INTRA-HOUSEHOLD GENDER RELATIONS AND HOUSEHOLD FOOD SECURITY IN TANZANIA: A CASE OF CHAMWINO DISTRICT, DODOMA REGION

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION OF SOKOINE UNIVERSITY OF AGRICULTURE, MOROGORO, TANZANIA.

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ABSTRACT

The overall objective of the study was to assess the effect of intra-household gender relations on household's food security in Chamwino District, Dodoma region. Data were collected from 120 respondents using interview schedule. Checklist was used to collect data from Focus Group Discussions (FGDs) with men and women and from interview with key informants. Quantitative data were analyzed using the Statistical Package for Social Sciences (SPSS) and qualitative data were summarized and analyzed manually using content analysis. The findings show that food security is perceived as having enough food to meet family requirements until the next harvesting season.The study shows men sell and control the income from the sales of agricultural products and off-farm activities. They use the income on non food items such as alcohol, clothes, getting another wife as this affects household food security. The study identified that, some of the decisions made by household to ensure food security were use of recommended farming practices, growing both cash and food crops and good storage of harvested produce. The study shows that there is household gender based decision which influences on household food security. Households in which women did not participate in decisions about income and food management were more vulnerable to household food insecurity because men were not concerned on household food requirements. Based on the research results, it is concluded that: food security is determined by the quantity of sorghum or millet or maize available in the household storage structure(s). Men's control over resources such as cash income has negative influence on household food security. Women's non involvement in decision making on insuring food management imparts negatively household's food security. It is recommended that there is a need to address gender inequalities with regard to ownership and control over resources at household level which imparts on household food security.

DECLARATION

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

Grace Mkunda Nyamwanji — Date

(MSc. Candidate)

The above declaration is confirmed by;

Prof. D.L. Mwaseba — Date

(Supervisor)

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This work is dedicated to my parents late Eliya Nyamwanji and late Muheje Lewanga who laid down the foundation of my education and who did not live to witness my struggle towards this achievement. May Almighty God rest them in eternal peace, Amen.

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LIST OF ABBREVIATIONS AND ACRONYMS

ASDS	Agricultural Sector Development Strategy
DAICO	District Agriculture Irrigation and Cooperative Officer
DED	District Executive Director
FAO	Food and Agriculture Organization
FGDs	Focus Group Discussion
Kg	Kilogram
MAFS	Ministry of Agriculture Food Security and Cooperative
N	Number
NGO	Non-Governmental Organization
SPSS	Statistical Package for Social Sciences
TZS	Tanzanian shilling
UN	United Nations
UNICEF	United Nations Children's Fund
URT	United Republic of Tanzania
VEO	Village Extension Officer

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Gender and Development issues in Africa and other countries in the world continue to generate interest among researchers and policy makers (Wagura, 2013). The term gender refers to economic, social and cultural attributes and opportunities associated with being male or female (United Nations Habitat, 2003). Gender roles are those behaviors, tasks and responsibilities that a society considers appropriate for men, women, boys, and girls (FAO, 1996). In developing countries, rural women and men play different roles in guaranteeing food security for their households and communities (FAO, 2013). In almost all societies, men and women differ in the manner they perform their activities and undertakings regarding access to and control of resources and participating in decision making. In rural societies for example, commercial agricultural production is mainly a male responsibility. It is the men who usually prepare the land, irrigate crops and harvest and transport the produce to the market. They are the ones who own and trade large animals such as cattle and who are responsible for cutting, hauling and selling timber from the forest (FAO, 1996).

On the other hand, rural women carry out most of the home food processing, which ensures a diverse diet, losses minimization, and provision of marketable products. Women therefore, play a decisive role in food security (FAO, 2013). The work done by women has however not always been converted into monetary value (FAO, 1998). In agricultural production, crops have been stereotyped as either being male or female, depending on how they landscape the socialization process and the division of labour which stipulates different roles of men and women. Most subsistence crops such as pulses (e.g. beans) root

and tuber crops (like potatoes, cassava, and yams) cereals (e.g. maize, rice, millet, finger millet etc) and vegetables are the primary concern of rural women farmers. Therefore rural female farmers are a key to household food security. Most commercial crops which include simsim, maize, rice, cotton, and coffee are considered to be the men's crops. It is further acknowledged that men and women have different roles to play in the production process of agricultural goods and that households are normally headed by men , and therefore, men are responsible for decision making concerning farming activities such as what to grow (FAO,1998).

Recently, attention has been focused on intra-household gender relations as they relate to development; the issues addressed include the right to land ownership as well as food security. According to FAO (2008), food security is the ability of all members of the household to acquire sufficient amount of food continuously over time for an active and healthy life. A society that can be said to enjoy food security is the one that has developed the internal mechanism which enables it (the society) to sustain the food norms in the face of crises that threaten to compromise the achieved level of food consumption (Oshaug, 1994). Achieving food security means ensuring that sufficient food is available, supplies are relatively stable, and that those in need of food can obtain it. Food security involves three pillars: availability, accessibility, and utilization. According to Quisumbing and Maluccio (2003), many decisions that affect the wellbeing of an individual are made within families or households.

In recent years, four factors have been contributing to a significant growth in research on intra-household issues namely, the development of new models of household decision making, an increased awareness that paying attention to intra-household issues matters in the design and implementation of development policy, the growing availability of data

from developing and developed countries with which to test alternative household model, and the use of qualitative method arising from increased collaboration with anthropologists and other social scientists to understand non economic dimension of human behavior (Quisumbing and Maluccio ,2003).

Intra-household gender relations exist whereby the use of resources, labour, decision making, distribution of incomes and outputs are constantly negotiated. People have paid interest in intra-household gender relations because most economic research treats a household as a single agent, assuming that individuals within the household share the same preference or that there is a household head who has the final say (Quisumbing and Maluccio, 2003). Despite a common misperception of household as a single unit, there are many differences in the well being or consumption pattern within households and which are explained by what is commonly referred to as unitary household model (Quisumbing and Maluccio, 2003). By treating a house as a unit, gender, age, and differences of power in gender relations are ignored, and the process of social construction as to how particular forms of gender inequalities are maintained, and by what means they might change over time and space is inadequately understood (Kerr, 2005). Hence there is a need to understand how intra-household gender relations affect household food security.

1.2 Problem Statement and Justification

Various studies on household food security have been carried out worldwide including those by Nazli and Hamid (1998), Kerr (2005) and Chilembo (2004). In Tanzania and in Dodoma region in particular, several studies on food security have been carried out. These include “Dynamics of livestock ownership and household food security in Semi arid Tanzania” by Mkunda (2003), Assessment of the Effectiveness and Sustainability of household food insecurity by Mazengo (2011) and “Local Perception of household

Vulnerability to food insecurity" by Shausi (2011). A common feature of these studies is that they have approached food security at a household level based on the unitary model of household. According to this model a household is considered as a single unit agent assuming that individuals within the household share the same preference and all household resources (income, capital, labour, and land) are pooled to achieve a common goal such as household food security (Quisumbing and Maluccio, 2003). However, little has been studied about how intra-household gender relations affect household food security. Hence, this study aims at filling the existing knowledge gap regarding the effect of intra- house gender relations on household food security.

The findings of this study are expected to provide useful information to development planners, policy makers, and practitioners in relevant ministries, and NGOs towards promoting gender issues and addressing food security. Furthermore the study is expected to enable gender and food security stakeholders including researchers, politicians, religious leaders and extension officers to come up with concrete strategies for addressing issues concerning gender and food security in the study area and other districts of Tanzania.

1.3 Objectives of the Study

1.3.1 Overall objective

Assess the effect of intra-households gender relations on household's food security.

1.3.2 Specific objectives

i) To examine perceived household food security.

ii) To analyze the nature of intra- household gender relations with respect to control over resources and decision making.

iii) To determine how intra-household gender relations affect household food security.

1.3.3 Research questions

i) What is the perception of household on food security?

ii) What are intra-household gender relations with respect to control over resources and decision making?

iii) How do intra-household gender relations affect household food security?

1.4 Conceptual Framework

The conceptual framework is a structured outline presenting variables to be studied and hypothetical relationship between and among variables (Kothari, 2004). In this study, intra-household gender relations as explained by Eerdewijk and Danielsen (2014), were conceptualized as having some influence on household food security. This relationship is as presented in Fig. 1.

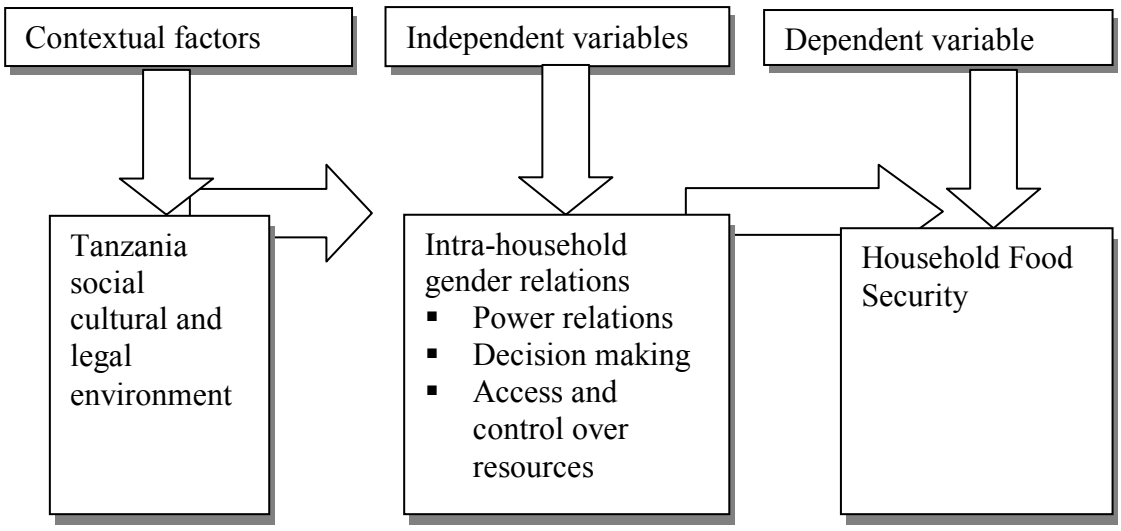

Figure 1: Conceptual Framework

Source: Eerdewijk and Danielsen (2014)

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Definitions of Key Concepts

2.1.1 The concept of household

According to Guyer (1981), households are sites where the various aspects of gender relations find expression through the relationship between the wife and the husband, parents and children and so on. Guyer (1981) explains further that households are also the sites of gender struggle and negotiation. Discussions of gender divisions of labour within households involve not only the kinds of activities associated with women and men but also how "trade-offs" are negotiated in response to the many pressures that derive from internal changes in domestic cycle and from "external" changes in the socio-economic context in which the household is located.

As Pearson (1992) observes, some empirical evidence from several studies shows that households in developing countries are far from being units in which all resources and benefits are pooled equitably. In the actual fact, the use of resources and labour and the distribution of income and output have to constantly be negotiated and intra-household relations are often contradictory. In the same vein, some gender research on women and poverty alleviation has proven that households are not homogenous economic units (Young, 1988). Similar findings are reported by other studies on the same topic in Tanzania (Koda, 1980; UNICEF, 1986; Mbilinyi and Oman, 1993; Mbughuni, 1994; Kaihula, 1995) that households are not homogenous units but complex arenas of negotiations, conflicts of interests, and uncompromised decisions.

2.1.2 The Concept of gender and gender relations

The concept of gender came to prominence in the late 1970s when researchers looked onto a way of conceptualizing the social construction of masculinity and femininity (Mbilinyi,1992). The attention shifted from biological to social relations between women and men (Mbilinyi, 1992). The concept of gender concerns itself with examining two components of human beings, men and women, in order to improve both the understanding of their relations of status and inequalities, participation and also to proclaim equality of rights, responsibilities/roles and capacity for both sexes (Muro, 1994). It is important to note that gender as a social construct coincides with other differentiation axes like age, ethnic group, urban-rural location and global location to characterize the life situations and parameters of various women (Mbughuni, 1994). Gender relations are constituted in terms of the relations of power and dominance that determine the life chances of women and men, boys, and girls (Muro, 1994).

According to Mbilinyi (1992), gender relations describe interactions between individual men and women and also what is considered as appropriate behavior or activity for men and women. Generally, in all patriarchal societies gender relations are discriminatory against women. They are socially constructed and reconstructed as a result of the behavior of women and men themselves (Mbilinyi, 1992). Unlike the biological characteristics of men and women which are immutable, gender relations are changeable, subjected to abolition and transformation through happenings in the history of society. According to Cherryl (1990), gender relations in African indigenous societies were characterized by appropriation of women's labour by men. Cattle were used in most societies as a means of appropriating women's productive and reproductive labour. Cherryl (1990) explains further that in the colonial and neo colonial periods gender relations became more oppressive. Colonial taxes like the hut tax were based on individual households (huts)

requiring men to obtain revenue for paying the tax from women. Since most men had several women as wives and each woman had her own hut; one man had several huts from which revenue was collected (Cherryl, 1990).

2.1.3 The concept of food security

Food security is the ability of all members of the household to acquire sufficient amount of food continuously over time for an active health life (FAO, 2008). Food security involves three pillars: availability, accessibility, and utilizations of food FAO (2008). Food availability implies sufficient production or imports of food to meet the food requirement of the population. This involves a simple mathematical calculation to see whether the food available in a certain territory/country is enough to feed the total population in that particular territory; and this arithmetic was calculated from the level of local agriculture production at that territory, stock levels and the net import/export. This dimension of food security at different levels can be assessed by precipitation record, food balance sheet, food market survey, and agricultural production planet. Similarly, indicators of food security for this dimension at different levels are fertility rate, food production, population flows, harvesting time, staple food production, food storage, and consumption of wild foods among others.

Food accessibility refers to the ability of people to obtain food either through their own production or by purchasing it with money earned from an activity. It encompasses income, expenditure, and buying capacity of households or individuals. Food access addresses whether or not the households or individuals have enough resources to acquire appropriate quantity of quality foods. Some of the indicators of this dimension at different levels are food price, wage rate, per capita food consumption, meal frequency and employment rate.

Food utilization means that the nutrient intake associated with food consumption is not impeded by adequate nutritional information, poor sanitation, and problems in intra household distribution. It also covers food preparation, intra-household food distribution, water and sanitation and health care practices. The nutritional outcome of the food eaten by an individual will be appropriate and optimum only when the food is prepared /cooked properly, contains adequate diversity of the diet, and proper feeding and caring practices are observed. Stunting rate, wasting rate, prevention of diarrhoea diseases, latrine usage, weight-for-age, goiter, anemia, night blindness and the like are the indicators of food security at different level and which can be assessed by demographic and health survey, and immunization chart. Generally, food security is dependent on agricultural production, food import, and donation, employment opportunities and income earning, intra-household decision making and resource allocation, health care utilization, and caring practices (World Bank, 1986).

2.1.4 Intra-household resource allocation

The relationship between food security and intra-household resource allocation merits attention in developing countries. The gender bias in the allocation of resources within a household is an important component of this relationship in these countries. Within a family, parents may have different preferences with respect to investment in boys and girls depending upon where the returns are higher from these investments. Boys are generally desired and valued and therefore are more likely to be preferred. They are considered as the flag bearer of family name and a source of future security to their parents in old age (Nazli and Hamid, 1998). Women devote more resources under their control towards improving household concerns related to food security as compared to men (Thomas, 1990).

2.1.5 Intra-household gender relations and food security

Gender refers to the roles and responsibilities of men and women that are created in our families, societies, and cultures (UNESCO, 2003). Gender differentiation comes about as a result of specific experiences, knowledge and skills which women develop as they carry out responsibilities assigned by them (Fernandes, 1994). The degree of gender specificity attached to the knowledge and skills within a society depends not only on the way responsibilities are allocated among men and women but also on the degree of flexibility in which men and women have to carry out others assignment. Gender roles vary from one country to another but almost every where women are more disadvantaged than men in the social, economic, and political spheres of life. Where men are considered as principal decision makers, women hold a subordinate position in negotiation about managing family resources (FAO, 2011).

According to Ishengoma (1998), the family makes decisions on different production activities and resources allocation but in all cases the husband always takes the leading role. The fact that women play a big role in household food production but cannot make decision on different production activities contributes to household food insecurity. Women' poor access to and control of resources and their low socio-economic status make them vulnerable to physical and sexual abuse that exposes them to a risk of sexually transmitted diseases which limit their production capacity as core producers. However changing gender relations entails challenging different institutions such as religion, family, media and the state, which cases are in most controlled by man.

Women have traditionally specialized in certain farm tasks whether as family or as hired labour. In family labour, women often have a primary responsibility in the production of food for family consumption while men concentrate on cash crops (FAO, 1990). In many

African societies, the husband manages the main granary of the household while the wife manages the kitchen. Thus, the essential of grain or root crop supply are controlled by the man (who makes decision on production, the choice of crops, and storage or sale). The woman on her part must ensure that food daily consumption (what to eat now, tomorrow, in the next week, or in the next month) is readily available. She often has to manage and perhaps share with her husband the daily hopes for the availability or fears for the disappearance of food supplies. She has to ration their food so that the amount of grains or root crops received from her husband lasts as long as possible (FAO, 1996).

According to Appleton and Hill (1990), the kind of relation which exists between men and women affect hierarchies of access, use, and control resulting in different perceptions and priorities in ensuring household food security. Women's and men's knowledge on drought tolerant varieties, wild foods, or tubers, vegetable and medicinal plants has assisted in ensuring rural based household food security. Women, usually assisted by female children, are the ones who process food, collect vegetable and prepare or cook food for their families. Therefore they (women) know more about food plants than is the case with men. Therefore, food self sufficiency strategies at a household level cannot be effectively sustained without the full involvement of women.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Description of the Study Area

3.1.1 Location

The study was conducted in rural areas of Chamwino District which is one of the seven districts of Dodoma Region. The District has a total area of 8056 square kilometers. The District borders Dodoma Municipality to the west, Mpwapwa District and Iringa Rural District to the South West, Kondoa District to the North, Kongwa and Kiteto districts to the East, and Bahi District to the South West. Administratively, the District Council is divided into 5 divisions, 36 wards, 107 villages, 814 hamlets and 69 038 households. The population of Chamwino District is 368 886 people while males are 177 312 and females are 191 574 (DED Chamwino, personal communication).

3.1.2 Climate

According to DAICO (2015), Chamwino is composed of two agro-ecological zones. The features of zone 1 include undulating plains and hilly areas. This zone receives low rainfall of about 400mm / year which are unreliable and spatially unevenly distributed. Zone II receives between 500-600mm of rainfall per year. The climatic condition of zone I allow millet, sorghum, groundnuts, cowpea, cassava, bambaranut and grapevine: and that in zone II allow cassava, millet, sorghum, pigeon pea, groundnuts, bambaranut, grapevine, sunflower, simsim, and maize.

3.1.3 Occupation

Majority (80%) of the residents in Chamwino district are smallholder farmers (DAICO, 2015). Economic activities carried out in Chamwino District in crop farming and livestock

keeping. The main crops grown include sorghum, bulrush millet, maize, cassava, bambaranut, groundnut, maize, cowpea, castor oil, sweet potatoes, sunflower, simsim, grapevine, and green gram. Horticultural crops grown include tomatoes, Chinese cabbage, onions, okra, egg plants, and African egg plants. Livestock include cattle, goats, sheep, pigs, poultry, and guinea fowls which are kept as major domesticated animals and birds in the District.

3.2 Research Design

A cross-sectional research design was used in this study. This design allows data to be collected at a single point in time and can be used for a descriptive study as well as for determination of relationship between variables (Babbie and Mouton, 2005).

3.3 Target Population

Households with married couples in Chamwino District were the target population for this study since the study focused on intra-household relations involving wife and husband.

3.4 Sampling Procedure

Simple random sampling was used in selecting 2 wards out of 36 wards which make up Chamwino District. The selected wards were Ikowa and Mlowa barabarani. One village was selected from each ward to obtain a total of 2 villages. These were Makoja and Mlowa 'B'. From each village 60 households with married couples were randomly selected from the prepared village register which was used as a sampling frame. Simple random sampling particularly lottery method was used because it allows each member in the population to have an equal chance of being included in the sample.

3.5 Sample Size

The sample size consisted of 120 respondents who were randomly selected as described in Section 3.4. According to Matata *et al.* (2001), 120 respondents is an adequate number for most socio-economic studies in Sub-Saharan Africa.

3.6 Data Collection

3.6.1 Data collection instruments

Interview schedules with open and close ended questions were used to collect data. Also, checklists were used to collect relevant data from Focus Group Discussion and interviews with key informants.

3.6.2 Data collection procedure

3.6.2.1 Pre-testing of the questionnaire

A pilot survey was done before the actual study to test the questionnaire for its accuracy, adequacy of time allocated and for researcher to familiarize herself with the study. Fifteen (15) randomly selected households from Chinangali II village participated in this study.

3.6.2.2 Primary data collection

Primary data were collected through face to face interviews administered to the respondents by the researcher and researcher assistant. Checklist was used during Focus Group Discussion (FGDs) of married men and women. Discussions were held with each group separately. Each FGD comprises 6-10 participants in each group in each village. Also Village Extension Officers from the selected two villages were interviewed using a checklist to get their views on gender and food security. Direct observation was made in order to verify some of the information given during the interview and FGDs.

3.7 Data Processing and Analysis

Data from household's interview schedule were summarized and coded for computer analysis using the Statistical Package for Social Sciences programme (SPSS) computer software version 20. Descriptive statistics such as frequencies, mean, and percentages were computed and are presented in this report. Qualitative data from FGD and key informant interviews were summarized and analyzed manually using content analysis.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Socio-demographic Characteristics of Respondents

The socio-demographic characteristics of the respondents, covered in this study include age, level of education, household size and main occupation. Results as presented in Table 1 show that the predominant age group for women in the study area was 19-35 years which comprises 38.3% of female respondents and for men was 46-60 years which comprises 42.5% of male respondents. This is within the productive age group which lies between 30 and 50 years, although with men it is slightly above the productive age group.

Table 1shows further that 72.5% of men had attained primary education and 70.8% of women had completed primary education. On the other hand, 10.8% of men had no formal education and others (10.8%) did not complete primary education. As for women, 16.7% had no formal education, and 9.2% did not complete primary education. The reason being reported for school dropouts for women is early marriage and for men is searching for wage employment in towns and lack of money for the family to pay for school items such as uniforms, textbooks and pens. Primary education has been identified to be the dominant education level among people who are employed in the informal sector in Tanzania (URT, 2003).

The household size in this study means the total number of individuals in a given household. It denotes the availability of labour force for food production and at the same time it gives an account on the number of individuals to be fed in the household. The descriptive statistical analysis results show that the smallest household had one member whereas the largest had 11members with an average size of 5.9members per household.

This household size is higher than that of 4.5 reported in the 2012 census for Chamwino district (URT, 2013). According to FGDs a household with one to three members were regarded as small, four to six members were regarded as middle sized, whereas seven and above members were considered as large sized . The study also shows that 10% of the sampled household were small, 51.7% were medium sized while 35.8% and 2.5% were large. This implies that more than half (51.7%) of the sampled household were medium sized with four to six members.

Respondents were asked the type of occupation they were engaged in. The study shows that all (100%) of respondents were engaged in on-farm activities as smallholder farmer cultivating crops mostly for subsistence and occasionally for sale, the respondents were also engaged in keeping livestock such as cattle, goat, sheep, pig, chicken and guinea fowl. Apart from being farmers they are also engaged in petty business such as selling charcoal and firewood, running kiosk, selling burns, selling vegetable, small shops and food vending "*mama lishe"* .Because all the respondents in the study area are full time engaged in farming activities farmers could be expected to be able to produce enough food to feed their households.

Table 1: Socio-demographic characteristic of the respondents (n=120)

Characteristics	Frequency	Percent
Age of the husband (n=120)		
21-40	48	40.0
41-60	51	42.5
61-80	21	17.5
Total	**120**	**100**
Education level of the husband (n=120)		
No formal education	13	10.8
Adult education	1	0.8
Did not complete primary education	13	10.8
Complete primary education	87	72.5
Did not complete secondary education	1	0.8
Form four	5	4.2
Total	**120**	**100**
Age of wife (n=120)		
19-35	46	38.3
36-45	43	35.8
46-60	26	21.7
61-76	5	4.2
Total	**120**	**100**
Education level of wife (n-120)		
No formal education	20	16.7
Did not complete primary education	11	9.2
Complete primary education	85	70.8
Form four	3	2.5
Form six	1	0.8
Total	**120**	**100**
Household members (n=120)		
1-3	12	10.0
4-6	62	51.7
7-9	43	35.8
10-11	3	2.5
Total	**120**	**100**

4.2 The Household Structure

Table 2 shows the household structure for the respondents, which ranged from 1 to 11 with a mean of 5.9 people. Besides, the highest proportions of household members were those with the age of < 15 years.

Table 2: The household structure by age

Category	Frequency	Mean
Households	120	5.9
Age group		
Male below 15 years	95	1.8
Female below 15 years	93	1.8
Male 15 to 30 years	59	1.5
Female 15 to 30 years	71	1.2
Male 31 to 45 years	54	1.0
Female 31 to 45 years	58	1.0
Male 46 to 60 years	34	1.0
Female 46 to 60 years	25	1.0
Male above 60 years	23	1.04
Female above 60 years	9	1.11

4.3 Perception of Food Security

4.3.1 How is food security perceived?

The respondent's views on how they perceived food security are presented in Table 3. Majority of the respondents (72.5%) perceived food security as having enough food to meet family requirements until the next harvesting season. On the other hand, 27.5% of the respondents perceived food security as having enough food for home consumption plus surplus for sale to meet other family expenses such as health expenses, and purchases of soap, and clothes, among others.

Based on household interview and FGDs with men and women, food security is determined by the quantity of sorghum or millet or maize available in the household food storage facilities. These include *kilindo* and polythene bags.

Table 3: Perceptions of respondents on food security

Perception (n=120)	Frequency	Percentage
Having enough food to eat for the family until next harvesting season	87	72.5
Having enough food to eat for the family until next harvesting season plus surplus for selling	33	27.5
Total	**120**	**100**

Thus, a food secure household is the one with enough stored sorghum or millet or maize to feed the household members throughout the year. Also a food secure household is the one whose members are able to eat three meals per day breakfast (porridge/stiff porridge), lunch and dinner. Since food security is associated with sorghum or millet or maize produced at a household level, the number of months a household takes to exhaust its own produce (sorghum or millet or maize) was used as an indicator for household food security. Specifically, a household that took 12 months (from 2013/14 to 2014/15 season) to exhaust household food stock was categorized as food secure.

4.3.2 Type and sources of food consumed

Table 4 shows the types and sources of food consumed. From the study findings, maize accounted for the highest proportion (27.2%) of the cereals consumed by the respondents from own production followed by sorghum (23.2%), and millet (4.8%). Other crops that are grown by respondents for home consumption include sunflower (18.0%), groundnuts (14.9%), bambaranut (6.6%), cowpeas (3%), and pigeon peas (1.3%). Furthermore, households indicated that they bought some cereals for home consumption which includes maize (34.7%) followed by rice (18.8%), sorghum (14.6%) and millet (6.7%). Other crops, which were purchased for household consumption, are beans (20.5%), bambaranut (3.3%) and cowpeas (1.3%).

Table 4: Distribution of respondents by types and sources of food crops consumed by respondents

Type of crops	Own production		Purchased	
	Frequency	Percent	Frequency	Percent
Maize	62	27.2	83	34.7
Sorghum	53	23.2	35	14.6
Sunflower	41	18.0	0	0.0
Groundnut	34	14.9	0	0.0
Bambaranut	15	6.6	8	3.3
Millet	11	4.8	16	6.7
Cowpea	9	3.9	3	1.3
Pigeon pea	3	1.3	0	0
Beans	0	0	49	20.5
Rice	0	0	45	18.8
Total	**228**	**100.0**	**239**	**100.0**

During interviews with key informants on sources of food from own production that were consumed by respondents one extension staff had this to say

> *"Given the semiarid type of climate this area, which is usually accompanied by unreliable rainfall, it is better for the farmers to grow crops which are drought tolerant for example sorghum, millet, and cassava although they are not favored foods in the area".*

Moreover, the village extension officer gave reasons as to why farmers continue to grow crops which do not tolerate drought.

> *"Although farmers know that growing maize is very risky because of the unreliable rainfall, they still prefer to grow maize to other crops because they use it as their staple food".*

Findings from this study show that the majority of farmers grow and purchase maize as their staple food. On the other hand, sorghum and millet, particularly the improved varieties of these crops which are early maturing and drought tolerant like Pato, Macia and Okoa are considered as unpalatable.

4.3.3 Food crops produced by respondents in 2014/15

Respondents were asked to name major food crops harvested in 2014/15. Higher mean production levels during 2014/15 season were recorded by sorghum with a mean of 370.6 kg followed by millet 220.6 Kg and maize 198Kg. Lower mean production levels were recorded in groundnut, sunflower, bambaranut, cowpeas and pigeon pea.

Table 5: Average amount of food in (kg) harvested by the respondents in 2014/2015

Type of crop	Mean harvest in (kg)
Sorghum	370.6
Millet	220.6
Maize	198.0
Groundnut	111.0
Sunflower	79.0
Bambaranut	59.0
Cowpea	34.0
Pigeon pea	22.5

It was reported during household interviews and FGDs of men and women that the yields from the major crops in the season 2014/15 were generally low. This is attributed to prolonged drought that existed during that season. Due to problems of low crop productivity in the study area households had to purchase food even during the year with normal rainfall amount.

4.3.4 Average amount of food in (kg) consumed in the year 2014/2015

Amounts of food in (kg) from own production and purchased for own consumption in 2014/15 are shown in Table 6. From own production, higher consumptions were recorded for sorghum (a mean of 221 kg) followed by millet (a mean of 220.6) kg and maize (a mean of 114.8 kg). Other crops whose amounts were less than a mean of 100 kg include groundnuts, sunflower, bambaranut, and cowpeas. Furthermore, the respondents were

asked to indicate the quantity in kg of food bought for home consumption. The findings show that larger quantities of food crops purchased include maize (a mean of 468.7 kg), followed by sorghum (a mean of 162.6 kg). While the amounts for other crops were small and include millet, bambaranut, cowpeas, rice, and beans.

Table 6: Average amount of food in (kg) consumed in the year 2014/2015

Food crops consumed	Mean own production	Mean purchased
Sorghum	221.0	162.6
Millet	220.6	46.0
Maize	114.8	468.7
Groundnut	53	0
Sunflower	46.8	0
Bambaranut	25.7	26
Cowpea	10	9.5
Rice	0	7.5
Beans	0	5.0

4.3.5 Adequacy of harvested crops for home consumption during 2013/14

The respondents were asked to indicate if the amount harvested in the year 2013/14 was enough to feed their household until the next harvesting season. The results are presented in Table 7. About 23.3% of the respondents reported to have harvested a sufficient amount which could reach until the next season while more than three quarters of them (76.7%) reported to have harvested the amount which did not reach the next harvesting season.

Table 7: Distribution of respondents by adequacy of food crops in 2013/14

Aspect	Number of respondents	Percent
Food sufficient until next season (n=120)		
Yes	28	23.3
No	92	76.7
Total	**120**	**100**

4.3.6 Views of respondents on food shortage in the past five years and months of food shortage

The respondents were asked if they had experienced food shortage in the past five years. The results are presented in Table 8. More than three quarters (79.2%) of the respondents indicated to have been faced with food shortage during that period. The respondents were asked further to indicate the months of the year in which they normally experience food shortage. The months of December to February were cited by 62.1% of the respondents as the months of acute food shortage followed by September to November (32.6%) and June to August (5.3%).

Table 8: Distribution of respondents by food shortage and months of food shortage

Aspect	Number of respondents	Percent
Experience food shortage (n=120)		
Yes	95	79.2
No	25	20.8
Total	**120**	**100**
Months of food shortage (n=95)	**Number of responses**	
December to February	59	62.1
September to November	31	32.6
June to August	5	5.3
Total	**95**	**100**

From the findings (Table 8) it is obvious December- February are the months of food shortage in the study area. Unfortunately, it is during this period when farm activities including land preparation, planting, ploughing and weeding are at their peak, where farmers need a lot of energy to undertake these activities. The months of December to February fall in the pre-harvest period in the study area. Lorghuist (1983) observes that in areas with one year cropping season, households experience food shortage during the pre-harvest period. A number of factors may be attributed to these shortages: For example in

his study in Sumbawanga region, Ashimogo (1995) found that food shortage during pre-harvest season was due to the fact that farmers sold their maize in excess during and after the harvesting period.

In the present study, the causes of food shortage during the pre-harvest period were attributed to poor harvest of cereal crops mainly due to unreliable rains which implies that the amount of food which was stored could not last until the next harvesting season. Any interventions to provide households with food from different sources should be done during the months of December to February to rescue people from famine and also to enable farmers to get enough energy to work on their farms. This will at least ensure food security for the next harvesting season.

4.3.7 Reasons for food shortage

Table 9 presents the findings on the causes of food insecurity in the study area. Unreliable rainfall was found to be the most important cause of food insecurity (76.9%), followed by large number of dependants (4.1%) and the use of a hand hoe (4.1%) responses. Other causes were illness among household members (3.3%), insect pest (3.3%), overselling of crops (2.5%), low income and purchasing power (2.5%), the use of local seeds (1.7%) and lack of enough land for cultivation (1.7%).

Agriculture in the study area is rain fed, given the semi-arid type of climate in Chamwino, rainfall amount and distribution is unreliable in most years. This usually leads to crop failure resulting into poor harvest. Sometimes, the area receive excessive rainfall which causes floods which sweeps away crop plants resulting into food shortage. In another study, Makundi (1996) found that food shortage in the country is attributed to droughts caused by poor and unreliable rainfall.

Table 9: Distribution of respondents by causes of food shortage

Reasons (n=95)	Frequency	Percentage
Unreliable rainfall	93	76.9
Larger number of dependants	5	4.1
Use of hand hoe	5	4.1
Insect pest and diseases	4	3.3
Illness among household members	4	3.3
Low income and purchasing power	3	2.5
Overselling of crops	3	2.5
Use of local seeds	2	1.7
Lack of enough land for cultivation	2	1.7
Total	**121**	**100**

And, according to MAFS (1996) food insecurity in Tanzania is mainly attributed to climatic condition, labour availability, and a rapid increase in food prices, poor ability and utilization of agrochemicals, pests and diseases, and under utilization of local foods. The remedy to ensure food security in the study area is the planting of drought tolerant and early maturing varieties of millet and sorghum types of crops such as okoa, pato and macia. Cassava and sweet potatoes can also be grown as they are drought resistant crops.

The respondents also identified large number of dependants as one of the factors contributing to food insecurity in Chamwino District. Many households were found to have above the national average household size of 5.1 people (URT, 1999). These people were mainly a result of orphanage, uncontrolled birth, and polygamy; the last two are a common practice in the study area (Mwagile, 2001). Although large families in some cultures have been considered a blessing, a change in economic pattern and lifestyle has created a lot of economic hardship to large families, as children are no longer an economic asset (Makundi, 1996). It is important to emphasize the importance of family planning policies in the study area to address the problem of large households.

The use of hand hoe was further identified as a factor contributing to household food insecurity. Agriculture in Tanzania is dominated by a hand hoe technology (ASDS, 2001). The use of a hand hoe has the following effects; small area under cultivation, more time is spent to plough a small piece of land, and so laborious that the youth cannot involve themselves in agriculture thus less labour for crop production, shallow depth of cultivation thus more run-off and less production per unit area, all of which leading to food insecurity. To improve productivity, agriculture activities need to be mechanized. Insect-pest infestation, illness among household members, low income and purchasing power, overselling of crops, the use of local seeds, and lack of enough land for cultivation were other reasons for food shortage.

4.3.8 Response to food shortage in the study area

Household coping strategies

Coping strategies are measures for dealing with food insecurity situation before individuals receive or seek external assistance (Kajumulo, 2009). Coping strategies refer to a whole range of a typical behavior exhibited by individuals or households whose aim is to enable them to endure the effects of adverse situations such as drought which bring about food shortage (Njiro, 1994). These strategies will vary by region, community, social class, ethnic group, household, sex, age, season, and severity of the potentially disruptive conditions (Campbell, 1990).

Table 10 presents the findings on coping strategies whenever a household is faced with food shortage. Strategies identified were selling of casual labour (36.5%), selling of livestock (26.9%), and the reduction of the number of meals (11.5%). Other coping strategies were invested in small business (9.6%), selling charcoal and fire wood (5.8%), remittance (5.1%), and vegetable growing (4.5%).

Table 10: Distribution of respondents by coping strategies

Household coping strategies (n=92)	Number of responses	Percent
Selling casual labour	57	36.5
Livestock selling	42	26.9
Reduction of number of meals	18	11.5
Small business	15	9.6
Charcoal and fire wood selling	9	5.8
Remittance	8	5.1
Vegetable growing	7	4.5
Total	**156**	**100**

Farmers reported to be engaged in casual labour to cope with food shortage. They are selling labour in other people's farms either inside or outside the village. Labour selling is the most common strategy in many African countries. In this case, men and women go to work in other people's fields, and are paid in terms of cash and or food (Liwenga, 1995). Mwagile (2001) argues, while working on other people's fields, farmers fail to work on their own fields at the appropriate time, this leads to low production, hence household food insecurity. This coping strategy is not good when people migrate outside the village to search for employment as casual laborers as they engage in other businesses rather than selling labour. In this regard, during FGDs one woman from Mlowa 'B' village had this to say:

> "*My husband migrates to Hogoro village to search for casual labour and he didn't come back until when crops were already mature. When he was away he gate marriage to another wife who was infected by veneral diseases and when he came back was also affected. This situation bring conflict at home until when he was cured using my money which I obtain after selling fire wood".*

Selling of livestock was another strategy which was cited for coping with food shortage. Farmers reported to have sold their livestock including draught animals, pregnant cows, sheep and goats at low prices; and sometimes livestock is directly exchanged with food. Livestock selling was said to be helpful by some respondents as it enabled them to get

cash quickly and buy food plus other family needs. However, during FGDs it was reported that the prices offered to buy livestock during food shortage were low, and could not be accepted during normal periods. One male respondent from Makoja village had this to say:

> *"Last year in the month of February I had to sell my cows, draught animals at low prices in order to get money to buy food, Example a draught animal (oxen were sold at 300 000Tsh, while in good harvest such animal could be sold at 600 000Tsh".*

Selling of draught animals for example oxen during food shortage has negative effects on the following cropping season as these animals will be in short supply when it comes to land ploughing, This often leads to having small areas of land being cultivated, thus food insecurity. Farmers should be advised to sell their livestock (de-stocking) during the period of good prices so that they can earn enough money to purchase and store enough food for future use.

Reduction of the number of meals per day was another strategy to cope with food shortage reported in the area. In the study area, normally the household consumes three meals per day which include breakfast (tea, porridge, or stiffed porridge), lunch and dinner, although five meals is recommended for the under five children by World Bank (1990). However during the period of food shortage, some of the respondents indicated that they ate one meals (lunch) and prepare light food such as porridge for children as dinner. The coping strategy of skipping some meals is not helpful because it disrupts the household feeding pattern (Mascarenhas, 1983), leads to poor health status and general body weakness, hence, low farm production. One of the village extension officers (VEO) in Mlowa 'B' while commenting on this strategy observed:

> *"By reducing the number of meals taken per day, many of the children fail to go to school and adult fail to attend to farming activities and other development activities".*

Furthermore during interview with key informant ward extension officer from Ikowa had this to say:

> *"It is important for the government to assist people with food during the critical period of food shortage in December to February to avoid the problem of people failing to attend their daily activities*".

Other copping strategies employed by household include small business (9.6%), charcoal and fire wood selling (5.8%), remittance (5.1%) and vegetable growing (4.5%).

4.4 Resources Ownership

4.4.1 Resources owned by household members

Resources owned by household members are shown in Table 11. The findings revealed that a bigger proportion of land was mainly owned by husbands who indicated to own a mean of 11 acres while wives owned a mean of 3.5 acres and children owned a mean of 6 acres. Larger animals like cattle were indicated mainly to be under the ownership of husbands who own a mean of 8 followed by children a mean of 6 and wives a mean of 5. Smaller animals like chicken and guinea fowls were mainly under the ownership of husband, wives, and children. During FGDs with men and women it was reported that many of the household resources are controlled by the man because he is the head of the household and is considered to have the right to control all household resources.

Table 11: Resource ownership by household member

Owner	Resource owned	Mean statistic/Size	Sum
Husband	Land (acres)	11	1345.50
	Cattle	8	529.00
	Goats	9	579.00
	Sheep	4	102.00
	Pigs	2	66.00
	Chicken	15	994.00
	Guinea fowls	3	28.00
Wife	Land (acres)	3.5	85.00
	Cattle	5	32.00
	Goats	5	15.00
	Sheep	4	9.00
	Pigs	2	8.00
	Chicken	9	165.00
Children	Land (acres)	6	38.00
	Cattle	6	19.00
	Goats	12	63.00
	Sheep	3	3.00
	Chicken	7	15.00

4.4.1.1 Control over resources owned by husband

Table 12 shows who control the husband's resources in the study area. Most of the resources including land, cattle, goats, sheep, pigs, chicken and guinea fowls were indicated to be mainly under the control of the husband and only on a few occasions they could be under the control of the husband and the wife. However, most of the resources were indicated to be accessed by the whole family but expectedly under the husband's decision making.

Access and rights to land do not only determine food production but also it is an essential resource for many people if they are to escape poverty and consequently food insecurity (Baldwin, 2006). Land ownership is a very important factor in determining how land is to be utilized in agricultural production. For example, it is most likely that the land owner

will not allow a person who has hired his land to grow perennial or permanent crops. Therefore, in the study area, land ownership if properly utilized is a factor which could positively contribute towards food security. FGDs also supported the findings that the controllers of the resources such as land are mostly men. However in other households in the study area both men and women control the land.

Nevertheless, it is the men who control the transfer of resources including land. This control includes the sale and price fixing of the resources. It was noted that gender awareness in the study area is high but not yet converted into practical terms because of tradition and taboo that allows men to own, control, and have dominance on ownership of resources. In this research during an interview with an extension officer, the following was reported:

> *"People now are aware on equal gender balance but men still dominate on resources ownership and control. For example, women cannot make the decision on the sale of livestock or any resources such as land while men do".*

However, in the study area land was not a constraint on agricultural expansion instead the main constraints were income and lack of capital to expand more land, hire and buy inputs as well as farm implements as reported by some of the participants in FGDs.

Table 12: Distribution of respondents by who controls the husband's resources

	Who control the resources							
	Husband		**Family**		**Husband and wife**		**Total**	
Resources controlled	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Land	101	84.8	3	2.5	15	12.6	119	100
Cattle	53	85.5	1	1.6	8	12.6	62	100
Goats	50	80.6	2	3.2	10	16.1	62	100
Sheep	17	77.3	1	4.5	4	18.2	22	100
Pig	21	80.8	0	0	5	19.2	26	100
Chicken	35	54.7	16	25	13	20.3	64	100
Guinea fowl	4	50	2	25	2	25	8	100

4.4.1.2 Control over resources owned by wife

Table 13 shows who controls the wives resources in the study area. According to the table land owned by the wife was equally controlled by husband and wife (40.9%). Cattle were mainly under the control of the husband (50%), but goats were largely controlled by both husbands and wives (66.7%), sheep were controlled in equal proportions between husbands and wives (50%). Pigs and chicken were controlled by wife (100%) and mostly all the resources were accessed by the whole family but the decision on their use was done by the husband. According to FAO (1990), lack of access to land remains a major constraint to women farmers' in Africa and land reform programmes have led to almost an exclusive transfer of land rights to male heads of the household. In the study area, like in many other parts of Tanzania traditional and customary laws often create barriers for women to have equal rights of access to land, property ownership, and inheritance.

Table 13: Distribution of respondents by who Controls the wives resources

	Who control the resources							
	Husband		Wife		Husband and Wife		Total	
Resources controlled	n	%	n	%	n	%	n	%
Land	9	40.9	9	40.9	4	18.2	22	100
Cattle	3	50.0	1	16.7	2	33.3	6	100
Goats	1	33.3	0	0	2	66.7	3	100
Sheep	1	50.0	0	0	1	50.0	2	100
Pigs	0	0	3	100	0	0	3	100
Chicken	0	0	18	100	0	0	18	100

Access and rights to land is not only a determinant of food production, but also it is an essential resource for many people if they are to escape poverty and consequently food insecurity (Baldwin, 2006). In African countries, women who are the main food crop producers have been deprived of their rights to acquire, hold, and own land. Traditional

and customary laws often create barriers for women to have equal rights of access to land, property ownership and inheritance (Tesha, 2000). By giving women equal rights of access to acquire, hold, use and deal with land at the same extent as men; could improve food security and household income through agricultural production.

4.4.1.3 Control over resources owned by children

Table 14 indicates who controls the children resources. Most of the resources owned by the children including land, cattle, goats and sheep remained under the control of the husbands, and with minimal control, access and use by the owners. Therefore, although the resources were indicated to be owned by children, husbands still had the control, access and use of such resources. During FGDs for men and women, it was reported that the husband prefers to give resources such as land and livestock to their sons rather than to their daughter for the reasons that the daughter will be married and move with the resources to their husbands, while the sons would remain at home and become the custodians of the family name after the death of the husband and also are expected to take care of their parents at old age. However, during FGDs, it was reported that despite that the resources are owned by the children once the children want to sell something like cattle they have to seek the permission from the father because the father is the decision maker in all household matters.

Table 14: Distribution of respondents by who controls the children's resources

	Who control the resource					
	Husband		Children		Total	
Resource controlled	**n**	**%**	**n**	**%**	**n**	**%**
Land	4	66.7	2	33.3	6	100
Cattle	1	50.0	1	50.0	2	100
Goats	3	60.0	2	40.0	5	100
Sheep	1	100	0	0	1	100

4.4.2 Engagement in off-farm income generating activities

Off-farm activities

Off-farm activities are those activities besides farming which people are engaged in to supplement their income and food and allow different members of household to participate. Table 15 shows respondents' involvement in off-farm income generating activities undertaken by the household. About 77% (76.7%) of the respondents indicate that they were engaged in off-farm income generating activities in order to supplement their income. Small business and casual laborers were ranked as the most popular off-farm activities reported by 37% and 27.2% of the respondents respectively. Other off-farm activities under taken by the respondents in order of importance include charcoal and fire wood selling (19.6%), growing vegetable (8.7%), local beer brewing (8.7%), masonry work (8.7%), carpentry (4.3%), crop middle man (4.3%), and tailoring (3.3%).

Table 15: Distribution of respondents by involvement and type of off-farm activities

Activity	Number of respondents	Percent
Off-farm activity (n=120)		
Involved	92	76.7
Not involved	28	23.3
Total	**120**	**100**
Type of off-farm activities		
Small business	34	37.0
Casual labour	25	27.2
Selling charcoal and fire wood	18	19.6
Growing vegetable	8	8.7
Local brewing	8	8.7
Masonry	8	8.7
Carpenter	4	4.3
Crop middle man	4	4.3
Tailor	3	3.3
Total	**112**	**121.8**

During FGDs with men and women, off-farm activities were reported to have had some influence on food security, as they are sometimes the direct source of food or sources of income for buying food. Furthermore, it was noted during FGDs that off-farm activities are very important sources of income as they help in getting money for buying non-food items such as clothes, soaps, kerosene and oil among the basic needs in day to day life.

Involvement in off-farm income generating activities is an important component in ensuring food security. By diversifying the households' activities, the risk of food insecurity is reduced and allows different age group in the household to participate. As Mwagile (2001) argues, off-farm activities complement on-farm productivity by increasing the household capacity to purchase farm inputs and/or on-farm investments leading to improved yield and labour productivity.

Therefore, it is important that farmers in the study area are encouraged and empowered financially and technically on how to undertake off-farm income generating activities. This will act as a buffer for the household food security in times of food shortage.

4.4.3 Income earned by respondents and their expenditures on various items

Table 16 presents the income earned from farm and off-farm activities for the year 2013/14, 2014/15 and household expenditures for food, clothes, school fees, medical expenses, drinks, salt, kerosene, soap and funeral contribution for the year 2014/15. The main sources of income were farming and off farm activities with the mean incomes of TZS 647082.1 and 701000.00 for years 2013 and 2014, and 472907.4 and 616 592.1 for years 2014 and 2015 respectively. However, the respondents indicated to have had higher mean expenditures on food items with a mean of TZS 372130.93, alcohol and refreshments with a mean expenditure of TZS 260468.75, electricity bills with a mean of

228 000 and school fees with a mean expenditure of TZS 143059.52. This implies that majority of the respondents were spending higher amounts of the income earned in buying food items.

Table 16: Proportion of household income on various expenditure items

Total income in TZS	**Mean TZS**
Farm activity in 2013/14	647082.1053
Off-farm activity in 2013/14	701000.0000
Farm activity in 2014/15	472907.4074
Off-farm activity in 2014/15	616592.1053
Household expenditure 2014/15	
Buying food	372130.9278
Buying alcohol /soda	260468.7500
Paying electricity bills	228000.0000
Paying school fees	143059.5238
Buying cell phone air time	115254.8387
Buying clothes	109344 .1558
Medical expenses	105161 .2903
Buying soap and oil	91598.2301
Buying kerosene/battery/solar	80098.2143
Ceremonies	63803.3333
Buying water	50928.2787
Funeral contribution	24252.6316

4.5 Household Decision Making

During interviews, the respondents were asked to indicate household members who are responsible for decision making on issues related to production. Over half (53.3%) of the respondents reported that most decision were made jointly by the husband and wife together, while 37.5% reported that the decisions were made collectively by all family members which included husband, wife and children, 5% reported that the husband decides independently and 4.2% indicated that the decision making was made by the wife alone. During FGDs with men and women, it was reported that although many of the

household decisions are reported to be done jointly by the husband and the wife, if the two did not reach the consensus the husband makes the final decision. During FGDs with men and women, it was concluded that usually the husband is the final decision maker. The fact that the findings from FGDs differ from those from household interviews may be attributed to the reasons that during household interviews it was the husbands who were interviewed while the wives were not interviewed as they were engaged in household activities.

Table 17: Distribution of respondents on how do they made decision

Who made decision (n=120)	Frequency	Percentage
Husband and wife decide	64	53.3
Family decide	45	37.5
Husband	6	5.0
Wife	5	4.2
Total	**120**	**100**

4.6 Household Decision Making with Regards to Food Security

The respondents' views on decisions made with regard to household food security are shown in Table 18. Of the respondents interviewed, 26% and 23% of them indicated that they were using recommended farming practices and growing both cash and food crops respectively. Other decisions made by the respondents include good storage of harvested produce (21.8%), food purchase (15.9%), increase of acreage under production (10.3%), and decision not to sell food crops (2.9%).

The use of recommended farming practices such as early land preparation, early planting, the use of improved varieties, application of farmyard manure/ fertilizer, and the use of recommended spacing are pre-requisites in ensuring food security at the household level in a given area.

Table 18: Views on decisions made with regards to household food security

Decision made category (n=120)	Frequency	Percent
Use of recommended farming practices	98	26.0
Growing both cash and food crops	87	23.1
Good storage of harvested produce	82	21.8
Food purchase	60	15.9
Increase acreage under production	39	10.3
Do not sell food crops	11	2.9
Total	**377**	**100**

For example, improved varieties have different attributes such as resistance against certain diseases, pests and drought thereby ensuring food security in a given area. Application of farm yard manure, the supply of plants with basic nutrients and the protection of crops against diseases and insect normally give higher yields leading to food security. During FGDs with men and women, the use of recommended farming practises such as the use of early maturing varieties were reported to be important because of the nature of the area which usually receives low and usually unreliable rainfall. It was noted further that the application of farm yard manure increase soil fertility and thus enables farmers to grow healthy plants which usually result into high yield. Early land preparation and early planting utilise little amount of rains available and allow farmers to harvest well even if the rainfall is insufficient.

During FGDs with men and women, growing cash and food crops was reported as among decisions made in ensuring food security at a household level. Food crops that are grown in the study area are millet, sorghum, maize, bambaranut, cowpea and groundnut. Cash crops are simsim, sunflower, and grapes. The reason why farmers decide to grow both cash and food crops is to enable the household to have enough food for home consumption and surplus for selling to obtain money to cover for other family expenses such as medical

expenses, school fees, uniform, soap, and other needs. During FGDs it was noted further that the selling of food crops to cover other family expenses is associated with food insecurity at a household level. If the estimation on the amount to be sold and the amount to be left for home consumption is not properly estimated, it can result into food insecurity.

Good storage of crops is a strategy towards minimizing post harvest losses of stored grain which can be caused by maize weevil, bean weevil, greater grain borer and others. In Tanzania, post harvest losses of stored grain reach 30-35 percent (Makundi and Magoma, 2003). During FGDs with men and women it was reported that good storage of harvested produce is important in order to prevent post harvest losses which are usually high in stored grain. The method reported to be used for storage include traditional and improved methods. Food purchase, increase acreage under production, and not selling food crops was among the decision made with regard to household food security.

4.7 The Nature of Intra-household Gender Relations and Household Food Security

Establishing the effect of intra-household gender relations on food security was done by addressing two aspects, namely decision making and control over resources.

4.7.1 Decision making

During FGDs with both men and women it was noted that there is household gender based decision making that influences household food security. During FDGs, it was reported that decision on various household issues related to agricultural activities or expenditure were whether done by both husband and wife, a husband and in few occasion a wife decide, but when they fail to reach a consensus the husband makes a final decision as they tend to allocate much of the land for cash crops such as simsim and sunflower and after

selling they spend money on non food items such as alcohol and concubines. A study by Mwaseba (2015), on" How do Intra-household Gender Relations Affect Child Nutrition in Njombe and Mgeta" found out that despite their contribution to income generation, women's decision making powers regarding the spending of household income is limited, as men usually control the sales of marketable agricultural products and the income is used to cover the expenses for which men are responsible. Ishengoma (1998) found out that decisions on different production activities were made by the family, but with the husband always taking the leading role, but decisions made by women were negligible. Meijer *et.al* (2015) reported that in Malawi decision on tree planting and management were often made by the husband in partilineal household, while the proportion of decision made by the husband and joint decision making were about equal in matrilineal households. Furthermore, Mwaseba (2015) argues that despite that women's are substantial in generating income for their households, their negotiation powers to spend the money are limited, for example in Njombe, women are often excluded from decision making process, as a result, income generated is not channeled to buy food.

During FDGs for both men and women it was reported that decision on the type of livestock to keep. For example cattle, sheep and goats were kept by husband and chicken, guinea fowl and pigs was done by women. When it comes to selling, the man is the decision maker and sometimes can sell without consulting his wife. After selling, the men tends to allocate much of the income on issues related to their privileges as men and head of the household and therefore he can do such things as consuming alcohol, concubine, taking a second wife. Mwaseba (2015) noted that in Njombe men take control of the milk produced by the introduced dairy cows which is high a value marketable product and they use the income from expenditure which is within their areas of responsibilities and privilege as men. During FGDs of both men and women it was noted that households in

which women did not participate in decisions about income and food management were more vulnerable to household food insecurity because men were not concerned on household food requirements. In Many societies, it is common for men to have more power and control over resources and decision making than women Smith *et al.* (2003), thus creating inequalities in the distribution of household resources and rights to key assets (Agarwal, 2011). Similar observation was reported by FAO (1996), that the essentials of grain or root crop are supply (decision on production, storage, or sale), and these were controlled by the man. Customarily, women were responsible for ensuring food availability to all members of the household. Similarly, FAO (1996) argues that food self-sufficiency strategies at a household level could not be effectively sustained without the full involvement of women who manage food at the micro-level and also the children.

4.7.2 Control over resources

Some cultural and social norms in many communities in Africa that have not only created a division of labour on gender lines but have institutionalized some prohibition to ownership, access and management of some farm resources and products among members of the household are based on their sex (Tesha, 2000). During FGDs with men and women when talking about control of household resources the study looked at different resources that are owned by different household members. Examples of such resources include land, livestock, money, farm equipment, among others. Land is one of the most important factors and means of agricultural production.

Access to land enables production for both food and cash crops at an individual as well as household level. According to Baldwin (2006), access and rights to land is not only a determinant of food production, but an essential resource for many people if they are to escape poverty and consequently food insecurity. During household interview and FGDs

with men and women it was reported that in the study area land is traditionally transferred across generations in the male line (partilineal) and brought at marriage by men; although in few occasions also women brought the assets at marriage and after marriage turns to be under the control of their husbands. FGDs confirm that men were the controller of the land resources. In some households where men tend to set aside much of the land for cash crops and after selling the money obtained is not used to improve household food security such households become food insecure. As Mwaseba (2015) reports, women have much less access to and control over productive and financial resources. During FGDs with men when asked about the control over land and other resources they simply replied "*Mwanaume ndio kichwa cha nyumba"* which literally means: A man is the head of the house". The response indicates the presence of patriarchy which exacerbates men's dominance. Mwaseba (2015) argues that male decisions making concerning market products and control of income from produce sales are reinforced through the concept of the man as the household head. Tesha (2000) argues that in Tanzania, the issue of women and land ownership touches traditions and customary law. These are shaped by tribal customs and traditions which often create barriers for women to have equal right of access to land, property ownership, and inheritance. Giving women land ownership rights, could improve food security and household income through agricultural production. During FGDs with men and women it was noted that men sell and control the income from the sales of agricultural products and off-farm activities. They use the income which they are supposed to manage on non food item such as alcohol, clothes, getting another wife which have direct negative effects on household food security.

According to Lyimo-Macha and Mdoe (2002) in a study of 146 women farmers from Kilosa and Morogoro district the husband had full control over income from agricultural production. Mwaseba (2015) reports that in Mgeta the sales of goat milk and high value

goat kids is within the men's control and the income from the goats do not necessarily have to be dedicated to household expenditures in the form of basic food. Furthermore Mwaseba (2015) found out that men in Mgeta village usually market farm products and manage the income from the sales and keep the money.

During FGDs with women it was noted further that women are allowed to sell chicken, cereals, and groundnuts when the husband is away from home, one woman from Mlowa 'B' had this to say:

> "*I am not allowed to sell anything when my husband is away unless it is an emergency. For instance, if my child is sick and my husband is not at home. I can sell chicken and any cereal available so that I can take my child to the hospital. After my husband's returns I report to him. He has to be aware of everything that goes on".*

Furthermore it was reported that men's lack of attention or carelessness behavior towards their families propagates men's dominance over resources. That is why they are able to dominate the income for their individual expenditure. In addition, it was noted that men's ability of having a relationship with other partners (concubines) outside their marriages push men to dominate income in order to meet the needs of their concubines. During interview one of the man respondents from Makoja village revealed the following:

> *"After selling a cattle and get 600 000Tsh only 500 000Tsh was taken to his wife and 100 000Tsh was kept for the purpose of taking it to concubine. Unfortunately the wife take again 50 000Tsh and give it to husband as pocket money without being aware the husband has previously deducted 100 000Tsh.*

Thus, some families were complaining that they were suffering from poor income while in the actual sense the head of the household misused the income. The mishandled income could be used to improve household food security.

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

This chapter presents conclusions and recommendations made basing on the findings of the study. The chapter is thus divided into two sub-sections: conclusions and recommendations.

5.1 Conclusions

Based on the finding of the study, the following conclusions are made:

i) Food security is determined by the quantity of sorghum or millet or maize available in the household storage structure(s). These are *kilindo* and polythene bags.

ii) Men's control over resources such as cash income has negative influence on household food security.

iii) Women lack of involvement in decision making on insuring food management imparts negatively on household's food security.

iv) Decision making on production and use of household resources had direct influence on food security.

5.2 Recommendations

Based on the conclusions above the following recommendations are made:

i) The analysis of food security situation and the types of production system need to be carried out by district agricultural and livestock departments in various regions in order to suggest mechanisms for improving food security over time.

ii) There is a need to address gender inequalities in all Districts, with regards to ownership and control over resources at household level which impacts negatively on household food security. Responsible persons are all Community Development Officers at Village, Ward and District levels.

iii) The importance of gender to household food security should be emphasized by policy makers in order to promote the role of women as producers and providers of food to the household and to the nation at large.

iv) There is a need for joint decision making within the household regarding what to produce and how different household resources could be used to address food security at household level.

v) Given the semi arid type of climate in the study area which is usually accompanied by unreliable rainfall, there is need for household to grow crops which are drought resistant such as cassava, sweet potatoes and sorghum.

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APPENDICES

Appendix 1: Interview schedule

"Intra-household gender relations and household food security in Tanzania: A case of Chamwino District, Dodoma Region"

INTRODUCTION

Household Identification No……Village…….. Ward…….

Division…….Name of Enumerator…….....Date……

Section A: Background information

A1. Please provide the following information

	Age(Years)	Level of education (Number of years in school)	Main occupation
Husband			
Wife			

A2. What is your household size?

Age group	Male	Female
Below 15 yrs		
15-30yrs		
31-45yrs		
46-60yrs		
Above 60yrs		

SECTION B:

B1: Ownership/Control and Access to Household Resources

Resources	Who control the resource	Who have access to use resources	Who decides on the use of resources
Resources owned by husband			
Land (Acre)…….			
Livestock			
Cattle (No)……..			
Goats (No)……..			
Sheep (No)……..			
Pigs (No)……			
Chickens (No)……			
Guinea fowl (No)…..			
Resources owned by wife			
Land (Acres)……..			
Livestock			
Cattle (No)……			
Goats (No)……			
Sheep's (No)…….			
Pigs(No)……			
Chickens (No)……			
Guinea fowl (No)…..			
Resources owned by children			
Land (Acres)			
Livestock			
Cattle (No)……			
Goats (No)……			
Sheep's (No)…….			
Pigs (No)……...			
Chickens (No)……..			
Guinea fowl (No)…..			

B2: What was the source of food consumed in your household during 2014/15 cropping season?

Source and type of food	**Quantity(in kg, bags, tins)**
Own production	
Millet	
Sorghum	
Maize	
Groundnuts	
Sunflower	
Bambara nuts	
Cowpeas	
Pigeon peas	
Purchased	
Millet	
Sorghum	
Maize	
Rice	
Beans	
Bambaranut	
Cowpea	

B 3: If own production, how much food crops did your household harvest in 2014/15

Crops	**Quantity harvested (Bags, Tins)**
Sorghum	
Millet	
Maize	
Groundnut	
Sunflower	
Bambaranut	
Cowpea	
Pigeon pea	

B4: Was the amount harvested during 2013/14 enough to feed your family until next season? (I.e. 2014/15)

1. Yes…….2 No……..

B5: If no to question B4, how did you cope with that shortage?

1. Get support from the Government…….
2. Engage in casual labour and buy food……
3. Got support from relatives……..
4. Reduce number of meals……..
5. Others (specify)……

B6: Which of the following crops were sold during 2014/2015 cropping season?

Crop type	**Area(Ha)**	**Yield (bags of 100 kg)**	**Amount sold**
Sorghum			
Millet			
Groundnuts			
Sunflower			
Simsim			
Bambaranut			
Cowpea			
Pigeon pea			
Maize			
Grapes			
Others			

B7: Do you engage in any off farm activities?

1. Yes……..2. No…….

B8: If yes to question B7 indicate the type of off farm activity you were engaged in

Type of off farm activity	**Yes**	**No**
Small business		
Local brewing		
Casual labour		
Charcoal and fire wood selling		
Local midwife/traditional healer		
Livestock selling		
Crop middle man		
Hand craft		
Others(specify)		

B9: Indicate income from the following farm and off farm activities for the last 2years

Enterprise		**2013/14**			**2014/15**	
Crop sale	**Quantity sold**	**Price/unit**	**Amount**	**Quantity sold**	**Price/unit**	**Amount**
Sorghum						
Millet						
Groundnut						
Sunflower						
Simsim						
Bambaranut						
Maize						
Grapes						
Livestock sale						
Cattle						
Goat/sheep						
Chicken						
Pig						
Off farm activities						
Small business						
Local brewing						
Charcoal/firewood						
Local						

midwife/traditional healer						
Livestock selling						
Crop middle man						
Hand craft						
Others(specify)						

B10: Household expenditure for the year 2014/15

Item	**Expenditure (Tshs)**
Buying food	
Buying clothes	
School fees and uniform	
Medical expenses	
Alcohol	
Salt	
Kerosene/Battery	
Soap/oil	
Funeral contribution	
Ceremonies	

SECTION C: Household perception of food security

C1: What is your perception of food security?..,,,

……………………………………………………………………………………………

…………………………………………………………………………………

C2: Have you ever experienced food shortage in your household in the past five years?

1. Yes……………2. No………………

C3: If yes to question C2 give reasons

1. Lack of enough land for cultivation of food crops……………………….
2. Large number of dependants…………………………………………....
3. Low income and purchasing power……………………………………….

4. Overselling of crops……..
5. Household gender division of labour……
6. Lack of power over resources by women…….
7. Cultural, ritual and taboos……

C4: In which months of a year do you normally experience food shortage?

.....

……

C5: How do you overcome it (food shortage?)

……

……

SECTION D: Decision making with regard to household food security

D1: What decisions do you make with regards to household food security?

……

……

……

D2: How do you make those decisions?

……

……

D3: Do the decisions made at household level affect food security?

1. Yes……..2. No…….

D4: If yes in D3 explain how

……

……

……

THANK YOU FOR YOUR COOPERATION

Appendix 2: Checklist for focus group discussions

A: Control and access to resources

1. Who own and control resources in household?
2. Who decides on the use of resources in household?
3. Who has access to use of resources in household?

B: Perceptions of household food security

1. How is food security perceived?
2. Have you ever experienced food shortage in your household?
3. What were the reasons for that food shortage?
4. In which month of the year do most household experience food shortage?
5. Who are mostly affected by food insecurity? Why?
6. What are the effects of food insecurity to household?
7. Where do you get assistance whenever faced with food insecurity?
8. What strategies do household employ to attain food security?
9. Does the strategies employed by household effective and sustainable?
10. In your own opinion are you satisfied with effort made to address food insecurity?

C: Intra-household decision making

1. What decisions are made with respect to household food security?
2. How are these decisions made?
3. Who makes decisions regarding household food security?
4. Do decision made affect household food security? How?

D: Effects of Intra-household gender relations

1. What Intra-household relations exist at household level?
2. How do these relations affect household food security?

THANK YOU FOR YOUR COOPERATION

Appendix 3: Checklist for village extension officers

1. Who makes household decision pertaining to farming activities?
2. In your own view how do intra-household gender relations affect household food security?
3. How is food security perceived in your village?
4. Have household experienced food insecurity in your area? Why?
5. Who are mostly affected by food insecurity condition in your area?
6. What are the effects of food insecurity in your area?
7. What coping strategies do farmer employ during food shortage?
8. Do the coping strategies employed by the household during food shortage effective in addressing it
9. What advices do you normally give to farmers during food shortage to cope with the situation?
10. What challenges do you face in your extension services?
11. How do you meet the challenges you mentioned to improve the situation?

THANK YOU FOR YOUR COOPERATION

Appendix 4: Checklist for in-depth interviews

A: Control and access to resources

4. Who own and control resources in household?
5. Who decides on the use of resources in household?
6. Who has access to use of resources in household?

B: Perceptions of household food security

11. How is food security perceived?
12. Have you ever experienced food shortage in your household?
13. What were the reasons for that food shortage?
14. In which month of the year do most household experience food shortage?
15. Who are mostly affected by food insecurity? Why?
16. What are the effects of food insecurity to household?
17. Where do you get assistance whenever faced with food insecurity?
18. What strategies do household employ to attain food security?
19. Does the strategies employed by household effective and sustainable?
20. In your own opinion are you satisfied with effort made to address food insecurity?

C: Intra-household decision making

5. What decisions are made with respect to household food security?
6. How are these decisions made?
7. Who makes decisions regarding household food security?
8. Do decision made affect household food security? How?

D: Effects of Intra-household gender relations

3. What Intra-household relations exist at household level?

4. How do these relations affect household food security?

THANK YOU FOR YOUR COOPERATION