunflower seeds. Farmers are using outmoded seeds and poor agronomic practices leading to low production and seeds of poor quality. Therefore, a need for upgrading sunflower enterprise is important. Production is the action/process of producing or being produced, and in sunflower it involves a variety of procedures such as land preparation, planting, fertilizer application, weeding, pesticides spraying, harvesting and winnowing. Men and women are involved in different sunflower production activities, but their involvement differs. As stated by UNIDO (2009) agricultural value chain analysis, a stage of production can be referred to as any operating stage capable of producing a saleable product serving as an input to the next stage in the chain or for final consumption or use. Such analysis struggles to deal with dynamic linkages between productive activities that go beyond that particular sector (Kaplinsky and Morris, 2000).

A stage of production in a value chain performs a function that makes significant contribution to the effective operation of the value chain and in the process adds value (Anandajayasekera and Berhanu, 2009). By going beyond the traditional narrow focus on production, value chain analysis scrutinize interactions and synergies among actors. Thus, it overcomes several important limitations of traditional sector assessments. In some areas, women participation in agricultural activities has increased due to absence of men who have moved out into non-agricultural income generating activities in urban areas, this has resulted in changes in gender role (International Fund for Agricultural Development - IFAD, 2010).

2.6.3 Input supplies

In Tanzania, input application in farms falls far below optimal levels. Food and Agriculture Organization - FAO and the World Bank studies both confirm that the application of fertilizer in Tanzania is among the lowest in the continent. Input supplies are such as seeds, pesticides, fertilizers, which are supplied to farmers within the production cycle. In the study area, there are many actors who are involved directly or indirectly in agricultural input supply. The inputs are supplied by specialized companies and other inputs are obtained from small retail agro-vet shops mostly found at ward or district headquarters. Extension officers also help in supplying the inputs using the agricultural voucher system or link the farmers to input suppliers, mostly through established farmer groups. All gender groups are involved in input supply in the villages, but men dominated. The reason is that men can travel long distances to purchase inputs from whole sellers located in urban areas (IFAD, 2013).

2.6.4 Processing

The only existing processing unit in the study area does not get enough supplies for processing due to less sunflower production. Process is a series of actions or steps

towards achieving a particular end. Crop processing is getting a crop from a field to an edible state where requires some work. It can occur at various times from harvest to packaging for sale. Before processing, the sunflower seeds is first winnowed to remove chaffs, and taken to oil millers to get vegetable oil. Sunflower is the basic raw material used daily by millions of people and provides about 40% of oilcake, which is processed to cooking oil and for animal feed, respectively (KIT *et al.*, 2012).

2.6.5 Packaging

In Tanzania, packaging of sunflower seeds is done by putting seeds in the bags of different sizes and sunflower oil in the plastic tins of different sizes. Packing serves as a practical purpose of helping to store, handle, transport and display the product. Packaging also provides a means to market products. All gender categories are involved in this activity of packing.

2.6.6 Transportation

There are limited transport services because there is no expressed demand for them. However, where there is need to transport the products to the market, those with small quantities of sunflower seeds carry them on their heads, medium and large quantities are carried by using bicycles and motorcycles to the milling machine using sacks or use public transport where necessary. Transport or transportation is the movement of people, animals and goods from one location to another. The dominant modes of transport in Tanzania include human-powered transport, animal-powered transport, wheel barrow, bicycle, buses, and trucks. Men are mostly involved in transportation of crops (FAO,2011).

2.6.7 Marketing

Tanzania is lagging behind in setting up a commodity exchange, but also market information dissemination systems are generally ineffective, too localized, and

superficial. Enock and Ndongole (2014) reported that marketing structure for sunflower in Tanzania is based on farmers producing first and then look for the buyers. A number of middle men exist who take advantage of uninformed farmers on sunflower market (Enock and Ndongole, 2014). Marketing is the action or business of promoting and selling products or services. Most farmers sell sunflower seeds to middlemen, millers, retailers, and wholesalers. A market can be defined as an area in which one or more sellers of given products/services and their close substitutes exchange with and compete for the patronage of a group of buyers (IFAD, 2010). The market is the basic driver of all VCs, without market demand from consumers, there is no force pulling a farmer to produce through the VC (Scarborough and Kydd, 1992).

The concept of exchange and relationships lead to the concept of market. It is the set of the actual and potential buyers of a product. Conceptually, a market can be visualized as a process in which ownership of goods is transferred from sellers to buyers who may be final consumers or intermediary (Kotler and Armstrong, 2003). Women and children are mostly involved in marketing small quantity of sunflower produce to nearby markets, while men market medium and large quantities of sunflower produces to far away markets. However, there are poor and limited accesses to markets whereby typical production and market risks, such as inadequate information about current market prices, African female farmers face many gender-specific barriers to accessing markets (Quisumbing *et al.*, 2009). However, before marketing, upgrading of sunflower produces must be taken into consideration. Upgrading is defined as the ability of the firm to make better products, make them more efficiently, or move to more skilled activities in the value chain. Mitchell, Coles, and Kean define upgrading as a process to acquire the technological, institutional, and market capabilities that allow resource-poor rural communities to improve their competitiveness and move to higher level activities.

The concept of upgrading aims to replace lower paid activities with those that have higher return. Four types of upgrading, cited in Kaplinsky and Morris (2001), have been discussed including the following:

- Process upgrading. This improves the efficiency of internal processes to make the firm more competitive than its rivals.
- Product upgrading. This refers to introducing sophisticated product lines, introducing new products, or improving old products faster than rivals.
- Functional upgrading. This refers to a number of things: adding new functions in the chain (up- or downstream), changing the mix of activities conducted within a firm, or moving from lower return to higher return activities.
- Chain upgrading. This refers to employing the competence gained in one chain to a new and more profitable chain.

2.6.8 Consumers

Consumers are those purchasing the products for consumption. A consumer is one that consumes, especially one that acquires goods or services for direct use or ownership rather than for resale. The final consumer buys sunflower products from the markets and retail shops for their consumption (Lavenet *al.*, 2010).

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Overview

This Chapter describes research methodology and is divided into six sections. The first section provides an introductory part followed by a section on the characteristics of the study area. The third and fourth sections describe the research design and the sampling procedures, respectively. The fifth section is concerned with pre-testing of the instrument and the sixth section explains on data collection procedures, processing and analysis.

3.2 Description of the Study Area

Mvomero is one of the six districts of the Morogoro Region of Tanzania. Other districts include Morogoro Rural, Kilosa, Kilombero, Ulanga, and Morogoro Municipality. It is bordered to the north by the Tanga Region, to the northeast by the Coast Region, to the east and southeast by Morogoro Rural District and Morogoro Urban District and to the west by Kilosa District. The study was conducted in Mlali and Mzumbe wards in Mvomero District. The area is located in the northern part of Morogoro Region Tanzania. The District has a total area of 7325 km² with 58,314 households. The arable land constitutes 5493 km². Mvomero District is divided into 4 Divisions, 23 Wards, and 115 Villages.

The District lies at an altitude from 400 to 2,000 meters above sea level. According to 2012 census, (URT, 2012) the district had the population of 312109; of which males were 157, 266 and females were 154843. The choice of this area of study was based on the fact that it suffers from lack of attention on gender issues. Although a good number of organizations with different interests (Government, NGOs and private companies)

have been trying to implement socio-economic interventions in the area, most of these interventions have overlooked on things related to gender. As such, this study sought to take a different approach by focusing on gender roles in the sunflower value chain. There were 4 study villages, which included Manza, Vitonga, Mlali, and Lubungo where sunflower project is being implemented under EPINAV programme. Hence, the research study will come up with a suggested solution for gender issues in sunflower value chain.

3.3 The Research Design

This study employed a cross-sectional research design whereby data were collected at a single point in time from a sample selected to represent some large population. A cross-section survey consisted of asking questions to a representative sample of village farmers. According to Babbie (1990), the design was suitable for description purposes as well as the determination of relationship between and among variables. The research was divided into two phases: the first phase involved desk study in which theoretical concepts were dealt with, and the second phase was the collection of data in the field. In this study, questionnaire was the main techniques used for data collection and this design was considered favourable because of the limited time for data collection and cost effective.

3.4 Sampling Procedure and Sample Size

Purposive sampling was done to get two wards namely: Mlali and Mzumbe comprising of four villages: Mlali, Manza, Vitonga and Lubungo. A list of all sunflower farmers under EPINAV in the respective villages in Mvomero District constituted the sampling frame. The sample size involved 138 respondents (68 females, 70 males) who were randomly selected from the 4 villages. Therefore, a total sample size of 138 farmers was surveyed. Sampling technique was used to determine a sample size of the respondents by using Yamane (1967) formula with a confidence level of 95%.

$$n = \frac{N}{1 + N(e)^2}$$

Whereby,

N = Is population size affected by the phenomenon under study (N = 200).

n = Sample size.

e = Level of precision (sampling error) = 5% or 0.05.

$$n = \frac{N}{1 + N(0.05)^2}$$

$$n = \frac{200}{1 + 200(0.05 \times 0.05)}$$

= 133.3 or 134.

Since there are four villages then each village provided 34 respondents which made a total of 136 respondents. To take care of non-responses, two more questionnaires were added but all attempted correctly and used.

3.5 Pre-testing of the Instrument

The first draft of the questionnaire was pre-tested using cronbach's alpha to ensure reliability and validity. The objective of pre-testing was to determine whether questions were not ambiguous, understood, and relevant to the study objectives. It was done in Changarawe and Kipera villages where there was less or more similar field conditions whereby 20 respondents (9 males and 11 females) were selected and interviewed. The analysis gave the value of 0.796 which indicated that the tool was appropriate for data collection. After pre-testing the questionnaire was revised accordingly and used for data collection during the actual survey.

3.6 Data Collection

Before the interviews, the researcher and the enumerators went over each question to understand the intent and meaning of each question and information required. The

researcher and enumerators interviewed farmers in groups and in their homes and recorded their responses in the relevant questionnaire.

3.6.1 Primary data

Primary data collection was done through face-to-face interviews and observations. This involved the use of interview schedule combining qualitative and quantitative questions. Open and closed- ended questions were used. Open-ended questions were used to tap different comments and opinions of the respondents. Primary data on gender aggregated activities in sunflower value chain was obtained through questionnaire and observation.

3.6.2 Secondary data

Secondary data were obtained from sources such as literature, reports, published books and journals, and public sector records.

3.7 Data Analysis

Data collected from the respondents were summarized, edited, coded and analyzed to obtain frequencies, percentages, means, cross tabulations and chi square test using Statistical Package for Social Science (SPSS) version 16 computer software.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Overview

This Chapter describes data collected for this study, which is divided into five main sections. Section one presents the characteristics of the respondents, while section two describes the respondents' sources of agricultural information. Section three discusses sources of livestock information, and whereas section four covers the roles of different gender categories. The fifth section presents the opportunities and constraints that respondents faced by gender categories in sunflower value chain.

4.1.1 Characteristics of the respondents

This section discusses characteristics of the respondents, which include sex, age groups, marital status, education level, number of people living in a household, and respondents' household heads. Table 1 shows respondents' sex, age, marital status, education level, number of household, sources of income, and type of crops grown research results. Slightly over half, 52% of the respondents were males and 48% were females. The chi-square test for this variable showed no statistical significance difference between respondents' sex and gender roles in sunflower value chain. The portrayed imbalance in sex distribution was due to the existing situation that there were few females compared to males. Most males are involved in many agricultural activities and projects because females have reproductive and productive roles which hinder their participation (Bwana, 1996).

Respondents' age ranged from below 19 to above 61 years of age whereas 61% of the respondents indicated to be between 31-60 years. The chi-square test showed significant

relationship at $p < 0.045$. Weginah (2010) pointed out that age influences performance of individuals in pursuing economic activities and hence impacts households' livelihoods. Further, Table 1 indicates that 67% of the respondents were married, 17% single, 10% divorced, and 6% widowed. With regard to marital status, this had no impact in sunflower value chain as there was no relationship between respondents' marital status and gender roles statistically. This finding is contrary to Hulme and Turner (1990) who indicated that, marital status provides household information valuable for sociological explanation of family size and roles of women and men in farming. Moreover, 75% of the respondents had attained primary education. The chi-square test indicates no statistical significant relationship at $p < 0.161$ on education level and gender based roles in sunflower value chain (Table 1). Household size ranged between 1-12 people as indicated by 43%, which were 1-3 people and was significant at $p < 0.002$. This implies a positive relationship between farmers' household size and their involvement in different activities in the sunflower value chain.

Table 1 also reveals that respondents' sources of income were from farming, paid employment, and casual labour. The study findings show that the main source of income for most respondents, 91% was from farming. However, few 8% indicated to receiving from casual labour, while 1% got from paid employment. The study findings show that the main source of income for respondents 91% was from farming. Respondents were also involved in off-farm small scale enterprises which differed from one area to another and between genders. This finding illustrates a typical rural area representation of which over 80% of the rural peoples' livelihood depends on agriculture in terms of food security and household income (NBS, 2012).

4.1.2 Information on livestock

The study found that respondents commonly owned livestock that included goats, sheep, local chicken, ducks, pigs and pheasants. Of the 138 respondents, 81.9% kept livestock.

The study results also show that, of the 138 respondents, each household kept an average of 15 local chickens, followed by 2 goats, 2 ducks, 1 pheasant, and 1 pig. Livestock were kept for cultural, economic and for food provision. All respondents kept 2,058 local chicken, 315 ducks, 258 goats, 102 pheasants, 73 pigs, 11 local cattle and sheep (each), and 3 improved dairy cattle. Of the 138 respondents, 34% indicated that they had received incomes from sale of livestock ranging from Tshs. 50 000 to 100 000. Yet, 25% of the respondents reported that they had received incomes ranging from Tshs. 100 001 to 200000 while 19% of the respondents received incomes ranging from Tshs. 200 001 to 400000, and 8% of the respondents indicated to receiving incomes ranging from Tshs. 400 001 to 500 000. However, 14% of the respondents did not get any income from livestock keeping and other activities.

Table 1: Characteristics of the respondents

1. Respondent sex (chi-square=1.67, df=3, P=0.655) ns										
Sex	Manza		Vitonga		Mlali		Lubungo		Overall	
	n	%	n	%	n	%	n	%	N	%
Male	19	50	18	53	15	45	20	61	72	52
Female	19	50	16	47	18	55	13	39	66	48
Total	38	100	34	100	33	100	33	100	138	100
2. Respondent age groups (chi-square=11.49 , DF=6, P=0.045) sg										
Below 19 – 30	7	18	10	29	9	27	10	30	36	26
31 – 60	28	74	20	59	22	67	14	42	84	61
Above 61	3	8	4	12	2	6	9	27	18	13
Total	38	100	34	100	33	100	33	100	138	100
3. Respondent marital status (chi-square=6.50 , DF=9, P=0.689) ns										
Single	6	16	6	18	3	9	9	27	24	17
Married	27	71	22	65	24	73	19	58	92	67
Widowed	3	8	2	6	1	3	2	6	8	6
Divorced	2	5	4	12	5	15	3	9	14	10
Total	38	100	34	100	33	100	33	100	138	100
4. Respondent Education (Chi-square=13.03, DF=9, P=0.161) ns										
No education	3	8	4	12	0	0	7	21	14	10
Adult education	1	3	2	6	0	0	0	0	3	2
Primary education	30	79	24	71	27	82	23	70	104	75
Secondary education	4	11	4	12	6	18	3	9	17	12
Total	38	100	34	100	33	100	33	100	138	100
5. Number of household (chi-square = 26.23, df = 9, p<0.002) sg										
1-3	11	29	17	50	9	27	23	70	60	43
4-6	17	45	10	29	20	61	9	27	56	41
7-9	10	26	7	21	3	9	1	3	21	15
10-12	0	0	0	0	1	3	0	0	1	1
Total	38	100	34	100	33	100	33	100	138	100
6. Sources of income										
Farming	37	97	29	85	31	94	28	85	12	91
Paid employment	0	0	1	3	0	0	0	0	51	1
Casual labour	1	3	4	12	2	6	5	15	11	8
Total	38	100	34	100	33	100	33	100	138	100

4.1.3 Crops grown

Table 2 presents the distribution of the respondents according to the type of crop grown, which included sunflower, maize, paddy rice, beans, cassava, and simsim. Other crops were pigeon peas, millet, sugar cane, sorghum, and vegetables. Of all the crops, the findings from the entire four villages indicated sunflower were grown by all respondents. The next crop was maize 95.6% followed by vegetables 67.3%. Beans were grown by 47% of the respondents followed by cassava which was grown by 46% of the respondents. Paddy-rice was grown by 38%, while pigeon peas were 35%. The remaining crops were not grown largely as shown below. These

Table 2: Crops grown

Type of crops grown	Manza		Vitonga		Mlali		Lubungo		Overall	
	n	%	n	%	n	%	n	%	N	%
Maize	33	25	33	25	33	25	31	23	132	95.6
Sunflower	38	28	34	25	33	24	33	24	138	100
Paddy rice	7	13	10	19	24	45	12	23	53	38.4
Beans	19	29	17	26	18	28	11	17	65	47.1
Cassava	18	28	19	30	16	25	11	17	64	46.3
Simsim	1	5	5	25	0	0	14	70	20	14.4
Pigeon peas	13	27	17	35	14	29	5	10	49	35.5
Millet	2	17	3	25	0	0	7	58	12	8.6
Sugarcan	0	0	3	60	1	20	1	20	5	3.6
Vegetables	25	27	26	28	22	24	20	22	93	67.3
Sorghum	1	13	1	13	2	25	4	50	8	5.7

Note: Data set was based on multiple responses

4.1.4 Main reason for growing sunflower and incomes obtained

Table 4 shows that, the overall percent from Manza, Vitonga, Mlali, and Lubungo villages, 59% indicated that home consumption was the first main reason for growing sunflower, 26% said for income generation, 12% was because it is easy to grow, and 3%

preferred it because it had a reliable market. The respondents' income obtained from sunflower sales differed widely

Respondents' incomes from sunflower ranged from less than Tshs. 50000 to 1000000. Of the 138 respondents from Manza, Lubungo, Mlali, and Lubungo villages, 25% indicated that they had received incomes from sale of sunflower ranging from Tshs. 100 001 to 200 000. Yet, 17% of the respondents reported that they had received incomes ranging from Tshs.50000 to 100000, and the other 17% indicated to receiving incomes ranging from Tshs. 2 000 001 to 300 000 (Table 4). However, 21% of the respondents mentioned that they did not get any income from growing sunflower meaning that their produce was low and only used oil pressed for home consumption.

Table 3: Main reason for growing sunflower and income obtained

Reason for growing sunflower	Manza		Vitonga		Mlali		Lubungo		Overall	
	n	%	n	%	n	%	n	%	N	%
Easy to produce	11	29	2	6	3	9	1	3	17	12
Reliable market	2	5	0	0	1	3	1	3	4	3
Income generating	6	16	9	26	11	33	10	30	36	26
Home consumption	19	50	23	68	18	55	21	64	81	59
Total	38	100	34	100	33	100	33	100	138	100
Income obtained										
Less than 50 000	6	16	6	18	0	0	3	9	15	11
50 000 – 100 000	9	24	6	18	6	18	2	6	23	17
100 001 – 200 000	12	32	7	21	6	18	10	30	35	25
200 001 – 300 000	6	16	6	18	7	21	4	12	23	17
300 001 – 400000	2	5	0	0	0	0	2	6	4	3
400 001- 500 000	1	3	0	0	2	6	0	0	3	2
500 001 – 1 000000	2	5	2	6	1	3	1	3	6	4
None	1	3	4	12	13	39	15	45	29	21
Total	38	100	34	100	33	100	33	100	138	100

4.1.5 Farm size and yields

Farm holding size is considered a critical production factor that determines the type of crops grown and the size of crop harvests. About 80% of increase in agricultural output in Africa has been attained through the expansion of cultivated land. Normally there is a positive relationship between farm size and improvement in households' income (Jayne *et al.*, 2005; Deininger, 2003). The larger the farm size of the household, the higher the expected level of income. It is, therefore, expected that household with a larger farm size to get more yields than a household with a smaller farm size. Therefore, under subsistence agriculture, farm size is expected to play a significant role in influencing household food security. Table 3 shows that 62.3% of all the respondents reported had 1-3 acres of sunflower, followed by 33.3% of them having less than 1 acre. Few, 1.4% and 2.9% of the respondents mentioned to own 4 and more than 9 acres respectively. Similar results were obtained by the World Bank (1994), which indicated that 93% of all the farmers in Tanzania cultivated each less than 2.0 hectares.

Further, Table 3 shows that, of the 138 respondents, less than half (25.4%) indicated to have harvested 1 to 165 kg per season while 15.2% of the respondents showed to have harvested yields ranging from 166 to 495kg. However, 13.8% of the respondents revealed to harvesting yields ranging from 496 to 660kg and 8.0% harvested yields ranging from 661 to 825kg per season. Other respondents obtained yields which were less than 7%. This analysis shows that respondents' yields were low to sustain their lives.

Table 4: Farm size and yields

Respondents' farm size (acre)	Frequency	Percent
Less than 1 acre	46	33.3
1 -3 acres	86	62.3
4 – 6 acres	4	2.9
More than 9 acres	2	1.4
Total	138	100.0
Sunflower yields (kg)		
1 – 165	35	25.4
166 - 330	21	15.2
331 - 495	21	15.2
496 - 660	19	13.8
661 – 825	11	8.0
826 - 990	9	6.5
991 - 1155	5	3.6
1156 - 1320	6	4.3
1321 - 1485	3	2.2
1486 - 1650	2	1.4
Above 1650	6	4.3
Total	138	100.0

1 bag = 150 kg

4.1.6 Payment after sunflower sales and enterprise ownership

Of the 138 respondents, 70.3% responded that they were paid immediately (cash) after selling sunflower, 15.9% indicated that they were paid five weeks after selling. Few, 7.2%, 5.1%, and 1.4% reported that they were paid immediately and after 1-2 weeks, 1-2 months after, and 6 weeks after selling, respectively (Table 5).

Table 5 also shows that, more than a half (54.3%) of the father respondents reported to own the sunflower enterprise in the household, while 23.2% mothers' respondents sowed the enterprise. Yet 18.1% of these mentioned that both fathers and mothers owned the sunflower enterprise. There was an overall negative attitude toward females owning the sunflower enterprise, which limited the performance of

mothers. Katwalo (2007) established that female entrepreneurs relied more on family funds than male entrepreneurs.

Table 5: Sunflower payment and enterprise ownership

1. Sunflower payment	Frequency	Percent
Immediately (cash)	97	70.3
1 – months after selling	7	5.1
Immediately & after 1-2 weeks	10	7.2
5 weeks	22	15.9
6 weeks	2	1.4
Total	138	100.0
2. Enterprise ownership		
Father	75	54.3
Mother	32	23.2
Father & mother	25	18.1
All of them	4	2.9
Father, mother & female children	1	0.7
Mother & female children	1	0.7
Total	138	100.0

4.1.7 Source of farm labour

According to Table 6 both male and female parents show to use more than 21% as source of labour followed by male and female parents, and hired labour (16%). However, female parents alone contributed 15.9 % whereas the remaining groups from 0.7% to 5.1% were involved as labour source. Deere (2005) identifies a number of potential sources of underestimation of female employment in labour markets, and in agriculture in particular. She notes that rural women in Latin America are likely to reply that “their home” is their primary responsibility, even if they are heavily engaged in agriculture.

Table 6: Source of farm labour

1. Labour source	Frequency	Percent
Male parents	29	21.0
Female parents	22	15.9
Male & Female parents, Hired labour and Male children	7	5.1
Female parents and Hired labour	3	2.2
Male parents & Hired labour	5	3.6
Male & Female parents and hired labour	22	16.0
Male & Female parents	29	21.0
Female parents, Female & Male children and Hired labour	6	4.3
Male parents and Male children	1	.7
Male & Female parents and Male children	4	2.9
Male & Female parents, Female children and Hired labour	4	2.9
Male & Female parents and Male & female children	5	3.6
Female parents and Male children	1	.7
Total	138	100

4.1.8 Total land description

Table 7 describes the total land of respondents used for farming activities. Findings shows that most respondents (30.4%) owned land and these are male parents followed by female parents who owned 18.1%. Further, out of school male youth indicated land ownership of 11.6 and old person male by 12.3%. Other gender categories owned land by less than 9%. However, hired land description was shown by male parents (15.9%) while female parents hired land by 7.2%. Other gender categories were less involved. Of the 138 respondents, female parents indicated to borrow land by 3.6% and male parents by 2.2%, the remaining gender categories borrowed land by less than 2%. This result implies that males owned more land compared to females.

Table 7: Total land description

Gender categories	Owned land		Hired land		Borrowed land	
	n	%	n	%	n	%
Male parents	42	30.4	22	15.9	3	2.2
Female parents	25	18.1	10	7.2	5	3.6
Out of school male youth	16	11.6	5	3.6	2	1.4
Out of school female youth	10	7.2	4	2.9	2	1.4
School going male youth	0	0	0	0	0	0
School going female youth	0	0	0	0	0	0
Old person male	17	12.3	2	1.4	1	0.7
Old person female	12	8.7	2	1.4	2	1.4
Total	122	88.4	45	32.4	15	10.7

4.1.8 Reasons for selling sunflower and market information

The first reason that respondents mentioned for selling sunflower to the places mentioned was good prices which was mentioned by 54.4%, followed by 26.1% who said due to nearby markets. Of the 138 respondents, 33.3% indicated that information was first sought then sunflower quality seed, followed by 29.0% of the respondents who mentioned information about type of seed to plant, and 18.8% who mentioned to need market prices information (Table8).

Table 8: Reasons for selling sunflower and market information

1. Reasons	Frequency	Percent
Good price	75	54.4
Nearness	36	26.1
None	27	19.6
Total	138	100.0
2. Market information needed		
Sunflower price	10	7.2
Market price	26	18.8
Buyer price	3	2.2
Sunflower quality seed	46	33.3
Type of seed to plant	40	29.0
None	13	9.4
Total	138	100.0

4.1.9 Problems of marketing sunflower

Of the 138 respondents, 38 from Manza village, 34 from Vitonga village, 33 from Mlali village, and 33 from Lubungo village, 35% indicated that one limitation to growing sunflower was low prices paid to farmers, while 14% mentioned the lack of marketing strategies. Yet, 12% mentioned lack of agronomic skills, and poor quality of sunflower oil. Low availability and quality of seeds was mentioned by 5% (Table 9). Eskola (2005) pointed out that, examination and analysis of agricultural marketing has gained primacy in the debate since farmers have failed to sell their crops or the prices paid have been lower than expected. In order to address the agricultural marketing problems, the government of Tanzania formulated a new Agricultural Marketing Policy (AMP), which is aimed at addressing problems in agricultural marketing and facilitating the use of agricultural marketing as a means of enhancing economic growth (FAO, 2004).

Table 9: Problems of marketing sunflower

Problems of marketing sunflower	Manza		Vitonga		Mlali		Lubungo		Overall	
	n	%	n	%	n	%	n	%	N	%
Low availability and quality of seeds	5	13	0	0	1	3	1	3	7	5
Lack of proper agronomic skills	6	16	1	3	4	12	5	15	16	12
Low prices paid to farmers after selling sunflower products	17	45	10	29	13	39	8	24	48	35
Poor quality of sunflower oil	3	8	7	21	3	9	3	9	16	12
Lack of marketing strategy	5	13	3	9	2	6	9	27	19	14
None	2	5	13	38	10	30	7	21	32	23
Total	38	100	34	100	33	100	33	100	138	100

4.2 Gender Category Involvement Roles in the Production Node

4.2.1 Production node

Table 10 shows gender involvement in the production node. This part answers objectives one, two, and three whereby respondents were asked to tell who performs different activities in the production node. This node includes four different gender categories namely: female and male parents, female and male out of school youth, female and male school going youth, and female and male old persons with their respective roles/activities.

Findings indicate the following: Of all the 138 respondents, female parents (22.5%) and male parents (23.2%) indicated almost equal participation in land preparation role. Involvement of other gender categories was less than 16%. However, female parents (23.2%) led in planting role whereby the rest of the categories were involvement by less than 16%. Again, female parents (22.5%) were more involved in weeding, the rest were less than 17%. Further, females (23.2%) showed more responsibility in harvesting of sunflower; other categories were involved by less than 17% in harvesting activity. Winnowing of harvested sunflower was done by female parents (44.9%) while others were less than 16% (Table 9). In general, females dominated in the production node. This finding is similar to other studies which revealed that, on average, African women were responsible for 60% in harvesting, 70% weeding, and 90% did processing (Rhodda, 1991). According to Ishengoma (1998), the family does decisions on different production activities and resources allocation in all cases and always the husband takes the leading role.

Table 10: Gender category involvement roles in the production node

Sunflower production node		
Gender categories:	Frequency	Percent
1. Land preparation		
Female parents	31	22.5
Male parents	32	23.2
Out of school female youth	8	5.8
Out of school male youth	22	15.9
School going female youth	7	5.1
School going male youth	7	5.1
2. Planting roles		
Female parents	32	23.2
Male parents	22	15.9
Out of school female youth	10	7.2
Out of school male youth	22	15.9
School going female youth	7	5.1
School going male youth	7	5.1
Old person females	1	0.7
Old person males	3	2.2
3. Weeding roles		
Female parents	31	22.5
Male parents	23	16.7
Out of school female youth	9	6.5
Out of school male youth	23	16.7
School going female youth	5	3.6
School going male youth	9	6.5
Old person females	1	0.7
Old person males	2	1.4
4. Harvesting roles		
Female parents	32	23.2
Male parents	20	14.5
Out of school female youth	8	5.8
Out of school male youth	23	16.7
School going female youth	6	4.3
School going male youth	9	6.5
Old person females	1	0.7
Old person males	2	1.4
5. Winnowing roles		
Female parents	62	44.9
Male parents	22	15.9
Out of school female youth	13	9.4
Out of school male youth	19	13.8
School going female youth	8	5.8
School going male youth	6	4.3
Old person females	2	1.4
Old person males	2	1.4

4.2.2 Input supply and transportation nodes

Table 11 indicates how respondents were involved in different activities in the input supply and transportation nodes. Of all the 138 respondents, male parents were involved in buying and ferrying inputs by 31.9% while female parents were involved by 13.8%. Other categories were less involved. However, (34.1%) of the male parents participated in mixing and spraying of insecticides and fungicides and 6.5% of the female parents also participated in these activities. Furthermore, (38.4%) of the male parents also led in hiring of vehicles for ferrying of inputs, sunflower crop, taking sunflower seeds to the pressing machine, and head carrying by 21.0%. The findings implied responsibility of men in these two nodes; input supply and transportation. These findings were also confirmed by (IFAD, 2013) who pointed out that men dominated in input supply and transportation compared to women.

Table 11: Inputs supply and transportation nodes

1. Buying, ferrying inputs to home and farm roles		
Gender categories	Frequency	Percent
Female parents	19	13.8
Male parents	44	31.9
Out of school female youth	1	.7
Out of school male youth	13	9.4
School going female youth	1	.7
School going male youth	2	1.4
2. Mixing, spraying insecticides and fungicides role		
Female parents	9	6.5
Male parents	47	34.1
Out of school female youth	1	.7
Out of school male youth	14	10.1
Transportation node		
3. Hiring vehicles role		
Female parents	15	10.9
Male parents	53	38.4
Out of school female youth	1	0.7
Out of school male youth	10	7.2
School going female youth	1	0.7
School going male youth	2	1.4
Old person female	1	0.7
Old person male	1	0.7
4. Head carrying role		
Female parents	26	18.8
Male parents	29	21.0
Out of school female youth	5	3.6
Out of school male youth	15	10.9
School going female youth	5	3.6
School going male youth	4	2.9
Old person female	3	2.2
5. Taking sunflower seeds to pressing machine, bring back home sunflower oil and cake		
Female parents	27	19.6
Male parents	52	37.7
Out of school female youth	4	2.9
Out of school male youth	23	16.7
School going female youth	4	2.9
School going male youth	4	2.9
Old person female	1	0.7
Old person male	2	1.4

4.2.3 Packaging and marketing nodes involvement

Table 12 shows different activities; these are, putting sunflower seeds in bags, putting sunflower oil in plastic tins, selling sunflower seed, oil, cake and collecting money from sales, buying sunflower seeds, seeking market information, off-loading sunflower oil, and off-loading sunflower cake. The study findings show that, of the 138 respondents, putting sunflower seeds in bags were done by male parents (34.1%) compared to female parents whose involvement was less than a quarter (23.2%). With regard to putting sunflower oil in plastic containers, male parents participated by 19.9% while the remaining gender categories were less involved (Table 12). These findings show that male parents dominated in packaging node.

However, marketing node which included selling of sunflower seeds, oil, cake and collecting money from sales involved male parents by 29.7% whereas female parents were involved by 20.3%. Other categories participated less than 9 percent. Further, buying sunflower seeds involved 36.2% of male parents, and 23.2% of female parents. Seeking market information was done by 38.4% and included male parents, while the same activity was done by 20.3% of female parents. However, off-loading sunflower oil was done by 33.3% of the female parents and sunflower cake by 34.1% of the male parents. These findings are similar to Deere (2005) who identified underestimation of female employment in labour markets. Therefore, male parents dominated in packing and marketing nodes.

Table 12: Packaging and marketing nodes involvement

Gender categories	Frequency	Percent
1. Putting sunflower seeds in bags		
Female parents	32	23.2
Male parents	47	34.1
Out of school female youth	4	2.9
Out of school male youth	21	15.2
School going female youth	8	5.8
School going male youth	5	3.6
Old person female	1	0.7
Old person male	5	3.6
2. Putting sunflower oil in plastic tins		
Female parents	15	10.9
Male parents	27	19.9
Out of school female youth	1	0.7
Out of school male youth	10	7.2
School going female youth	3	2.2
Old person female	1	0.7
Marketing node		
3. Selling sunflower seeds, oil, cake and collecting money from sales		
Female parents	28	20.3
Male parents	41	29.7
Out of school female youth	4	2.9
Out of school male youth	12	8.7
School going female youth	4	2.9
School going male youth	1	0.7
Old person female	1	0.7
4. Buying sunflower seeds		
Female parents	32	23.2
Male parents	50	36.2
Out of school female youth	2	1.4
Out of school male youth	11	8.0
School going female youth	1	0.7
Old person female	1	0.7
5. Seeking market information		
Female parents	28	20.3
Male parents	53	38.4
Out of school female youth	1	0.7
Out of school male youth	12	8.7
School going female youth	1	0.7
School going male youth	1	0.7
6. Off-loading sunflower oil		
Female parents	33	23.9
Male parents	46	33.3
Out of school female youth	10	7.2
Out of school male youth	27	19.6
School going female youth	11	8.0
School going male youth	10	7.2
Old person female	1	0.7
Old person male	1	0.7
7. Off-loading sunflower cake		
Female parents	31	22.5
Male parents	47	34.1
Out of school female youth	10	7.2
Out of school male youth	23	16.7
School going female youth	11	8.0
School going male youth	8	5.8
Old person female	1	0.7
Old person male	1	0.7

4.2.4 Processing node

Women farmers as they play a key role to household level, also tend to be fully involved in the production and manage processing activities. Of the 138 respondents, 39.9% of the female parents were involved in processing (Table 13). According to FAO (2010) African women are responsible for processing activity by 90%. This result shows that, activities along the sunflower value chain consume time but women are trying their best to work hard to increase their incomes. However, male parents were seen to be involved in processing node by 28.2% while out of school male youth participated in processing node by 10.2%. The remaining gender categories were less involved.

Table 13: Processing node (n=138)

Gender categories	Frequency	Percent
Processing		
(Processing machine and training)		
Female parents	55	39.9
Male parents	39	28.2
Out of school female youth	9	6.6
Out of school male youth	14	10.2
School going female youth	9	4.5
School going male youth	4	3.6
Old person females	5	4.6
Old person males	3	2.4

4.3.1 The available opportunities and beneficiaries in the sunflower value chain

Table 14 indicates how the following gender groups benefited from capital availability. The findings show male parents benefited by 14.5%, and female parents by 13.8%. However, out of school male youth benefited by 13.0% while female youth benefited by 5.8%. Further, both school going female and male youth benefited by 3.6% each, while old male persons benefited by 1.4% and old female persons benefited by capital by 2.9%. Males from all gender categories were the dominant beneficiaries of capital.

Moreover, another opportunity examined was extension service availability and beneficiaries were as follows: female parents by 13.8%, and male parents by 10.9%, while out of school male youth was by 8.7% and out of school female youth was by 2.9%. The school going female and male youth benefited from extension service equally, which was 2.9%, but old females person was by 2.9% while males was by 0.9%. This implies that, beneficiaries of extension service involved more males from all gender categories, while females were less involved at all (Table 14). This is similar to Haug (1999) who pointed out that, agricultural extension services are generally geared towards male.

Furthermore, the availability of land was an opportunity to both female and male parents who shared equally by 17.4%. Out of school males benefited by 13.0% and females by 6.5%, while school going males by 3.6% and females benefited by 2.9%. Old female's person by 3.6% and males by 1.4%. Males from all gender categories were again the dominant of land opportunity. In spite of women making up the biggest workforce in food production, processing and preparation in Africa women's engagement is also constrained by lack of access to land and to credit.

The World Bank (2009) found that women's control over and ownership of land lags behind men's that their own plots are typically smaller and of poorer quality. Both customary and private property regimes tend to privilege men's land holdings (FAO, 2011: 46). Study findings also indicated that labour availability benefited female parents by 13.8% and male parents by 13.0%, while was 5.1% for out of school females, and males for 7.2%. Both school going females and males benefited by 2.2%, while old female persons were by 2.9% and males by 1.4%. Many females saw labour availability as an opportunity.

Availability of sunflower seeds/oils is an important issue for human consumption (Ehuet *al.*, 2002). Female parents agreed that seeds were available by 17.4% and male parents by 15.2%. Out of school male youth benefited by 12.3%, while 5.1% by youth females. However, school going youth females benefited by 3.6% and male youth by 2.9%. The last gender category was old persons as few benefited 2.9% females and 1.4% males (Table 14). This implies that males were more responsible in buying seeds. Yet, input dealers indicated that availability of input to customers was 20% meaning that, few farmers bought inputs.

With regard to product and consumers availability, processors confirmed by 100% that they got sunflower seed from farmers, and there was one place to press oil in the study area and benefited by 100%. This implies that, farmers were forced to press and sell their sunflower seed to one oil pressing machine and there was no price competition. However, consumers agreed of getting quality sunflower oil. Observation showed that, most respondents had little knowledge on identifying quality sunflower oil as 92% of them said they get quality oil (Table 14). Seed cake was available by 100% after pressing. Respondents who kept livestock benefited by carrying it home to feed their animals and those without livestock sold it.

Table 14: The available opportunities and beneficiaries in the sunflower value chain

Actors	Opportunities	Beneficiaries (%) N = 138							
		Parents		Out of school youth		School going youth		Old persons	
		F	M	F	M	F	M	F	M
1. Producers	(i) Capital availability	19(13.8)	20(14.5)	8(5.8)	18(13.0)	5(3.6)	5(3.6)	4(2.9)	2(1.4)
	(ii) Extension service availability	15(10.9)	19(13.8)	4(2.9)	12(8.7)	4(2.9)	4(2.9)	4(2.9)	1(0.7)
	(iii) Land availability	24(17.4)	24(17.4)	9(6.5)	18(13.0)	4(2.9)	5(3.6)	5(3.6)	2(1.4)
	(iv) Labour availability	19(13.8)	18(13.0)	7(5.1)	10(7.2)	3(2.2)	3(2.2)	4(2.9)	2(1.4)
	(v) Seeds availability	24(17.4)	21(15.2)	7(5.1)	17(12.3)	5(3.6)	4(2.9)	4(2.9)	2(1.4)
2. Input suppliers	(i) Inputs availability	5(100)	5(100)	5(100)	5(100)	5(100)	5(100)	5(100)	5(100)
	(ii) Customers availability	5(20)	5(20)	5(20)	5(20)	5(20)	5(20)	5(20)	5(20)
3. Processors	(i) Product availability	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
	(i) Consumers availability	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
4. Consumers	(i) Quality oil	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
	(ii) Seed cake	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

N = 5

N = 138

F = Female M = Male

4.4 Constraints and the Affected Members in Sunflower Value Chain

This study also examined producers and input suppliers' constraints in the sunflower value chain. The constraints included capital, extension service delivery, land, labour, and seeds availability. Study findings revealed that capital affected sunflower producers by 40.6%, land by 37.0%, seeds by 31.9%, extension service delivery by 28.3%, and labour by 24.6%. However, these findings show that both parents were mostly affected as they are the ones responsible in the family. Moreover, findings show that, input suppliers mentioned customer's availability as a problem and late arrival of inputs, which affected all household members as they affected sunflower productivity. Hence, there was less use of inputs in the study area leading to farmers, low sunflower harvests (Table 15).

Table 15: Constraints and the affected members in the sunflower value chain

Actors	Constraints	Frequency	Percent
Producers	(i) Capital	56	40.6
	(ii) Land	51	37.0
	(iii) Seeds	44	31.9
	(iv) Extension service	39	28.3
	(v) Labour	34	24.6
Input suppliers	(i) Customers	3	60.0
	(ii) Timeless of inputs	3	60.0

Note: Data set was based on multiple responses

4.5 Gender Categories Agreeing to Improve Sunflower Production and Input

Supply Activities

Table 16 shows that 60.9% of the male parents agreed that information on farm implements was needed during land preparation and 56.5% of the female parents. Other gender categories needed same information by less than 17%. However, female parents needed information on proper spacing and fertilizer application (44.9%) while male

parents needed by 44.2%. The remaining gender categories needed information by less than 10%. To improve weeding activity, 41.3% of the male parents, and 39.9% of female parents agreed to need information on proper use of herbicides. Other gender categories agreeing by 11%. These production and input supply nodes showed males to dominate in seeking improvement in sunflower value chain.

Further, Table 15 shows that respondents' opinions on inputs supply, which was agreed by 34.1% of male parents and 31.9% by female parents. Also, study findings indicate that both female and male parents agree by 29.0% ferrying means and their costs. Respondents indicated information needed on how to mix and spray insecticides and herbicides by 41.3% of the male parents and 40.6% for female parents. Based on gender, the study findings show that male parents dominated in getting information needed the input supply node (Table 16). These findings are similar to Van den Ban and Hawkins (1999) who pointed out that, sources of information depends largely on the ability of smallholders to produce crops if they had current information which might have been received from several sources e.g. other farmers or government extension agents.

Table 16: Gender categories agreeing to improve sunflower production and inputs supply activities

Gender categories	Frequency	Percent
1. Land preparation		
Female parents	78	56.5
Male parents	84	60.9
Out of school female youth	23	16.7
Out of school male youth	18	13.0
School going female youth	12	8.7
School going male youth	13	9.4
Old person females	6	4.3
Old person males	4	2.9
2. Planting (Proper spacing and fertilizer application)		
Female parents	62	44.9
Male parents	61	44.2
Out of school female youth	9	6.5
Out of school male youth	13	9.4
School going female youth	10	7.2
School going male youth	10	7.2
Old person females	5	3.6
Old person males	4	2.9
3. Weeding (Herbicides)		
Female parents	55	39.9
Male parents	57	41.3
Out of school female youth	9	6.5
Out of school male youth	15	10.9
School going female youth	9	6.5
School going male youth	9	6.5
Old person females	5	3.6
Old person males	4	2.9
Agreeing to improve inputs supply activities		
4. Prices, sources, quality (Buying inputs)		
Female parents	44	31.9
Male parents	47	34.1
Out of school female youth	7	5.9
Out of school male youth	9	6.5
School going female youth	5	3.6
School going male youth	2	1.4
Old person females	6	4.3
Old person males	3	2.2
5. Ferrying means, costs		
Female parents	40	29.0
Male parents	40	29.0
Out of school female youth	5	3.6
Out of school male youth	8	5.8
School going female youth	4	2.9
School going male youth	2	1.4
Old person females	5	3.6
Old person males	2	1.4
6. How to mix & spray insecticides/herbicides		
Female parents	56	40.6
Male parents	57	41.3
Out of school female youth	8	5.8
Out of school male youth	12	8.7
School going female youth	11	8
School going male youth	9	6.5
Old person females	5	3.6
Old person males	3	2.2

4.5.1 Gender categories agreeing to improve transportation of sunflower activities

Table 17 shows vehicle hiring costs, market price, and labour availability. Hiring costs were mentioned as needed information to improve sunflower transportation activities by 33.3% of the male parents, 31.2% of the female parents, 11.6% of the out of school male youth, and 7.2% of the out of school female youth. Few (.2%) female and male old persons wanted such information. The study findings also indicate that male respondents needed market price and transportation information by 37.7% while female parents needed such information by 34.8%. Moreover, 12.3%, out of school male youth needed the information and out of school female youth 8.0%, school going female youth 3.6%, male youth by 2.2%, old female persons 3.6%, and old male persons by 2.2%. Furthermore, labour availability was essential information needed to know the costs of sunflower oil and cake, and off-loading sunflower oil and cake. The study findings show that male parents agreed by 33.3%, female parents by 31.2%, out of school male youth 11.6%, female youth by 7.2%, school going female youth by 3.6% male youth 2.2%, old female persons by 3.6%, and old male persons 2.2%. Male parents dominated in agreeing to improving sunflower activities in the transportation node.

Table 17: Gender categories agreeing to improve transportation of sunflower activities (n=138)

Gender categories	Frequency	Percent
1. Vehicle hiring costs		
Female parents	43	31.2
Male parents	46	33.3
Out of school female youth	10	7.2
Out of school male youth	16	11.6
School going female youth	4	2.9
School going male youth	3	2.2
Old person females	3	2.2
Old person males	3	2.2
2. Market price		
Female parents	48	34.8
Male parents	52	37.7
Out of school female youth	11	8.0
Out of school male youth	17	12.3
School going female youth	5	3.6
School going male youth	3	2.2
Old person females	5	3.6
Old person males	3	2.2
3. Labour availability		
Female parents	46	33.3
Male parents	49	35.5
Out of school female youth	10	7.2
Out of school male youth	16	11.6
School going female youth	5	3.6
School going male youth	3	2.2
Old person females	5	3.6
Old person males	3	2.2

4.5.2 Gender categories agreeing to improve sunflower marketing activities

Table 18 shows that both female and male parents who agreed by 37.7% to receiving information on market availability and market prices for improving sunflower marketing activities. The study findings indicate that out of school male youth agreed by 10.9% and out of school female youth by 5.8%. Yet, school going female youth agreed by 3.6%, male youth by 2.2%, old female persons by 3.6%, and old male persons by 1.4%. Also,

with regard to selling sunflower seeds, oil and seed cake, female parents wanted information on marketing activities by 34.1%, male parents by 30.4%, out of school male youth by 10.1%, while female youth by 5.1%. The study findings indicate 2.9% school going females, 1.4% school going males and old female persons agreed by 3.6%, and males by 1.4%. Moreover, female parents agreed by 33.3% to receiving buyers and market price information. Yet, male parents agreed by 29.7%, out of school male youth by 10.9%, female youth by 6.5%, school going female youth by 4.3%, male youth by 2.2%, female old persons by 4.3% and males by 2.2%. Marketing node also shows that male parents dominate in agreeing to improve sunflower value chain activities.

Table 18: Gender categories agreeing to improve sunflower marketing activities

Gender categories	Frequency	Percent
1. Marketing (market availability & market price)		
Female parents	52	37.7
Male parents	52	37.7
Out of school female youth	8	5.8
Out of school male youth	15	10.9
School going female youth	5	3.6
School going male youth	3	2.2
Old person females	5	3.6
Old person males	2	1.4
2. Selling of sunflower seed, oil, & cake (Selling price & buyers)		
Female parents	47	34.1
Male parents	42	30.4
Out of school female youth	7	5.1
Out of school male youth	14	10.1
School going female youth	4	2.9
School going male youth	2	1.4
Old person females	5	3.6
Old person males	2	1.4
3. Seeking market information (Buyers and market price)		
Female parents	46	33.3
Male parents	41	29.7
Out of school female youth	9	6.5
Out of school male youth	15	10.9
School going female youth	6	4.3
School going male youth	3	2.2
Old person females	6	4.3
Old person males	3	2.2

4.5.3 Gender categories agreeing to improve sunflower processing activities

Table 19 shows different gender groups that needed information to improve sunflower processing activities. Of all the respondents, 39.9% of the female parents indicated that they needed information on processing machines and training on local methods of processing sunflower. Further, male parents wanted such information by 36.2%, out of school male youth by 10.1%, while out of school female youth by 6.5%. Also, few school going female youth indicated that they needed such information by 6.5%, male youth by 3.6%), old female persons by 4.3%, and males by 2.2%. Along the market and value chain, processors and traders are constrained by low quality seed, inadequate supply and high cleaning costs, high market risk and low cash flows. These factors deprive farmers the underlying incentives to produce and supply quality and differentiated products with desirable market traits in addition to their unavailability to penetrate high value niche markets (Jones *et al.*, 2002).

Table 19: Gender categories agreeing to improve sunflower processing activities(n=138)

Gender categories	Frequency	Percent
Processing		
(Processing machine and training)		
Female parents	55	39.9
Male parents	50	36.2
Out of school female youth	9	6.5
Out of school male youth	14	10.1
School going female youth	9	6.5
School going male youth	5	3.6
Old person females	6	4.3
Old person males	3	2.2

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Overview

This Chapter presents the conclusion and recommendations of the study findings. The overall objective of the study was to investigate gender roles in sunflower value chain. This study was conducted in four villages in Mvomero District, and the specific objectives were:

To examine the gender group roles involved in the production of sunflower value chain; to determine the importance of gender considerations in the implementation of input supply and transportation of sunflower value chain; to assess the involvement of gender roles in packaging, marketing, and processing in the sunflower value chain; and to identify the potentials and constraints encountered by gender categories in the consumption of sunflower value chain. The study employed a cross-sectional design whereby data was collected at a single point in time from a sample of 138 randomly selected respondents from Mlali, Manza, Vitonga, and Lubungo villages. All the sampled households were sunflower producers. A questionnaire was used for data collection. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 16 computer programme in which descriptive statistical analyses were performed to yield frequencies, percentages. Chi-square test of significance was also performed to identify relationships between studied variables and the magnitude of their association.

5.1.1 Conclusion

This study reflects on how different roles of men and women in the household are carried out in the sunflower value chain. It was observed that gender roles in the sunflower value chain included producers, input suppliers, transporters, processors, and consumers.

Producers were engaged in producing sunflower and sold to the millers/processors within the study area to get sunflower oil for consumption and cake to sell as animal feed. Input suppliers supplied inputs to farmers. Transporters (motor bike, bicycle, and head carrying) took sunflower seeds from the farm/home to the markets. Processors pressed sunflower, while consumers were the last actors and consumed the sunflower oil.

Constraints hindering the development of gender roles in the sunflower value chain were in production and processing nodes in which female parents faced lack of capital and extension services. All gender categories in the value chain did not buy improved sunflower seeds as there were no shops that sold improved seeds. Respondents had no knowledge on their use. Farmers were also constrained by means of sunflower transportation from the farm/home to the markets. Female parents who were the dominant faced the most problems. Limited access to markets, low prices of product, and low quality of products were the major problems. Although males were the dominants in marketing node all members faced this problem. It was accompanied by lack of market information leading to low incomes. Processing node was again women's activity compared to men's, but they were constrained by lack of skills and knowledge on locally process their sunflower.

5.1.2 Recommendations

The recommendations to be drawn from this study aim at upgrading the value chain activities and will mainly focus on women because they are the ones left behind.

1. Village governments should in liaison with agricultural extension officers and help women in the sunflower value chain to obtain inputs, skills and knowledge for increasing production. This can easily be done by women forming groups.

2. Village governments in the study areas should liaise with credit institutions so that sunflower producers especially women access credit to boost their production.
3. Village governments should liaise with village agricultural extension agents and secure reliable markets for sunflower. Also, village governments should look for improved sunflower seeds inputs, control diseases and insect pests.
4. Village governments should ask their agricultural extension officers to teach women on proper sunflower seed processing to raise their incomes.
5. Village governments and agricultural extension officers should ensure that equal involvement of all gender categories in sunflower value chain is attained to ensure efficiency and increased incomes.

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APPENDICES

Appendix 1: Questionnaire for farmers

**TITLE: ASSESSMENT OF GENDER ROLES IN SUNFLOWER VALUE CHAIN:
THEIR POTENTIALS AND CONSTRAINTS.**

QUESTIONNAIRE FOR FARMERS

No.....

My name is Juliana Jacob Khahima, MSc. student from Sokoine University of Agriculture. I am currently conducting a study on “**assessment of gender roles in sunflower value chain: their potentials and constraints**”. You have been randomly selected to participate in this study. The participation is voluntary. The information generated by this study will only be used for the purpose of the study not otherwise. Confidentiality will be kept in the course of reporting for the study. Please feel free to answer the questions.

Enumerator’s Name.....

GENERAL INFORMATION

Region.....District.....Division.....

Ward.....Village.....

Name of respondent.....Mobile Number.....

Date.....

SECTION A: FARMERS CHARACTERISTICS

1. Sex of the respondent: 1= Male () 2= Female ()
2. Marital status of the respondent: (i) = Single () (ii) = Married () (iii) =Widowed ()
(iv) = Divorced ()
3. How old are you? **(Tick “√” where appropriate)**
(i) Below 18 () (ii) 19-30 () (iii) 31-60 () (iv) Above 61 ()
4. What is your highest level of formal education attained? **(Read out)**
(i) No formal education () (ii) Adult education () (iii) Primary education ()
(iv) Secondary education () (v) Certificate () (vi) Diploma ()
5. How many people live in the household? (i) 1-3 () (ii) 4-6 () (iii) 7-9 ()
(iv) 10-12 () (v) Above 12 ()
6. Who is the household head? 1 = Father () 2 = Mother () 3 = Others,
specify.....

SECTION B: AGRICULTURE INFORMATION

7. What are sources of income for your household? **(Read out) Tick “√”**
Multiple answers are acceptable
(i) Farming () (ii) Paid employment () (iii) Casual labour ()
8. If farming is main activity, what kind of crops do you grow mostly?
(i) Maize () (ii) Sunflower () (iii) Paddy () (iv) Beans () (v) Cassava ()
(vi) cow peas (vii) vegetables (viii) Others, specify.....
9. For those who indicated sunflower, how big is your farm?
(i) Less than 1 acre () (ii) 1-2 acres () (iii) 3-4 acres () (iv) 5-9 acres ()
(v) More than 9 acres ()
10. How much yield of sunflower did you get last season? (2013/2014)
(i) Bags.....(ii) Kgs.....(iii).....Debes.....

11. What is the main reason for undertaking sunflower production? **(Of the four, rank them in order of importance: 1= most important; 2=Important; 3=Less important; 4=Least important)**

- (i) Easy to produce ()
- (ii) Reliable market ()
- (iii) Income generating ()
- (iv) Home consumption ()
- (v) Others, specify.....

12. How much income do you get from sunflower sales per year? **(Read out)**

- (i) Less than 50 000 () (ii) 50 000 – 100 000 () (iii) 100 001- 200 000 ()
- (iv) 200 001 – 300 000 () (v) 300 001 – 400 000 () (vi) 400001 – 500000 ()
- (vii) Others, specify.....

13. When do you get paid after selling your sunflower?

- (i) Immediately after selling () (ii) 1-2 months after selling ()
- (iii) 3-4 months after selling () (iv) Others, specify.....

14. Who owns the sunflower enterprise in your household? **(Read out)**

- (i) Farther () (ii) Mother () (iii) Male children () (iv) Female children ()

15. What is the source of farm labour? **Tick “√” where appropriate**

- (i) Farther () (ii) Mother () (iii) Male children () (iv) Female children ()
- (v) Hired labor () (vi) Others, specify.....

16. How would you describe the total land which you use for farming activities? **(Read out)**

Description	Size of land used (in acres)
(i) Own land	
(ii) Hired land	
(iii) Borrowed land	
Total	

17. Where do you sell your sunflower? (**Rank in order of importance, i = most important and vii = least important**)

- (i) In the village gulio ()
- (ii) To other village gulio ()
- (iii) To crop village collectors ()
- (iv) To middlemen ()
- (v) To sunflower millers ()
- (vi) To urban markets ()
- (vii) At home ()
- (viii) Others, specify.....

18. Give reasons why you decide to sell your sunflower in the place you mentioned above?

- (i) Nearness () (ii) Good price () (iii) Others, specify.....

19. What type of market information do you need most? (**Rank them in order of importance, 1= most important, 5=least important**)

- (i) Price of the sunflower ()
- (ii) Market price ()
- (iii) Buyer price ()
- (iv) Quality of sunflower ()
- (v) Type of seed to plant ()

20. In what class interval does your total annual crop income in Tanzanian shillings fall?

(Read out) Tick “√” where appropriate

- (i) Less than Tsh 50000 ()
- (ii) Tsh 51 000 – 100 000 ()
- (iii) Tsh 100 001 – 200 000 ()
- (iv) Tsh 200001 – 300000()

(v) Tsh 300 001 – 400 000 ()

(vi) Others, specify.....

21. What problems do you face in sunflower marketing?(**Rank in order of importance, 1 = most and 5 = least important**)

(i) Low accessibility and usage of quality seeds ()

(ii) Lack of proper agronomic skills ()

(iii) Low prices paid to farmers after selling sunflower products ()

(iv) Low quality of sunflower produced oil ()

(v) Lack of proper marketing strategy (branding and packaging) ()

22. Do you process your sunflower after harvesting? (i) No () (ii) Yes ()

If no why.....

23. Did you get any training on sunflower processing? (i) No () (ii) Yes ()

24. If answered yes in question 22, how did you learn? (**Read out**)

(i) Learning by doing ()

(ii) Learned from family members/friends ()

(iii) Learned from other farmers ()

(iv) From the course on processing ()

(v) Others, specify.....

25. What kind of equipment do you use to process sunflower? (**Read out**)

(i) Sunflower oil mills ()

(ii) Others, specify..... ()

26. What is your opinion concerning sunflower processing?

(i) Provision of milling machines ()

(ii) Sustainable training in processing ()

(iii) Others, specify.....

SECTION C: LIVESTOCK INFORMATION

27. (a) Do you raise livestock? (i) Yes () (ii) No ()

27. (b) If yes, what kind and number of livestock do you raise?

Type of livestock	Number of animal kept
(i) Indigenous cattle	
(ii) Cross breed cattle	
(iii) Goats	
(iv) Sheep	
(v) Local chicken	
(vi) Ducks	
(vii) Pheasants	
(viii) Others, specify	

28. How much money do you get from selling livestock or their product per year? (**Read out**)

- (i) Less than 50 000 () (ii) 50000 – 100000 () (iii) 100001 – 200000 ()
 (iv) 200 001 – 300 000 () (v) 300001 – 400000 () (vi) 400001 – 500000 ()
 (vii) Others, specify.....

29. What other income generating activities do you have?

- (i) Operates a shop (ii) Brew local beer (iii) Operates a carpentry (iv) Others, specify.....

30. How much money do you get from other income generating activities mentioned above? (**Read out**)

- (i) Less than 50000 () (ii) 50000 – 100000 () (iii) 100001 – 200000 () (iv) 200001 – 300000 () (v) 30001 – 400000 () (vi) 400001 – 500000 () (vii) Others, specify.....

31. For what purpose do you use the money obtained from other income generating activities? **(Read out)**

- (i) To buy food for the family () (ii) To buy livestock inputs () (iii) To buy crop inputs () (iv) To pay school fees () (v) Others , specify.....

**SECTION D: ROLES OF DIFFERENT GENDER CATEGORIES IN THE
SUNFLOWER VALUE CHAIN**

32. Who performs the following roles in the sunflower value chain? **(Read out)**

F = Female and M = Male

S/N	Roles	Who does it							
		Parents		Out of school youth		School going youth		Old person	
		F	M	F	M	F	M	F	M
1	Production								
	(i) Land preparation								
	(ii) Planting								
	(iii) Weeding								
	(iv) Harvesting								
	(v) Winnowing								
2	Input supply								
	(i) Buying inputs								
	(ii) Ferrying inputs home								
	(iii) Ferrying inputs to farm								
	(iv) Mixing insecticide								
	(v) Spraying insecticide								
	(vi) Spraying fungicide								
3	Transportation								
	(i) Hiring vehicle								
	(ii) Head carrying								
	(iii) Taking sunflower to market								
	(iv) Taking sunflower back home(unsold)								
	(v) Taking sunflower to oil to oil pressing machine								
	(vi) Taking home sunflower oil								
	(vii) Taking home sunflower cake								

