

**POTENTIALITY OF ONION PRODUCTION TO POVERTY  
REDUCTION: THE CASE OF RUANGWA DISTRICT,  
TANZANIA.**

**By**

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**A Dissertation Submitted in Partial fulfilment of the Requirement for the  
Degree of Master of Science in Development Policy (MSc. DP) of Mzumbe  
University**

**2013**

## **CERTIFICATION**

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled Potentiality of Onion Production to Poverty Reduction: The case of Ruangwa District, in partial fulfilment of the requirement for award of the degree of Master of Science in Development Policy of Mzumbe University.

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## DECLARATION AND COPYRYGHT

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## **DEDICATION**

I dedicate this dissertation to my lovely parents Late Rev. Reuben Mbiha and Mrs Rebecca Mbiha who laid the foundation of my education.

## **ABBREVIATIONS AND ACRONYMS**

ASDP	Agriculture Sector Development Programme
CBR	Crude Birth Rate
CDR	Crude Death Rate
DALDO	District Agricultural and Livestock Officer
DP	Development Policy
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GER	Gross Enrolment Rate
Ha	Hectare
HIV/AIDS	Human Immune Virus/Acquired Immune Deficiency Syndrome
IFAD	International Fund for Agriculture Development
IMR	Infant Mortality Rate
LBW	Low Birth Weight
MDGs	Millennium Development Goals
MS	Micro Software
MSc	Master of Science
MT	Metric Tonnes
PHDR	Population and Human Development Report
RDC	Ruangwa District Council
RH	Relative Humidity
SPSS	Statistical Packages for Social Sciences
TSHS	Tanzania Shillings
UN	United Nations
UNDP	United Nations Development Programmes
URT	United Republic of Tanzania
US	United States
USA	United States of America
WAEO	Ward Agricultural Extension Officer
WB	World Bank

WEO	Ward Executive Officer
WFA	Weight for Age

## **ABSTRACT**

This study was conducted in order to examine the potentiality of onion production to poverty reduction in Ruangwa District. The study aimed at addressing the trend of onion production, magnitude of poverty in the study area, the market potential of onions and limiting factors facing onion production in the study area. The study involved 127 respondents selected randomly or purposely to meet the study objectives. The data were collected using interview and administration of questionnaires.

The study showed that onion production is a potential activity in poverty reduction to farmers engaged in onion production. This was revealed by existing market potential, income obtained from sale of onions and its expenditure. Despite of this potentiality of onions to poverty reduction, its production was not consistent as there was rise and fall due to market fluctuation, frequent climatic change, high prices of agricultural inputs as well as application of poor farming methods. That is why people decided to produce other crops in order to reduce the magnitude of poverty. The income obtained ranged between 100,000 to more than 500,000 Tshs and expenditure priorities included health (21.1%), education (36.6%), purchase of building materials (22.5%), acquisition of furniture (18.3%) and other uses (1.4%). Hindrance to onion production was also caused by existence of different challenges such as lack of extension services (26.8%), low level of farmers' education (19.7%), presence of poor roads (14.1%), poor farming methods (7.0%), poor agricultural tools (1.4%), unreliable market (18.3%), lack of government support (9.9%) and other (2.8%). From these findings, it was concluded that onion production has high potential to poverty reduction though it was still not delivering its full potential to poverty reduction. Therefore, the study recommended that there is a need for the government and other stakeholders to ensure that there is a reliable market, prices of agricultural inputs are reduced and ensure that cooperative societies operate to safeguard interests of onion producers. There is also a need to improve delivery of extension services and quality of roads. These measures in turn can increase opportunity to onion producers to earn more income at household and national levels as well as sales of onion in the foreign market.

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## **CHAPTER ONE**

### **INTRODUCTION**

This chapter presents the introduction and is divided as follows; background to the problem, statement of the problem, research questions, research objectives and significance of the study.

#### **1.1 Background Information**

Across the world, onions are grown in at least 140 countries. By 2010, China was the leading producing country with a production of 20.5 million tonnes of onions followed by India and USA which produced 13.4 and 3.3 million tonnes of onions respectively. China, Japan and Korea led the world production of green onions producing 838.3, 5449 and 417.2 thousand tonnes in that order (FAO, 2012). In 2010, the United States exported 652.4 million pounds of fresh onions, an increase over 2009 export volume of 526.8 million pounds of onions (Ibid). U.S fresh onion exports were valued at \$202.8 million, representing a major increase over 2009 fresh onion export value of \$126.0 million. Canada was the number one buyer of U.S. fresh onions, with purchases valued at \$126.1 million, followed by Japan and Mexico with purchases valued at \$33.5 and \$14.1 million.

Onion is the source of foreign currency earnings to countries producing it. Besides USA being one of the leading onion producers, it is also a great onion importing country. For example, in 2010 USA imported 826.7 million pounds of fresh dry bulb onions which were the substantial increase over import quantities of 655.3 million pounds in 2009. USA onion imports in 2010 were valued at 256.9 million US dollar representing an increase over 2009 fresh onion of USA imports of 219.7 million US dollar. The top source of USA onion imports was Mexico which provided 502.8 million pounds valued at 183.9 million US dollar. Subsequently Peruvian onion imports have been increasing since 2000 where onion imports stood at 42.8 million pounds compared to 158.3 million pounds in 2010 placing the country at the second largest source of imported onions by the USA (FAO, 2012).

In terms of area, India ranks first in the world with over 480 thousand hectares accounting for around 21 per cent of the world area planted to onion. Globally, the country occupies the second position after China in onion production with a production share of around 14 per cent (Wilson, 2007). Productivity, however, is low at around 11.4 mt/ha, which is lower than the world average of 17.3 mt/ha. Besides India and China, the other major onion producing countries are Turkey, Pakistan, Brazil, United States of America, Iran, Spain and Japan. In India, onion is produced for both domestic consumptions as well as exports and extensively cultivated over a large area spread almost throughout the country (FAO, 2000). In Africa, onion is produced for both domestic consumptions as well as exports. Production volume is minimal compared to other onion producing regions. FAO (2012) statistics show that Egypt is the leading African onion producing country with the production quantity of 2,208,078 tonnes recorded in 2010 followed by Nigeria, Morocco, Algeria, South Africa and Niger producing (in tonnes) 1,346,218; 1,001,304; 821,072; 518,284; and 366,840 respectively.

WB (2005) as cited in Koenig, *et al* (2008), has shown the importance of onion production to poverty reduction particularly if development of local markets and provision of functioning and accessible market channels are strengthened. Diao *et al* (2006) as cited in Koenig, *et al* (2008) has argued that there is a relevancy domestic market in East Africa for onions before considering the external markets. Tanzania has climatic conditions (semi-arid zones, good soil quality and sufficient water) which favour the production of onions for domestic and external markets.

Tanzania economy is mainly depending on agriculture as its main stay. In 2010 agriculture contributed 24.1% to the total national income reflecting an increase on business based agricultural activities rather than subsistence agriculture (URT, 2011). In 1998 agriculture contributed 70.8% to total employment and 55% of the country's foreign currency. Agriculture is still the main source of its economic performance significantly, and hence determines the overall improvement of the living standard (URT, 2005).

In Tanzania, the dry onion is the most important spice vegetable. The country produces about 56,000 tones of the crop per year, and this ranked tenth amongst onion producing countries in Africa (FAO, 2000). Production is mainly for local consumption (Anon, 1991). Two common varieties, Red Creole and Bombay Red, are cultivated in Tanzania. Though produced in abundant red onions are not suitable for dehydration mostly due to low solids, low pungency levels and high reducing sugars (Wilson, 2007). The crop is produced almost all over the country from the southern highlands through the central plateau to the northern highlands. Ruangwa which is found in Lindi Region, Southern Tanzania lies between latitude  $9.5^{\circ}$  S and  $10^{\circ}$  S and longitude  $38.5^{\circ}$ E and  $39.5^{\circ}$ E with two climate seasons (rain and dry seasons) however onion production is done during dry season through small scale irrigation in the lowlands which are suitable for irrigation (Ruangwa District Profile, 2011).

Low yield is a common experience in onion production in Tanzania. FAO (2000) statistics show that average yield of onion in the country is about 2.9 T/Ha while the world's average stands at 17.7/ha. One of the factors that contribute to low yields is the use of low yielding old varieties. Although high yielding varieties exist, most of them are adapted to the intermediate and long day climatic regions and cannot be grown successfully in Tanzania. The few varieties developed for the tropical short day climate have never thoroughly tested under Tanzanian conditions (Mtaita and Msuya, 2006).

The relatively constant day length in the tropics is generally favourable for the production of short day onions. However, prevailing high temperatures and relative humidity (RH) have strong influence of bulb formation and storability (Brice *et al*, 1997). High temperatures, characteristic of many areas in Tanzania, accelerate bulb maturation, resulting in low yields due to small bulb size and high rates of formation of splits and double, which is low quality attributes. High RH favours post-harvest bulb sprouting and rots (Brewster, 1994) which further reduce the marketable yield of onions.

Storage of bulbs after harvest is crucial to ensure availability during off-seasons. Onion varieties that have been produced in cultivation by selective breeding do not keep long in ambient storage because they tend to sprout and rot shortly after harvest. Also, due to poor storage facilities, onion breakdown within 2-4 months after harvest is a common phenomenon (Rabinowitch, 1994). Nevertheless, Storage of some cultivars for more than 6 months under ambient conditions is possible. Kariuki and Kimani (1994) suggested that, where possible, selection of long storing cultivars is the best way of improving keeping quality of onions.

## **1. 2 Statement of the Problem**

Onion production is an important sector since it contributes to household income as well as national income. There is a growing interest among the onion producers to engage in the cultivation of onions that would ultimately increase the supply of onions in the markets as well as income to the producers and the nation as a whole. In 2000/2005, a total of 20,633 tonnes of onions were sold in the markets from the number of 2,120 households involved in onion production (Ruangwa District Profile, 2011).

The volume of onions sold is an indication of the demand and potential opportunities for onion producers to exploit more in Ruangwa District. Therefore, onion production is a potential economic activity for income growth and improved welfare in rural areas. However, it has been observed that, onion production have not brought a remarkable change to the people in Ruangwa District. This shows that, people in Ruangwa District have not exploited this opportunity effectively in their efforts to reduce poverty.

In order to reduce poverty at household level, different efforts such as formulation of pro-poor policies, strategies and improvement of infrastructures such as roads and markets have also been made by the government, non-government organizations and different development partners. Despite of all these efforts, poverty is still persisting in the study area. People have no decent houses; fail to pay school fees for their children and other related expenses like health services (Ruangwa District Profile,

2011). Onion production can therefore be a best solution to poverty reduction in the area.

Therefore, this study intended to assess the potentiality of onion production to poverty reduction in Ruangwa District. This will be a stepping stone towards improving the production at the district level and thus maximizing the benefits accrued to the community and hence improving their livelihood and national income at large.

### **1.3 Objectives of the Study**

#### **1.3.1 General Objective**

The main objective of this study was to assess the contribution of onion production towards poverty reduction.

#### **1.3.2 Specific Objectives**

- i. To assess the trend of onion production in Ruangwa District
- ii. To assess the magnitude of poverty in the area
- iii. To assess the market potential of onion production in Ruangwa District
- iv. To identify limiting factors for onion production in Ruangwa District

### **1.4 Research Questions**

- i. How is the trend of onion production in Ruangwa District?
- ii. What is the level of poverty in Ruangwa District?
- iii. How is the market of onion production in Ruangwa District?
- iv. What are the factors limiting maximum realization from onion production?

## **1.5 Scope and Significance of the Study**

### **1.5.1 Scope of the Study**

This study was conducted in Ruangwa District of Lindi Region particularly at Likunja, Nkowe, Nandagala and Mnacho wards. The study intended to look on the potentiality of onion production on poverty reduction in the study area.

### **1.5.2 Significance of the Study**

The study will be useful in different ways. Findings from this study will provide the base for policy makers and planners at different levels to set appropriate strategies on improvement of infrastructure, setting pro-poor policy processes with emphasis on onion production, marketing and provision of social services like health and education. Extension workers and planners will use this study to set up plans which can assist farmers to improve their socio-economic status.

Through the use of this study, there is a possibility of increasing foreign currency revenue through exporting onions. The study will also be helpful to other interested researchers to conduct researches on similar issue and then the result of it will pave the way for more findings. Likewise the result of this study will provide the base for policy makers and planners at various levels to set appropriate strategies on improvement of the policy making process that will favour farmers and emphasize on onion production, marketing, schools construction and health services.

### **1.6 Limitations of the Study**

The researcher was faced with the following constraints during data collection and report writing; the selection of onion producers and non onion producers was based on the visit and willingness of the particular person to answer the questions and thus had some limitations. The data collected from the onion producers and non onion producers were based on their memories and thus had some limitations since it is not easy to remember all the transactions made in the past.

### **1.7 Ethical Consideration**

Respondents were assured of the confidentiality of the information they provided and that information was for academic purposes only. Respondents were free to withdraw from the study at any time. Administrative unit like Ruangwa District Council through District Executive Director was consulted to ask for permission and cooperation to undertake this study in their area of jurisdiction particularly at lower level (ward and village levels).

## **CHAPTER TWO**

### **LITERATURE REVIEW**

The review was on the past works of the researchers on agricultural production specifically onion production and documents on contribution of onion production on poverty reduction. Also the review will look on various national development policies and strategies for growth and eradication of poverty among Tanzanians.

#### **2.1 The Concept of Poverty and Poverty Reduction**

##### **2.1.1 The Concept of Poverty**

Poverty is a multifaceted and complex phenomenon such that describing it is easier than defining it. However, some definitions have been propounded in the process of looking for a working definition. They include the following;

Poverty is a state of deprivation and prohibitive of decent life that results from many mutually reinforcing factors including lack of productive resources to generate material wealth; illiteracy; prevalence of diseases; discriminative socio-economic and political systems; and natural calamities such as drought, floods, HIV/AIDS and wars (URT, 2005).

Poverty is considered as a multifaceted phenomenon that includes vulnerability and powerlessness, deprivation, isolation, lack of decision making power, lack of assets and insecurity (Chambers, 2006). World Bank (2001) summarizes that the poor are people who lack adequate food and shelter, education and health, and have deprivations that keep them from the kind of life that every one values.

Poverty at its broadest level can be considered as a state of deprivation prohibitive of decent human life. This is caused by lack of resources and capabilities to acquire basic human needs as seen in many but often mutually reinforcing parameters which include malnutrition, ignorance, squalid surroundings, high infant, child and

maternal mortality, low life expectancy, low per capita income, poor quality housing, inadequate clothing, low technological utilization, environmental degradation, unemployment, rural-urban migration and poor communication (WB, 2001). Poverty is caused by both internal and external factors. Whereas the internal causes can be clustered into economic, environmental and social factors, the external causes relate to international trade, the debt burden and the refugee problem (URT, 1999).

From these few definitions one can conclude that people's experience on poverty differs

to a large extent, in such a way that poverty is not simply an issue of income but has to do with other issues such as health, safety, education, food and basic services, vulnerability and exclusion of the poor by the state and a society as a whole.

### **2.1.2 The Concept of Poverty Reduction**

Poverty as an important global issue, the World Development Reports of 1990 and 2000/2001 were devoted to it, re-examined how policies can help to reduce it. The 1990 report urged industrialized countries to assist developing countries' commitments to reduce poverty. In 1997, the United Nations Development Program (UNDP) Assembly declared the decade 1997 to 2006 to be the United Nations' Decade for Poverty Eradication and every October 17 to be commemorated as an International Day for Poverty Eradication (URT, 2005).

To attain these by 2015 several objectives aiming at reducing the mentioned categories of poverty were designed. These are; reduce by half the proportion of people living in extreme income of less than US \$1 a day per capita; enrol all school age children in primary schools; eliminate gender disparity in primary and secondary education; reduce infant and child mortality by two thirds; reduce maternal mortality by three quarters; ensure universal access to productive health services to all who need them, and implement national strategies for sustainable development in every country to reverse the loss of environment resources (WB, 2001).

### **2.1.3 Indicators of Poverty**

URT (1999) as cited in Kayunze (2003) reveals poverty indicators to be the areas of food security; income and production; education; health status; water and sanitation; health services; nutrition status; transport and communication; housing; environment; household and family relations; energy; empowerment and participation; and tradition and norms. Poverty indicators are elaborated in Table 2.1;

**Table 2.1: A list of poverty and welfare indicators in Tanzania from the most to the least important**

<b>Items</b>	<b>Indicators</b>
Food and Security	% of population who are unable to get 2 meals a day and 3 meals a day for children
	% of households with food insecurity
	Food security at district level
	% of villages/wards with food shortage
	Average acreage cultivated land per household
	% of agricultural households using hand hoe, oxen drawn implements, tractor
Income and Production	Employment rate; all, youth, women
	% of population with access to financial facilities for savings and credit (by gender)
	% of population below absolute poverty line
	% of population below the poverty line of US\$ a day
	Income distribution: % of share of income/consumption of the lowest 20% of the population; Gini coefficients
	GDP per capita
	% of households spending 50% or more of income on food by urban and rural
Education	% of illiterate and literate population by gender
	Primary school gross enrolment rate (GER) by gender
	Primary school dropouts rates by cause and gender
	Secondary school gross enrolment ratio by gender
	Vocational training school gross enrolment ratio by type and gender
	Mean years of schooling by gender
	Mean age enrolment for primary school, by gender
	Pupil/teacher ratio (primary school)
	Pupil/teacher ratio (secondary school)
% of household consumption expenditure for education	
Health status	Infant mortality rate (IMR)
	Under 5 mortality rate (U5MR), by gender
	% of deaths by causes by gender of all age groups and children under 5
	Incidence of top 10 diseases by gender: all age groups and children under 5
	Incidence of HIV/AIDS
	Life expectancy, by gender
	Crude birth rate (CBR)
	Crude death rate (CDR)
% of disable people by type, gender and district	
Water and Sanitation	% of households with access to an adequate amount of safe drinking water within 400 metres
	% of urban people with toilet facility and access to toilet facility
	% of urban households with access to disposal facility
	% of urban households with access to sewage system and cesspool emptying
	% of population contributing to water services
Health Service	% of population with access to health care
	Population per dispensary
	% of deliveries attended by trained attendant or other health personnel
	% of population with access to reproductive health services by gender
	% of children under 1 year fully immunized, by gender
	% of pregnant women immunized against tetanus
% of household consumption expenditure for health services	

**Table 2.1: A list of poverty and welfare indicators in Tanzania from the most to the least important**

Nutrition Status	% of under five children with malnutrition, by gender and weight for age (WFA): severe and moderate
	% of infants with low birth weights (LBW)
Transport and Communication	% of villages accessible by road, railway or boat throughout the year
	% of population with access to transport: bicycle, ox-driven carts, motor cycle and car, by gender
	Number of people owning a radio per 1,000 population, by gender
	Number of newspaper circulation y 1,000 population
	Number of post offices per 100,000 population
Housing	Number of telephones per 1,000 population
	% of households living in temporary houses, by male and female headship
	% of urban population living in squatter areas, by gender
Environment	Average number of persons sleeping room
	Deforestation rate
	Number of reported incidences of illegal fishing practices, including dynamite fishing in coastal regions
Household and family relations	Number of livestock per square kilometre( stocking rate) in pastoral regions
	Economic dependency: Number of household members depending on one working household member by gender
	Average household size, by gender in male and female headed households
	Ratio of working hours between men and women
	% of female and male headed households
	% of population 15+ years drinking alcohol, by gender
	Number of children in child labour
	Number of children in difficult circumstances, by type example Orphans and street children
Energy	% of households using firewood, charcoal, kerosene, gas and electricity
Empowerment and Participation	% of women participating in decision making at the household level
	% of men and women participating in decision making organs at the village level
	Participation of villages in decision making at local and central government
	Participation of women in decision making positions and professional economic activities
	% of men and women not participating in any social and economic group
Tradition and norms	The extent to which traditional beliefs influence; food use, land utilisation, time use, investment, gender discrimination in the district/division/ward by scoring 1-5 where; 1= None, 2= Partly, 3= Average, 4= Yes, 5= To a large extent.

**Source: URT, (1999) cited in Kayunze (2003)**

#### **2.1.4 Poverty Reduction Strategies**

Attacks on poverty globally started immediately after the Second World War insisting on heavy investments in physical capital and infrastructure as the basic means of development which later were seen in 1970s as not enough and that health and education seemed to be more important. The 1980s debt crisis and global recession caused shift of emphasis on improving economic management and greater

play for market forces (WB, 2001). The 1990 World Development report advocated for promoting labour intensive growth and investment in infrastructure and provision of basic services to poor people in health and education. WB (2001) proposes three ways towards global poverty reduction which are providing opportunities to poor people to access opportunities, jobs, credits, roads, electricity, markets for their produce, schools, water, sanitation and health services; second; facilitating empowerment by creating pro-poor policies to allow poor people to participate in political processes and decision making of their affairs; and third; is to reduce vulnerability to economic shocks, natural disasters, ill health, disability and personal violence.

In recent years, poverty reduction strategies in the world are addressed through Millennium Development Goals (MDGs) thus are reduction of proportion of people whose income is less than US\$1 per day, ensure that by 2015 all children complete full course of primary education, eliminate gender disparity in primary and secondary education by 2005, reduce under five mortality rate and maternal mortality ratio by two thirds as at 2015, halve the spread of HIV/AIDS by 2015, reverse the loss of environment resources and develop global partnership development (URT, 2005).

Tanzania has considered poverty alleviation since its independence in 1961 when three enemies' poverty; ignorance and diseases were proclaimed. Since then, different efforts have been made to reduce poverty. Since the year 2000, Tanzania's development plans were articulated in the context of poverty reduction strategy paper (PRSP) with a view to reduce poverty and eradicate absolute poverty by 2025 (URT, 2005). The Poverty and Human Development Report (PHDR) of 2009 indicated that the proportion of Tanzanians living below the basic needs poverty line declined from 39% in 1991/1992 to 33.6% in 2007/2008 and 37.6% of rural households live below the basic needs poverty line, compared with 24% of households in other urban areas and 16.4 % in Dar es Salaam (URT, 2009).

Poverty varies across geographical areas with the rural areas being worse off. Basic needs poverty in urban areas excluding Dar es Salaam and rural areas were 24.1% for urban areas and 37.6% for rural areas, while food poverty in urban areas excluding Dar es Salaam were 12.9% compared to 18.4% in rural areas (URT, 2009). This implies that there is a need to improve production in agriculture which is the major economic activity of Tanzania rural dwellers dominated by small scale farmers who majority of them depend on hand hoe. Improved agriculture has the potential of lifting majority poor out of poverty.

Lindi region has a total population of 791,306 with moderate rainfall ranging between 800mm and 1200mm annually and occurs only seasonally with considerable variations over the region and from year to year. The major crops grown in the region are maize, cashew nut, tomatoes, onions, cassava, sweet potatoes, simsim and bambaranuts (URT, 2002).

Ruangwa district has a total population of 124,516 where by males are 59,993 and females are 64,523 more than 90% of the people in Ruangwa district depend on agricultural activities (URT, 2002). The District has 3 divisions (Mnacho, Ruangwa and Mandawa), 21 wards and 89 villages (Ruangwa District Profile, 2011). The dominant soils in the area are basement red clays which have great potential for agricultural development (Mponda, *et al*, 2001). The type of soil in the area supports production of different vegetable crops including onion.

## **2.2 Onion Production – A Global Overview**

Onion requires moist soil throughout the growing period. Moderate rainfall is preferable since excessive soil water and high humidity encourage diseases. The most favourable water requirement for yield is between 350-550mm of water (AGL, 2002). Onions are classified according to their skin colour (red, white, brown, or yellow), taste (sweet or pungent), and shape of the bulb (round, flat, or globe) (Orzolek, Greaser and Harper, 2000). The dry onion (*Allium cepa L.*) is one of the

world's most important vegetable crops. It is grown in a wide range of climatic conditions, from relatively hot and dry areas to fairly cool and humid zones (Tindall, 1983; Messiaen, 1992). It is from their distinctive pungent flavours that make onion to be used almost daily as an essential seasoning for a wide variety of dishes and hence becoming a major trading vegetable commodity in all urban and peri-urban centres.

Globally, China is the leading onion producing country followed by India though the latter cultivates bigger area (FAO, 2008). Global production of onion is shown in the following Table 2.2;

**Table 2.2: Area, production and productivity of onion in major onion producing countries by 2008**

Countries	Area ('000 ha)	Production ('000 MT)	Yield (MT/ha)
China	1,001,171	20,817,295	20.79
India	804,600	8,178,300	10.16
United States of America	62,120	3,349,170	53.91
Pakistan	153,100	2,115,200	13.16
Turkey	75,000	2,007,120	26.76
Russia	128,600	1,900,000	14.77
Egypt	52,885	1,728,417	32.68
Iran, Islamic Republic of	50,000	1,700,000	34.00
Brazil	63,639	1,299,815	20.42
Mexico	42,998	1,252,441	29.13
Japan	24,500	1,165,000	47.55
Netherlands	26,200	1,130,000	43.13
Spain	21,100	1,098,400	52.06
Ukraine	62,000	1,049,200	16.92
Korea, Republic of	15,392	1,035,076	67.25
Bangladesh	125,226	889,260	7.10
Indonesia	91,780	824,064	8.98
Myanmar	60,000	740,000	12.33
Uzbekistan	23,000	728,000	31.65
Argentina	24,000	700,000	29.17
Algeria	38,000	700,000	18.42
Morocco	27,900	662,140	23.73
Peru	18,879	634,393	33.60
Nigeria	42,000	621,000	14.79
Poland	30,187	618,233	20.48
Germany	8,942	407,602	45.58
Italy	13,589	403,521	29.69
Romania	34,810	395,579	11.36
South Africa	17,000	380,386	22.38
Kazakhstan	18,500	376,840	20.37
Niger	10,500	373,637	35.58
United Kingdom	8,575	349,200	40.72
WORLD	3,731,659	66,829,917	17.91

Source: FAO, (2008)

Table 2.2 shows that among the onion producing countries in the world India ranks second in area and production, the first being China. The highest productivity of onion in the world is that of Korea Republic with the production of 67.25 MT per hectare while the lowest productivity is that of Bangladesh with the productivity of 7.10 MT per hectare. The world productivity per hectare is 17.91 metric tonnes. Tanzania is one among onion producing countries in Africa (FAO, 2000). Other onion producing African countries in the world ranking are Algeria, Morocco, Nigeria, South Africa and Niger (FAO, 2008).

Tanzania produces two common varieties, red creole and Bombay red. The crop is produced almost all over the country from the southern highlands through the central plateau to the northern highlands mainly for local consumption (Anon, 1991). Production for domestic and commercial use is practiced in the southern highlands, northern highlands, central plateaus and Morogoro/coastal zone (Mtaita, 1994) cited in de Putter, van Keesveld and de Viser (2007). Low yield is a common phenomenon in onion production in Tanzania due to the use of low yielding old varieties seeds. FAO (2008) statistics show that average yield of onion in the country is about 2.9 MT/Ha while the world's average stands at 17.91 MT/ha. From this scenario, there is a need to improve the quality of seeds and farming methods in order to increase volume of production per hectare resulting to the increase of onion producers' income.

### **2.3 Onion Production and Poverty Reduction**

Globally, onion has contributed to improve the standard of living. Saeed, Anwar and Khokar (2001) have shown that improved quality onion seed resulted to increase of onion growers' income, saved the valuable foreign exchange incurred on the imports of onion and increase of employment opportunities to land owners and labourers working in the onion farms in Pakistan.

USA onion imports in 2010 were valued at 256.9 million US dollar representing an increase over 2009 fresh onion of USA imports of 219.7 million US dollar. In 2010

Mexico exported 502.8 million pounds valued at US\$ 183.9 million subsequently Peru onion exports increased from 42.8 million pounds in 2000 to 153.3 million pounds in 2010 placing the country at the second largest source of imported onions by the USA (FAO, 2012). Export of onions to the USA by Mexico and Peru contributes to the foreign currency earnings of the two countries and has multiplier effect on the economy of the two countries. Sparger, *et al* (2011) came out with the observation that four crops (onion, tomato, pepper and eggplant) produced in rural areas have a direct impact on poverty reduction based on the importance of these crops to household income. On average onion producers rely on onion production for about 63% of total agricultural income whereas tomato producers rely on tomatoes for 49% of their agricultural income.

Onion is one of the important horticultural products in the urban markets in Tanzania and their potentiality in some areas of the country cannot be over emphasized. Tanzania ranks 72 in the world ranking of onion producing countries with the world share of only 0.1 percent (FAO, 2012). The volume of onion production for Tanzania in five consecutive years between 2007 and 2011 is presented in Table 2.3.

**Table 2.3: Tanzania: Onions, dry, production quantity (tonnes)**

Year	2007	2008	2009	2010	2011
Value (tonnes)	34,119	34,183	29,595	53,000	69,138

**Source: FAO, (2012)**

Participation of women in onion growing in northern Tanzania resulted to the increase of their income as well as household income. Jeckoniah, Nombo and Mdoe (2012) contended that women are now in a position to pay for the school fees of their children, acquire some assets and treated fairly by their husbands due to income accrued from onion production.

#### **2.4 Magnitude of Poverty in Ruangwa District**

URT (2009) showed that poverty rates were higher in rural areas overwhelming majority of poor Tanzanians who primarily depend on agriculture. About 90 percent

of the population in Ruangwa District depend on agriculture as their income generating activity making from it the Gross Domestic Product (GDP) of Tshs 350,950 in 2010 below that of the nation as well as Lindi region. The district is one among the districts which are food insecure. This food insecurity is caused by unreliable rains, application of poor farming methods and use of poor farming tools. For instance, in 2012 the district received 673 tonnes of maize from The National Strategic Grain Reserve (SGR) to curb the food shortage (RDC, 2012).

There is a significant difference between rural and urban access to health facilities which results in health disparities (URT, 2011). The District with 89 villages has only 25 dispensaries and 3 health centres and supply of clean and safe water reaches only 38.4 percent of the population. The district has 880 kilometres of earth and gravel roads network which are not passable particularly during rainy season. Impassable roads thwart marketing of crops (Ruangwa District Profile, 2011).

## **2.5 Theoretical Framework**

This section seeks to address the theoretical justification on the potentiality of onion production to poverty reduction. On my case, I will use technology and knowledge as inputs in the production function.

### **2.5.1 The Theory of Production**

Production is the act of creating output which has value and contributes to the utility of individuals (Kotler, P, *et al*, 2006). The theory of production describes and predicts the relationship between inputs to the production process and the resulting output as described by production function. Production functions indicate the maximum output (Q) that the firm can produce for every particular combination of inputs. For easiness, I presuppose that there are three inputs (labour, technology and knowledge) and thus I can write the production function as;

$$Q = f(\text{labour, technology, knowledge}); \textit{where,}$$

$$Q = \text{output and } f = \text{function of}$$

This equation states that the quantity of output depends on the quantities of labour, technology and knowledge (only for my case). The production function could

describe the maximum yield that onion producers can obtain under a given set of weather conditions with effective application of labour, technology and knowledge. Application of technology and knowledge in onion production could shift onion production possibility curve rightward (Bruce, 2005). In other words, keeping other variables constant, use of appropriate technology as well as knowledge would shift onion producers' production possibility curve rightward thus increasing producers' income hence leading to poverty reduction.

## **2.6 Summary of Literature Review**

The growing, handling, storage and marketing of onions are an important part of these economic activities. In many growing regions, it is a major source of income for rural families who sell their produce in local, regional and international markets. Onion production provides employment opportunities to people in rural areas hence increasing their income. This indicates that Tanzania can explore this opportunity of onion production and hence poverty reduction to the people of Ruangwa and the country at large.

## **2.6 Conceptual Frame work and Research Model**

The conceptual framework shows the relationship among variables which are assumed to influence level of income, types of houses, number of assets possessed, health facilities, and employment opportunities through onion production. Increase of population will compel more demand for food, energy, clothing, shelter which need more income from agricultural activities. Increase agricultural products such as onion production need a number of variables. The explanation of the most important variables is given below and the relationships between the variables are summarized in Figure 2.1. Onion production is the best approach in reducing poverty in the district. Potentiality of onion production on the reduction of poverty would be determined by the intermediate, independent and dependent variables.

Government policies lead to the creation of encouraging environment for various agricultural crops to be grown. The encouraging environment can be observed

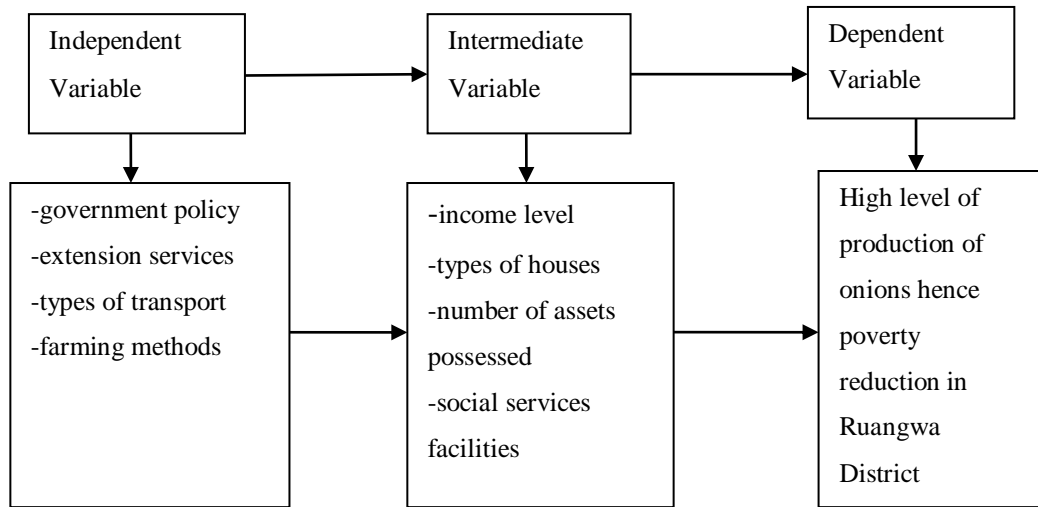
through the existence of good markets and crop pricing processes. Government policy will result into the increase in income of the people. Thus, income increase will enable people to access and afford to build good houses, meet medical expenses, employment opportunities on farm and non-farm activities and to cater for education of their farmers.

Provision of education is important to both farmers and extension workers. Extension workers with adequate knowledge on his field will confidently deliver what is intended to farmers and influence changes. While farmers on the other hand will be able to accept easily new knowledge delivered to them. Acceptance of what is delivered will depend much on the level of education of farmers. Easy adoption of new knowledge and skills will depend on the age of the farmers since youth farmers are more likely to catch up new technology and innovations compared to old people.

What is produced need to be transported to various markets for sale. Transportation of produce needs passable roads, good ports and other means of transport. Existence of good roads will ensure easy marketability of what is produced and leading to the attainment of good prices since roads will attract onion buyers in from different places. Likewise, farmers will be in a position to transport their crops to other markets within the district as well as outside the district where good price will be obtained. Market assurance will lead to the increase of income hence reduction of poverty in the district.

Modern farming methods ensures high level of onion production since it will enable application of fertilizers, pesticides and produced crops will be of high quality hence attracting good prices and more buyers of onions. Application of modern farming methods would create environment where the produce can compete in the domestic and foreign markets then leading to high income and assisting to reduce poverty in the district.

**Figure 2.1: Conceptual Frame work for Study Variables**



**Source: Researcher's Own Construct, 2013**

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This chapter explains the methodology which was used in the collection of data and information on the contribution of onion production on poverty reduction in the area. The chapter is organised as follows; research design, study area, sample size, sampling procedure and methods which were used in data collection, data processing, data analysis and data presentation.

#### **3.1 Research Design**

Aakar (2002) cited in Adam and Kamuzora (2008) defines research design as the detailed blue print used to guide a research study towards its objectives. The research design provides a paradigm where relevant evidence can be conducted with minimum expenditure of time, finance and energy.

In this study, a cross sectional research design was used because it facilitated the researcher to do a thorough investigation to the section of the population for a well specified place. This design allows data to be collected at a single point in time and is used in descriptive studies to determine relationship between variables. The design has been recommended as it is economical in terms of both time and money (Kothari, 2004; Bailey, 1998; Babbie, 1990). The design has also been found to have a greater degree of accuracy in social science studies as it allows collection of in-depth data on different groups of respondents at one point at a time (Causley and Kumar, 1998). This research design facilitated the researcher to do thorough investigation to selected sample in a specified place with minimal cost and short time.

#### **3.2. Study Area**

The study was conducted in Ruangwa District in Lindi Region. Ruangwa was chosen for the study because it is one of the few districts where onion production is

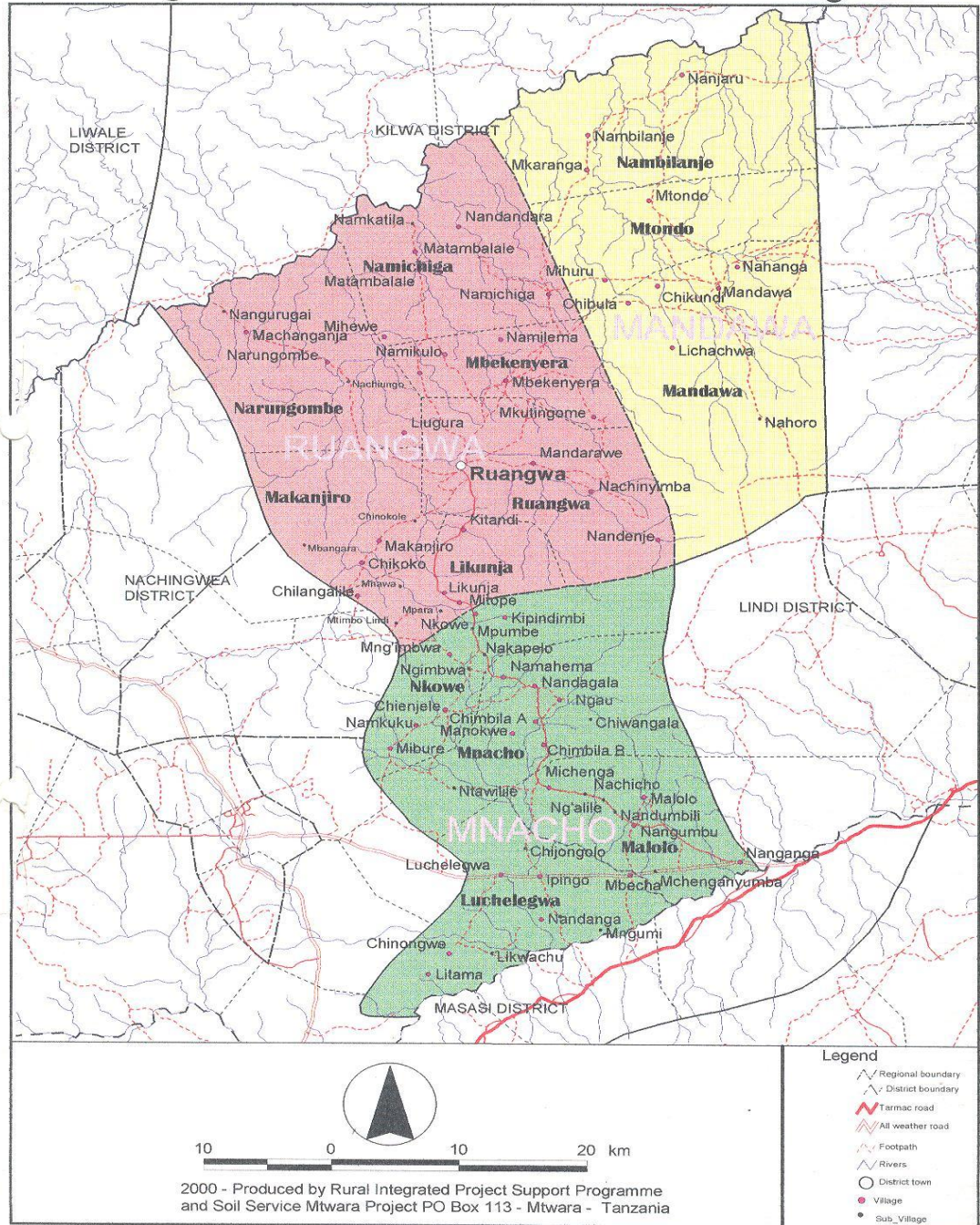
practiced. Ruangwa District is one of the five administrative districts that make Lindi Region. It lies between latitude  $9.5^{\circ}$  S and  $10^{\circ}$  S and longitude  $38.5^{\circ}$  E and  $39.5^{\circ}$  E. The District lies between 213 meters and 549 meters above sea level. There are permanent rivers which are Mbwemkuru and Lukuledi Rivers and seasonal ones are Chingunduli, Mandawa, Mmawa, Luwega and Ruangwa. These seasonal rivers originate from Rondo Hills. The District headquarter is known as Ruangwa Town and is about 152 kilometres from the Region headquarter Lindi Town. Arable land covers about 204,826 hectares, natural and planted forests 40,614 hectares and 10,562 hectares is used for human settlements and other uses. Ruangwa stands on a broad upland of plateau with an attitude ranging between 200 – 1000 and annual rainfall ranging between 800 – 1200 millimetres. (RDC, 2011).The district shares borders with Kilwa in the north, Liwale in the Northwest, Nachingwea and Masasi in the South and Lindi in the East.

The climate in the district is of two seasons which are more or less uniform. The temperature ranges between  $24^{\circ}\text{C}$  and  $34^{\circ}\text{C}$  with an average temperature of  $26^{\circ}\text{C}$  per annum. The District enjoys a monsoon wind that is northeast winds from June and October and south east winds from November to May each year. It rains from mid-November to May annually. Most parts receive rainfall between 800mm and 1,200mm per year. The slopes of Rondo Mountains get more rainfall over 1,000mm per year and generally rainfall decreases from East to West (RDC, 2011).

Ruangwa District had a Population of 86,407 with annual growth rate of 0.7% (URT, 1988) while the National Population and Housing Census of 2002 revealed the district to have the population of 124,516 where males were 59,993 and females 64,523. There were 32,493 households with the growth rate of 1.4% per annum and the population projection for 2011 stood at 149,634 people where 71,545 are males and 78,089 females with 33,493 households. The population density for 2002 was 48 inhabitants per square kilometre and that of 1988 was 33.7 inhabitants per square kilometre. Population density projection for 2011 is 54 inhabitants per square kilometre.

**Figure 3.1: Map of Ruangwa District**

**Ruangwa district: Divisions, Wards and Villages**



### **3.3 Data types and sources**

#### **3.3.1 Primary data**

Primary data were obtained from respondents who are onion and non-onion producers through face to face interview and questionnaire to key informants. Key informants included agricultural extension workers and ward executive officers. The researcher used interview to collect primary data from onion producers and non-onion producers. This method was appropriate to obtain primary data due to the socio-economic and demographic characteristics of the study population. Kumar (2005) has shown education level, age structure, socioeconomic structure and ethnic background as important things to consider when making a decision leading to primary data collection method.

#### **3.3.2 Secondary data**

In this study, secondary data were obtained through documentary review on onion production from District Agricultural and Livestock Department. Kumar (1999) has cited government or semi-government publications, earlier research, personal records and mass media as a secondary data source.

### **3.4. Sampling design**

#### **3.4.1 Sampling frame**

A sampling frame was drawn from onion producing and non-onion producing households in the area and the criterion were willingness to participate in the study. Gender sensitiveness was given a priority.

#### **3.4.2 Sampling unit**

Selected households from the study population were involved. The sampling unit comprised the respondents of different farming status involved in onion production and non-onion producing households in order to determine the potentiality of onion production on poverty reduction in the study area. The sample size was obtained from the study population in the study area where 127 respondents were selected.

Study population is the families or households living in the study area from which few of them will be selected to respond to questions in order to find answers to the research questions (Kumar, 2005). In the study area, there are 2,120 households engaging in onion production (RDC, 2011) out of 7,068 households in the wards of Likunja, Nkowe and Mnacho and majority of them are engaged in agriculture (URT, 2002). From this population a sample of 120 households was randomly selected based on Bailey (1998) and Babbie (1995) who suggest that, at least 30 respondents are needed in a study to allow the use of statistical analysis. Number of households in each ward was equally considered to minimize errors and sample biasness. Category of respondents and their total number are represented in table 3.1 below;

**Table 3.1: Categories of respondents**

S/n	Type of Respondent	Total
1	Onion Producers	60
2	Non- Onion Producers	60
3	Ward Executive Officers (WEOs)	3
4	Ward Agricultural Extension Officers (WAEOs)	3
5	District Agricultural and Livestock Development Officer (DALDO)	1
	<b>Total</b>	<b>127</b>

### 3.4.3 Sampling procedures

Both probability and non-probability sampling were used in this study to select the respondents included in the sample whereby simple random sampling and purposive sampling were used. In this study, simple random sampling was used to obtain a sample of households producing onions and non onion producers. Through this technique each household in the population was given equal and independent chance of selection in the sample (Kumar, 2005). On the other hand purposive sampling was used to select ward extension officers, ward executive officers, and district agricultural and livestock officer.

## 3.5.0 Data Processing, Analysis and Presentation

### 3.5.1 Data Processing

Data processing involved; coding, editing and classification. Data was edited first to check for errors before beginning data entry. Then the data were assigned codes.

Editing was done to check if data were accurate and consistent, while coding means assigning numerals to answers so that responses are put into limited number of categories and classes (Kothari, 2004). Processing of data was focused on the preparation of frequencies, tables, graphs, charts or pictographs (Ndunguru, 2007).

### **3.5.2 Data Analysis**

Analysis involves establishment of data categories and application of these categories to raw data through coding, tabulation and drawing of inferences (Kothari, 2004). Data from the study site was analyzed using MS-Excel and the Statistical Packages for Social Science (SPSS version 20) software programs so as to determine the descriptive statistics such as percentages and frequencies of study variables. Qualitative data and information from personal interviews were grouped according to emerging issues and themes in the study.

### **3.5.3 Data Presentation**

The data were presented in the form of tables and figures.

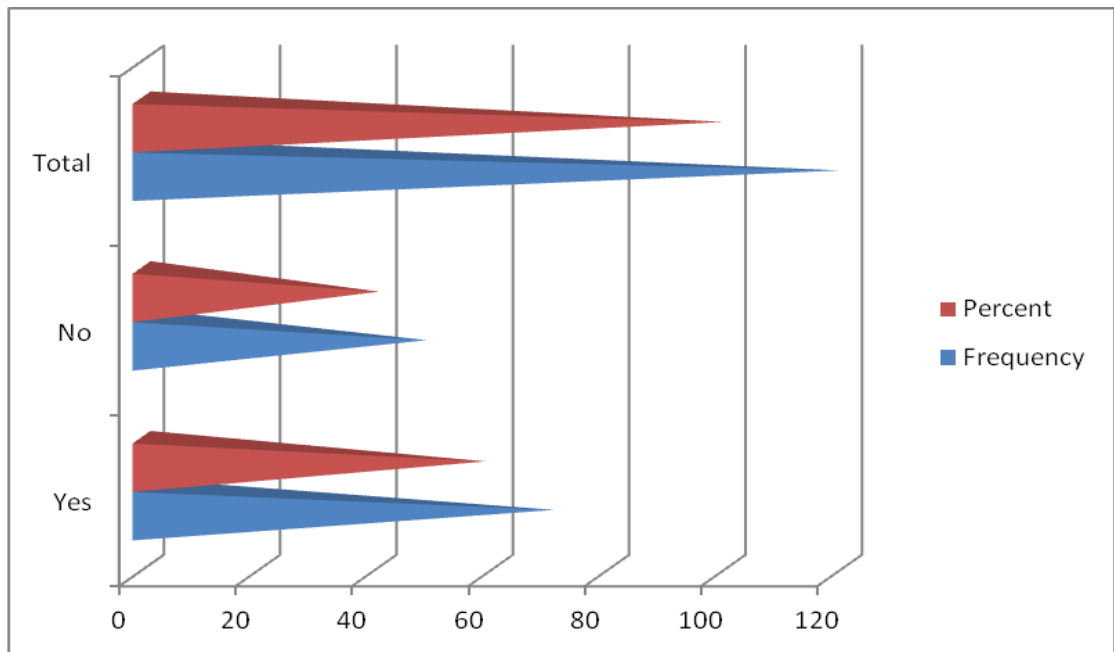
## CHAPTER FOUR

### PRESENTATION AND DISCUSSION OF FINDINGS

#### 4.0 Introduction

This chapter presents the findings of the study which includes respondents' characteristics, potential of onion production, market potential and challenges in onion production. The number of onion producers interviewed was 71 while 49 were non onion producers as shown in Figure 4.1 below.

**Figure 4.1: Number of onion producers**



Source: Field data, 2013

#### 4.1 Respondents' Characteristics

##### 4.1.1 Age of Respondents

The analysis of respondents' age simply aimed at looking out the involvement of different age groups in onion production. This study showed that onion production is practised by all age groups however the majority (91.7 percent) of onion producers were within the age ranging from 15 to 65 years. Other onion producers with the age below 14 years comprise only 2.5 percent because most of them engaged in

schooling due to school going age they have. These findings are in contrast to the existing complaints that majority of youth and middle aged people do not prefer to participate in agriculture as their income generating activity. Findings revealed further that there is enough involvement of youth who can take responsibilities of onion production efficiently and effectively since they are active working group of the society. Therefore, onion production is a potential activity in reducing poverty. Table 4.1 below summarizes involvement of different age groups in onion production.

**Table 4.1: Age of the respondents**

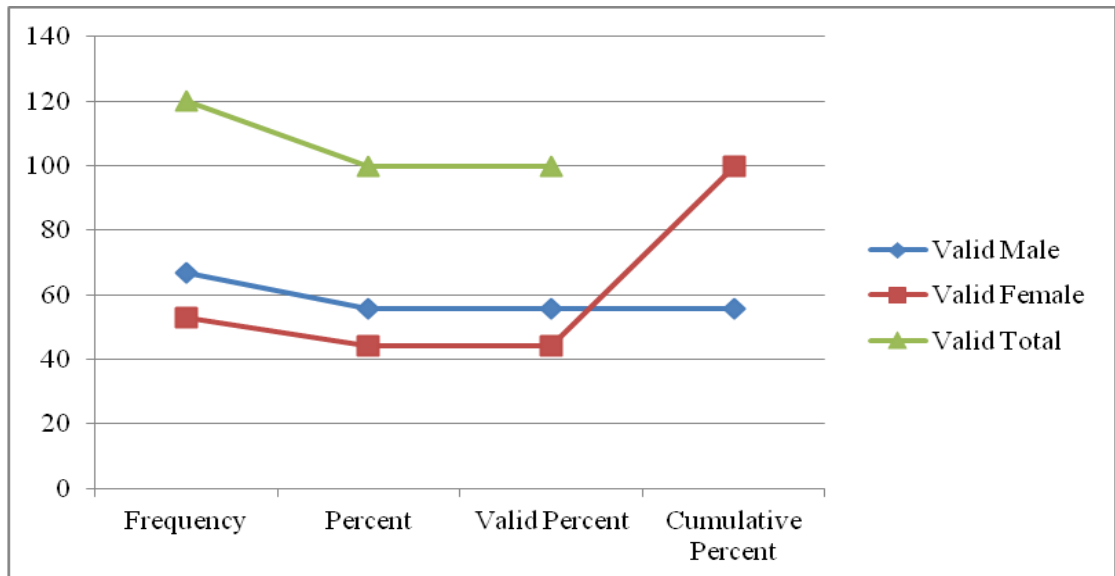
Respondents' age group		Frequency	Percent	Valid Percent	Cumulative Percent
Validity	Below 14 years	3	2.5	2.5	2.5
	Below 14 years	3	2.5	2.5	2.5
	Between 15 years and 49 years	74	91.7	91.7	94.2
	Above 65 years	7	5.8	5.8	100.0
	Total	120	100.0	100.0	

**Source: Field data, 2013**

#### **4.1.2: Sex of Respondents**

Figure 4.2 shows that 67 out of 120 respondents were males while 53 were females. Percentage wise males make 55.8 percent of the respondents while 44.2 percent of the sample size is females. This representation shows that women do not take part in decision making of what have produced though are actively involved in the production process.

**Figure 4.2: Sex of the Respondents**

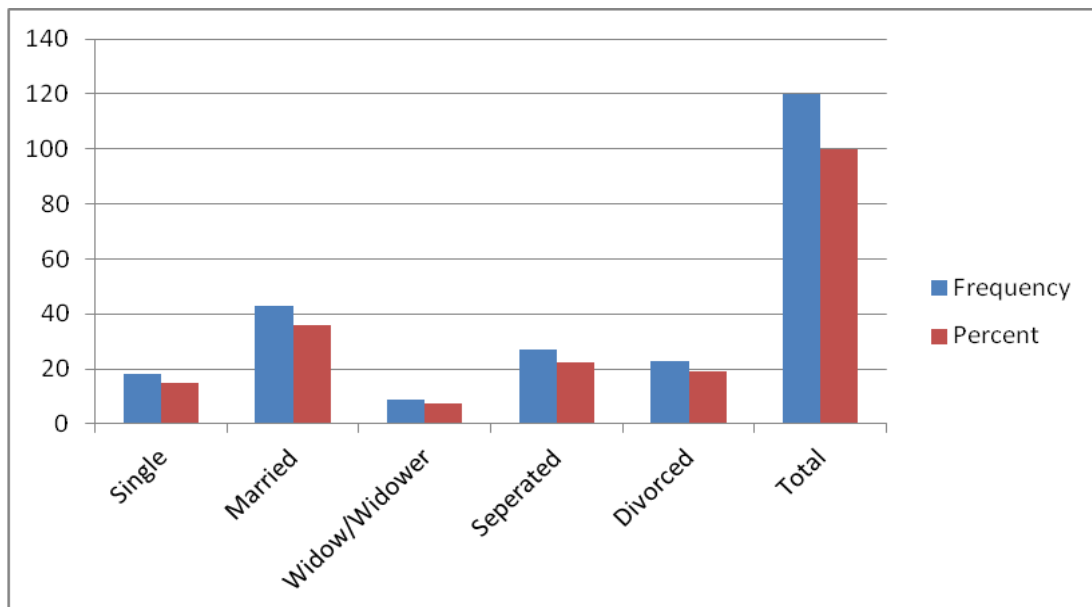


**Source: Field data, 2013**

#### **4.1.3: Marital Status of the Respondents**

Marriage condition of the respondents in the study area showed that widows, widowers separated and divorced make the proportion of 49.2 percent of the sample size while the married couples and single make 50.8 percent. This indicates that the relationship between the couples is poor hence affecting income generating activities among the people of the study area. Only 35.8 percent of the sample size is married. This is a sign of making family responsibilities to be undertaken by one parent causing children unable to get required duo parental care.

**Figure 4.3: Marital status of the respondents**

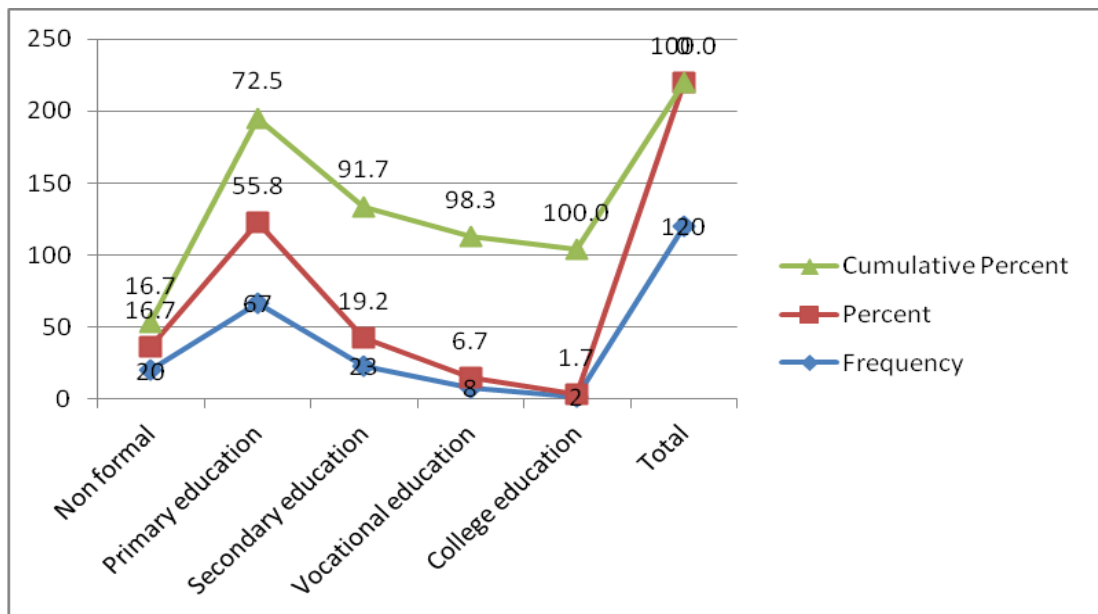


**Source: Field data, 2013**

#### **4.1.4 Education Level of the Respondents**

The aspect of education was considered important since lack of knowledge is a challenge to poverty reduction strategy. The level of education an individual person has may contribute to one's ability to reduce poverty. It was revealed that some of the respondents (16.7 percent) had non-formal education; this can make the learning environment bad as it can be difficult for them to receive new agricultural knowledge and skills. Others, 55.8 percent of the respondents have acquired primary education, 19.2 percent have secondary education and those with tertiary education make only 8.4 percent. This implies that a majority of the population do not go beyond primary education. Education level attained by the population can lead to positive or negative effects upon onion production hence contributing to poverty reduction in the study area. URT (2005), revealed that universal primary education, the eradication of illiteracy and the attainment of a level of tertiary education and training commensurate with a critical mass of high quality human resources required to effectively respond and master the development challenges at all levels. Figure 4.4 presents education level of respondents in the study area.

**Figure 4.4: Education level of the respondents**

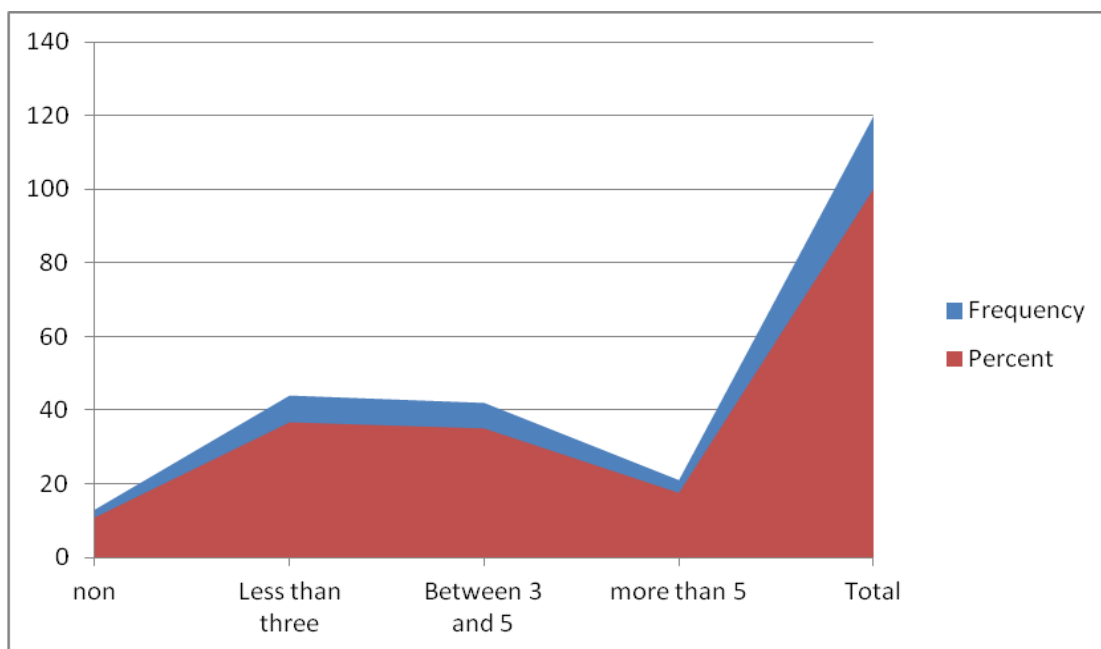


**Source: Field data, 2013**

#### 4.1.5 Number of Children/Dependants

The aspect of household size was considered as crucial in this study because large or small household size can have impact on the fight against poverty reduction. Family size of the respondents ranges between non to more than five children per respondent. This study showed that, 10.8 percent are single and have no children while 36.7 percent have less than three children. Households with children between three and five make 35.0 percent and 17.5 percent have more than five children. Average household size (persons in one household) in Tanzania is 4.8 while for Lindi Region household size is 3.8 (URT, 2012). This is supported by the UN (1999) report cited in Virola and Martinez (2007) which concluded that enabling people to have children helps to stimulate development and reduce poverty both in individual households and at the macro-economic level. The distribution of households' number of children is presented in Figure 4.5.

**Figure 4.5: Number of Children/Dependants**



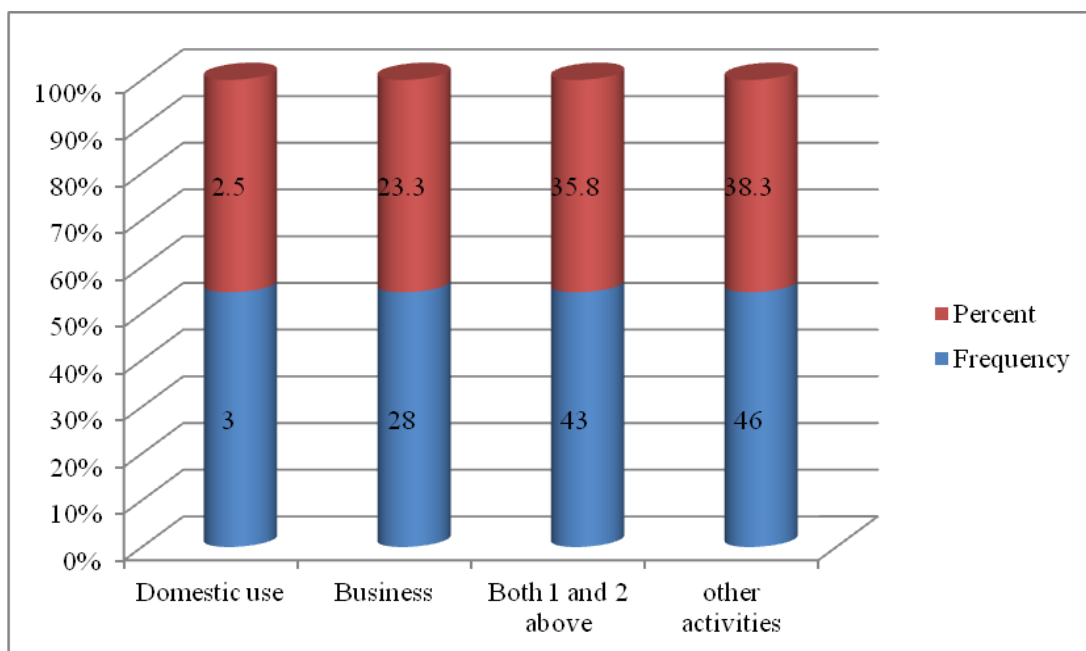
**Source: Field data, 2013**

## **4.2 Onion Production in the Region**

### **4.2.1 Purpose of Onion Production**

The production of onion is purposely for both selling and domestic consumption as it is shown in Figure 4.6 that only 2.5 percent of the respondents produce onions for domestic consumption only, where as 23.3 percent of the respondents produce onion for business. Devastatingly 35.8 percent of the respondents produce onions for both domestic consumption as well as business. This was also found by Anon (1991) who came up with a conclusion that onion production in Tanzania is mainly for local consumption.

**Figure 4.6: Purpose of onion production**

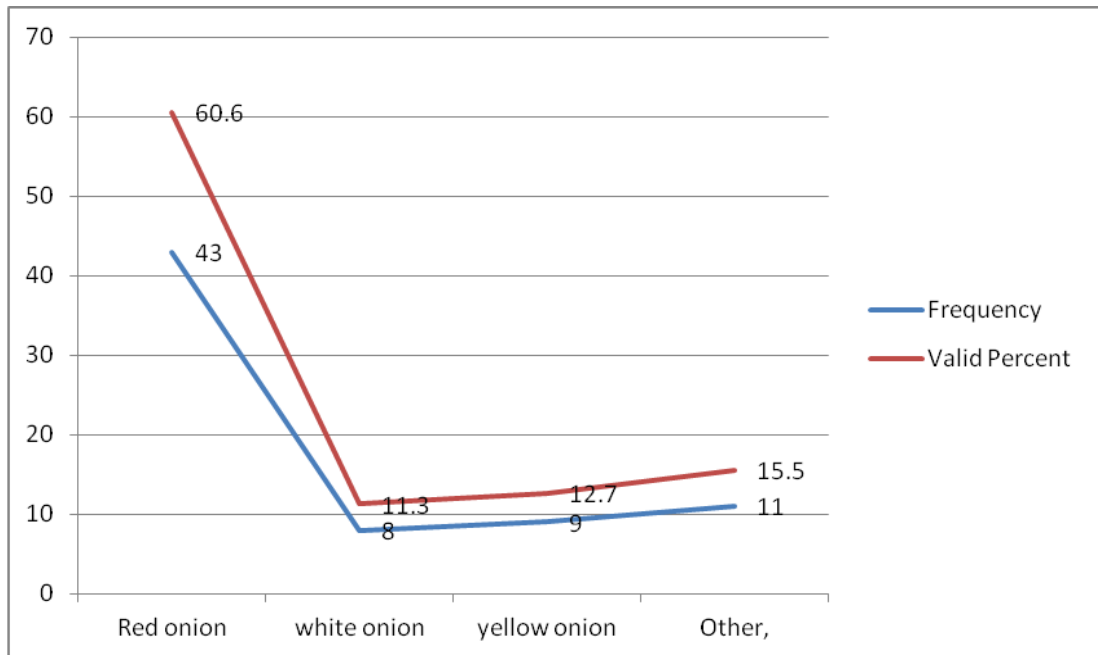


**Source: Field data, 2013**

#### **4.2.2: Types of Onion Produced**

This study found that there were three main types of onions grown in the study area. Findings as presented in Figure 4.7 showed that red onions are the ones grown by the majority of onion producers representing 60.6 percent. Other types' representation percent wise were: 11.3, 12.7, and 15.5 for white, yellow and other categories respectively.

**Figure 4.7: Type of onion produced**



**Source: Field Data, 2013**

#### **4.2.3: Trend of Onion Production in Ruangwa District**

The study showed that, there was rise and fall of onion production in the study area as indicated in Table 4.2. This trend was influenced by different factors such as market fluctuation, frequent climatic change and high prices of agricultural inputs as well as application of poor farming methods. This implies that there is no onion production consistence hence becoming difficult to reduce poverty in the study area.

**Table 4.2: Trend of onion production**

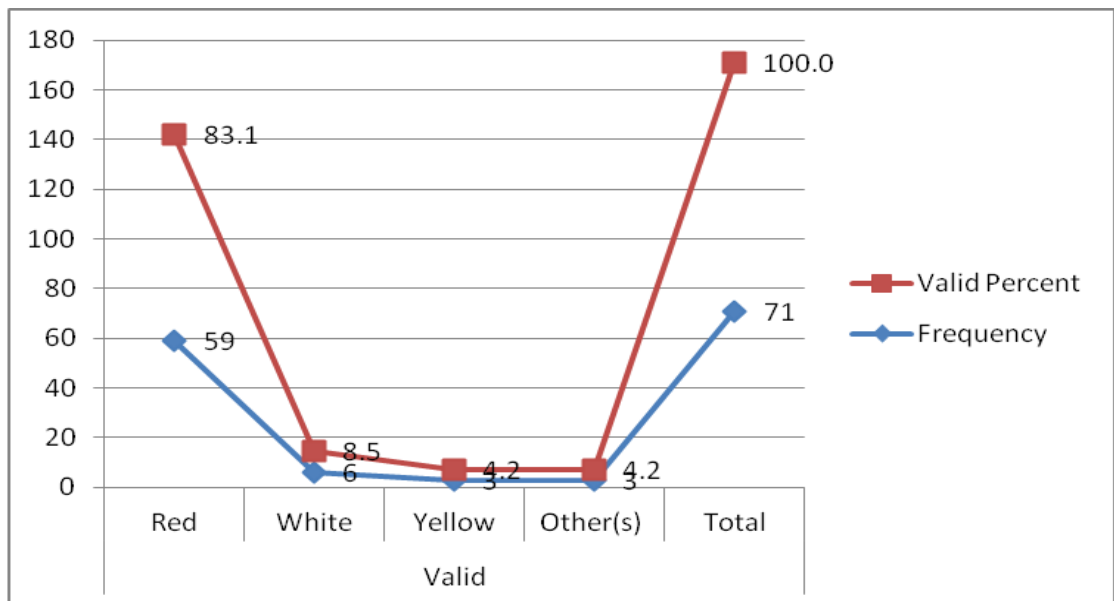
Year	Amount	Frequency	Percent
2008	less than 100kgs	20	28.2
	between 100 and 200kgs	30	42.3
	less than 500kgs	12	16.9
	more than 500kgs	9	12.7
2009	less than 100kgs	3	4.2
	between 100 and 200kgs	31	43.7
	less than 500kgs	28	39.4
	more than 500kgs	9	12.7
2010	less than 100kgs	12	16.9
	between 100 and 200kgs	22	31.0
	less than 500kgs	25	35.2
	more than 500kgs	12	16.9
2011	less than 100kgs	11	15.5
	between 100 and 200kgs	30	42.3
	less than 500kgs	26	36.6
	more than 500kgs	4	5.6
2012	less than 100kgs	10	14.1
	between 100 and 200kgs	17	23.9
	less than 500kgs	29	40.8
	more than 500kgs	15	21.1

**Source: Field data, 2013**

### **4.3 Market Potential**

Onion is one among the crops which has market in all over the world. As presented in Figure 4.8, findings showed that red onions are the ones having higher market value compared to other types of onions hence preferred by majority (83.1 percent) while others preferred by only 8.5 percent (white), 4.2 percent (yellow) and other types 4.2 percent. Red onions are preferred because of its flavour taste, durability and resistant to rot. Hoarding of stocks in anticipation of rise of price in the future enabled farmers to get good prices (Sharma, 2011). There are enough market opportunities for onions from Tanzania in eastern and southern regions and European markets with 50 percent of onions consumed in Kenya coming from Tanzania (FAO, 2007).

**Figure 4.8: Onions with higher market value**



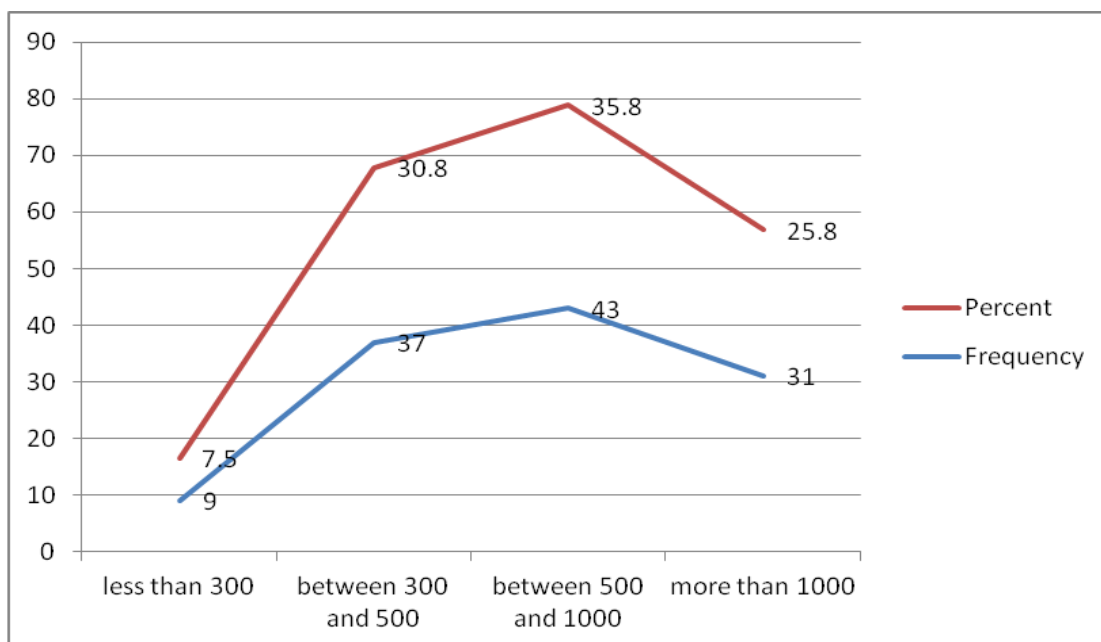
**Source: Field Data, 2013**

Despite of market potential of onions, the study found that marketing of onions in a study area is a challenge as explained in subsections 4.3.1 and 4.3.2 below.

#### **4.3.1: Prices of onions**

The study findings showed that; 7.5 percent of the respondents responded that prices of onions per kilogram was below 300 Tshs, while 30.8 percent showed prices to range between 300 Tshs and 500 Tshs, 35.8 percent showed prices to range between 500 Tshs and 1000 Tshs and 25.8 percent showed prices to be above 1000 Tshs. Detailed results are presented in Figure 4.9. These prices were found to be too small to enable farmers to meet their basic needs and farmers have no power to fix prices of their crops. Also production cost (including transportation cost and council levy) is high compared to selling price.

**Figure 4.9: Prices of onions from 2008 to 2013**

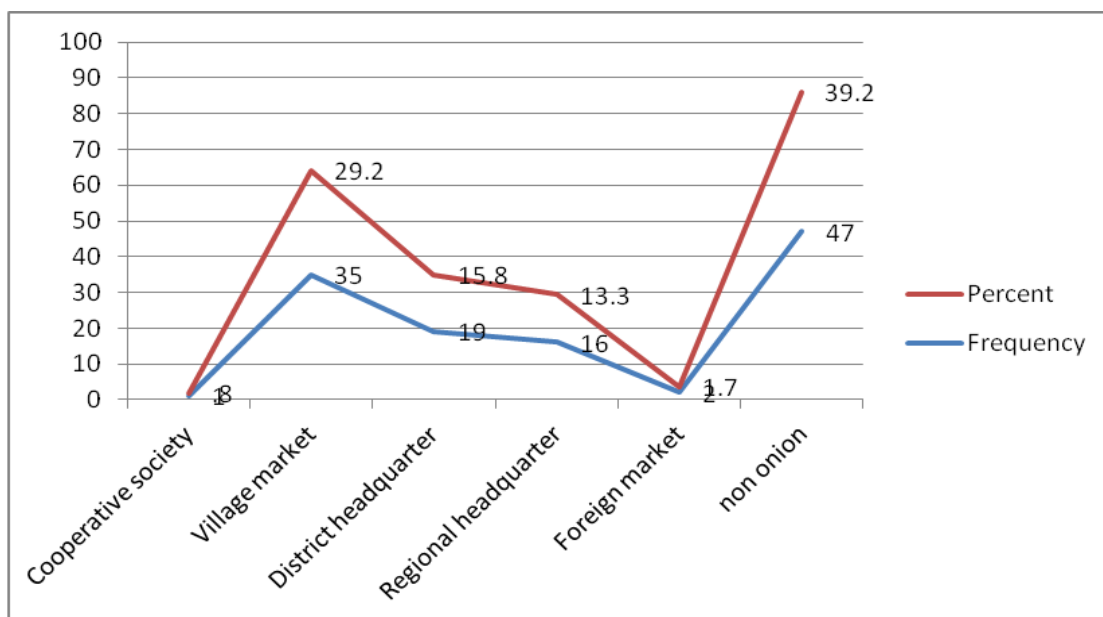


**Source: Field Data, 2013**

#### **4.3.2: Sales of onions**

Marketing of onions is a problem since there is no good market infrastructure in the study area. Figure 4.10 indicates that only 0.8 percent of the onion producers were able to sell their onion produce to the primary cooperative society the situation which creates a question on the existence, importance and operation of the primary cooperative societies. It also showed that 29.2 percent of onion producers sell their onion produce at the local village market, 15.8 percent managed to sell their onions at the district headquarter, 13.3 percent transport and sell their onions at the regional headquarter and only 1.7 percent was able to transport and sell onions at the export markets of Mozambique and Malawi. This revealed that there is low export as production is targeted mainly for domestic consumption (Mtaita and Msuya, 2006) despite of the opportunities available for external market. Most of onion producers have no ability to sell their produce in the outside market where at least they can get adequate prices and onion market is not reliable at all as a result middlemen enjoy this chance since they take the role of finding buyers. Therefore, there is a need to capacitate producers to utilize the available marketing opportunity.

**Figure 4.10: Where onion is sold**



**Source: Field data, 2013**

#### **4.4 Onion Production and Poverty Reduction**

This study has assessed the role of onion production to poverty reduction so as to know whether it was a potential crop for farmers to earn living and afford other life expenses. It involved showing the extent of poverty in the study area by using poverty indicators that is monetary and non monetary indicators such as health services, housing, transport and communication, education, water supply and income.

Findings showed that onion producers got benefits by being involved in the production of onions. As indicated in Table 4.3, benefits accrued from onion production include increase of income whereby 16.7 percent of onion producers showed that their income increased as a result of engaging in onion production, 14.2 percent managed to construct houses, 11.7 percent acquired fixed assets and 8.3 percent used income obtained from sale of onions to meet cost of health services. Similarly, 6.7 percent of the onion producers responded to get capitals which were

used by them to start small scale businesses while 1.7 percent managed to meet other unspecified costs of living.

**Table 4.3 Benefits accrued from onion production**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Income increase	20	16.7	28.2	28.2
	Construction of a house	17	14.2	23.9	52.1
	Ability to buy fixed assets	14	11.7	19.7	71.8
	To meet cost of health services	10	8.3	14.1	85.9
	To establish a business/to get capital	8	6.7	11.3	97.2
	Other(s)	2	1.7	2.8	100.0
	Total	71	59.2	100.0	
	Non onion producers	49	40.8		
Total	120	100.0			

**Source: Field data, 2013**

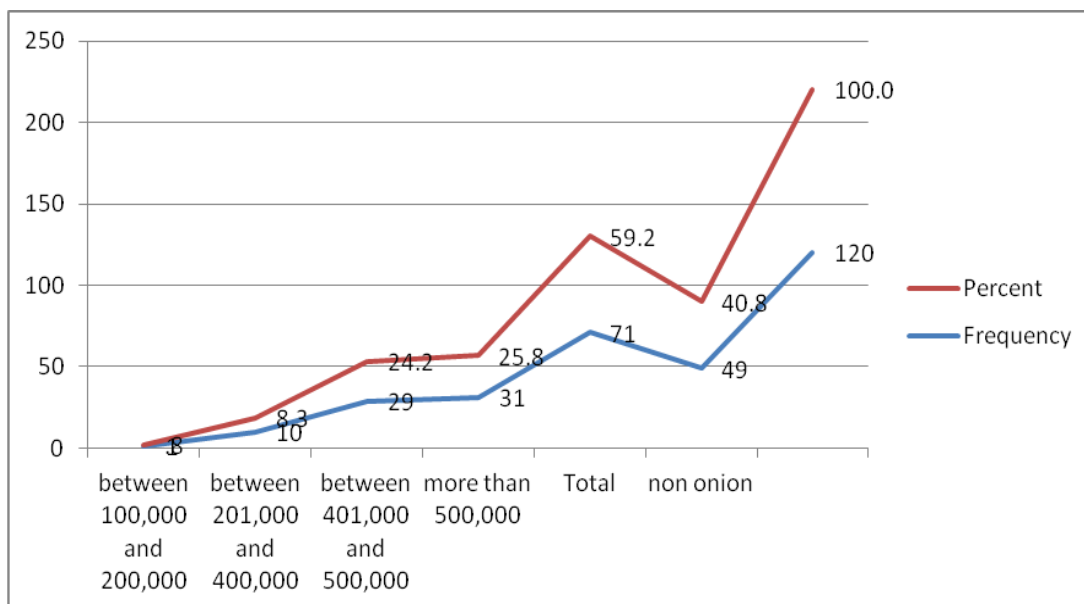
In comparison to onion production and other crops produced in the area, the study revealed that people are engaged in the production of other crops because they increase income, manage to meet costs of different basic needs because onion production is practiced for three to four months only in a year. This study conducted further assessment on income obtained and expenses afforded by farmers using income obtained from sale of onions.

#### **4.4.1: Income obtained from Sale of Onions**

This study showed that people in the study area earn their living through production of agricultural cash and non cash crops as presented in Figure 4.12. Findings on income obtained from sales of onions for the past five years showed that: 0.8 percent of the respondents got income below 200,000 Tanzanian shillings (Tshs), 8.3 percent got income between 201,000 and 400,000 Tshs, 24.2 percent earned between 401,000 and 500,000 Tshs, and 25.2 percent earned more than 500,000 Tshs. It was also found that 87.3 percent of onion producers got benefits from onion production

which enabled them to get daily necessities. Figure 4.11 presents income gained from sale of onions.

**Figure 4.11: Income obtained from sale of onions**



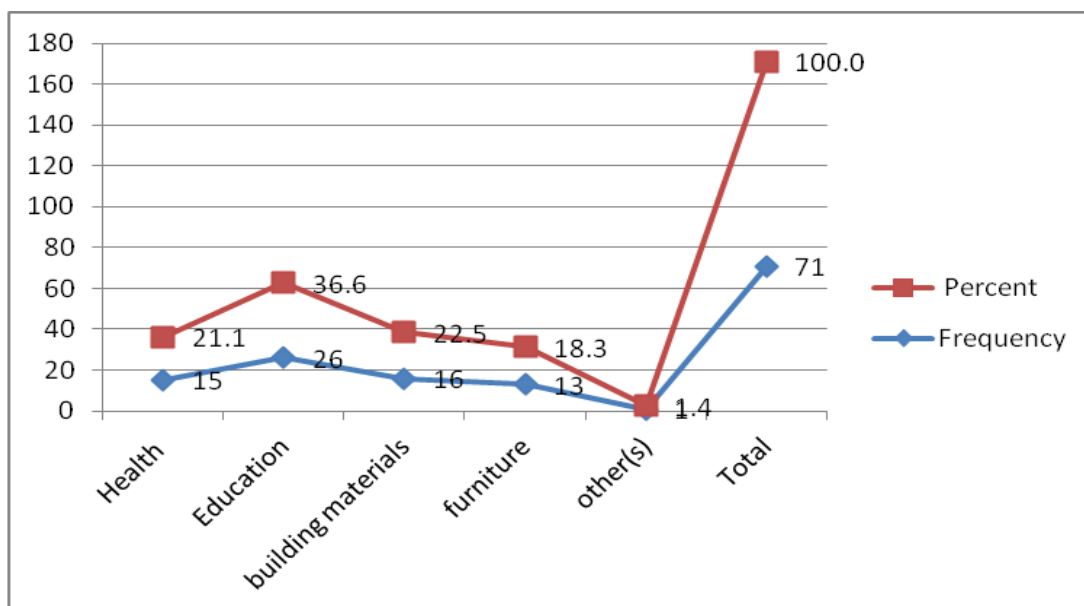
**Source: Field data, 2013**

This result indicates that onion production is a potential crop which contributes to poverty reduction in the study area. The potential of onion to poverty reduction was also revealed in the study of Ikram, *et al.* (2001) which found that onion production registered a significant contribution towards poverty reduction as it increases the income of the growers that would be a catalyst for reduction of poverty.

#### **4.4.2: Expenditure for Income obtained from Sale of Onions**

Few of the expenditure priorities for the income obtained through sale of onions were: health, education, purchase of building materials and furniture. This study showed that 21.1 percent spent their income for health, 36.6 percent spent for education, 22.5 percent for purchasing building materials, 18.3 percent was spent for acquisition of assets such as furniture and home appliance and other(s) uses 1.4 percent. The expenditure priorities are presented in Figure 4.12 below.

**Figure 4.12: Expenditure for income obtained from sale of onions**



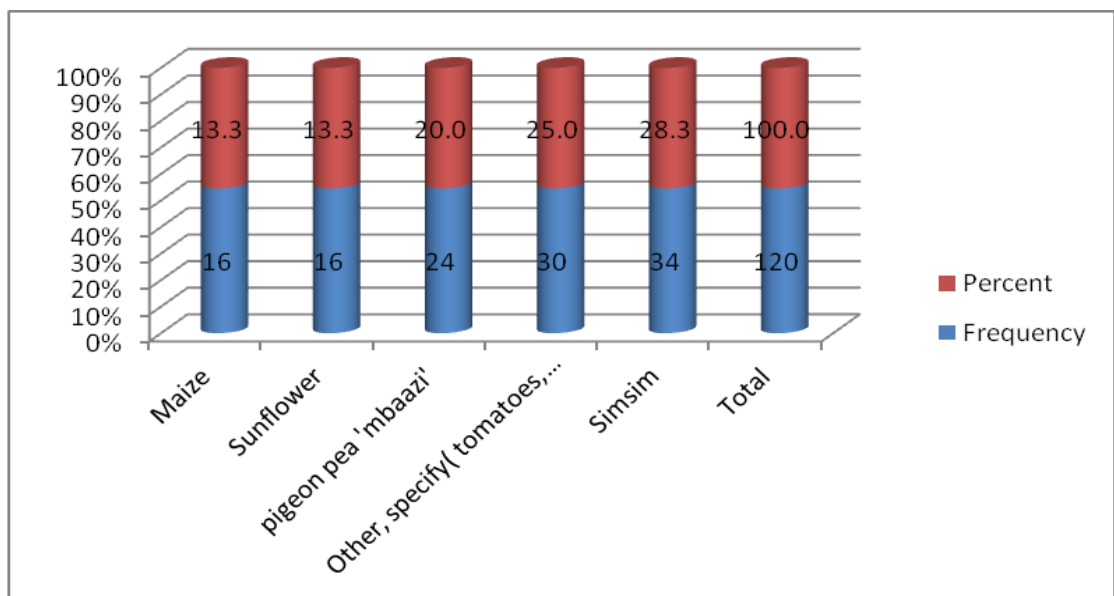
**Source: Field data, 2013**

Further assessment showed that, income obtained from sale of onions were more spent on education 22.5 percent followed by purchase of building materials 13.3 percent, health 12.5 percent, and acquisition of assets such as furniture and other home appliance 10.8 percent. Figure 4.12 shows detailed results on expenditure priority of income gained by onion producers. As presented in subsections 4.4.1 and 4.4.2, findings generally implied that onion production is a potential crop which contributes to poverty reduction in the district. The potential of onion to poverty reduction was also revealed in the study of Ikram, *et al.* (2001) which found that onion production registered a significant contribution towards poverty reduction as it increases the income of the growers that would be a catalyst for reduction of poverty.

Despite of this potentiality of onion production to the people in the area, poverty is still high since agriculture practiced is of small scale using hand hoe and depends on unreliable rains as presented in Figure 4.13. The study also revealed that people in the study area preferred to grow other crops such as simsim, sunflower, cashew nuts, maize, millet and cassava rather than onions. The reasons why they grow other crops

instead of onions are due to high cost of onion production and evacuating themselves from dependency on a single crop. These findings showed that 13.3 percent grow maize and sunflower each, pigeon pea is grown by 20.0 percent, simsim 28.3 percent while other crops (tomatoes, 'kunde', ground nuts, millet, cassava) are grown by 25.0 percent of farmers. Farmers grow different crops so as to curb the gap which might be caused by the failure of mono crop dependence due to problems such as drought and diseases.

**Figure 4.13: Other crops produced**



**Source: Field data, 2013**

#### **4.5: Challenges in Onion Production**

Onion production process is encountered by several problems with respect to existing macro policies or local conditions hence hindering smooth production of onions in the study area. These problems which are presented in Figure 4.14 include;

Low price caused by unpredictability of onion markets whereby 27.5 percent of the respondents identified it to be one of the problems facing them. Besides market unpredictability, 26.7 percent of respondents identified existence of impassable poor roads specifically during rainy season led to farmers' failure to transport onion

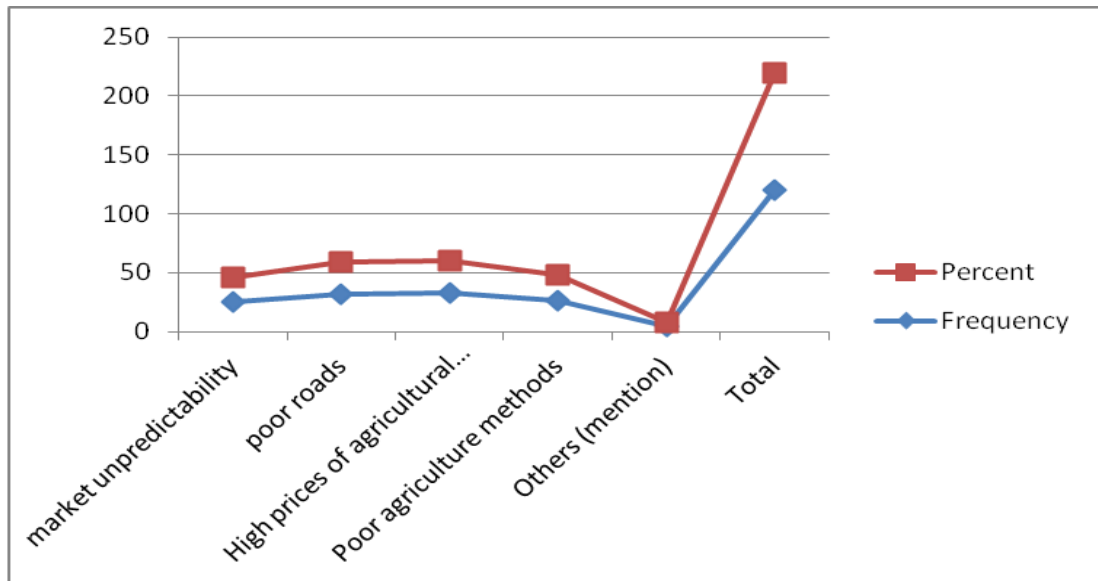
produce to the markets situated elsewhere as well as hindering onion buyers to enter the production areas.

High prices of agricultural inputs and unpredictable onion market were responded to it by 20.8 percent were also a barrier facing onion production in the study area. High prices of agricultural inputs are reinforced by market systems which make few dealers to take stake after meeting conditions imposed on them to get licenses.

However, 21.7 percent of respondents saw application of poor farming methods a problem. This is caused by the inability of onion producers to fail to adapt new knowledge and skills as a result of low level of education.

Finally, lack of storage facilities was another problem facing onion producers as most of them use local means to store onions. This was responded to it by 3.3percent showing that they were compelled to sell their onions soon after harvest hence getting low prices. Taj, *et al* (2009) in their study on Gender Dimensions of Labour Participation in Vegetable Farming System in District of Attock of Punjab found out that marketing of vegetable is very sensitive due to its perishability and sometimes farmers have to sell their produce on less prices in local markets due to less volume of produce and poor marketing infrastructure and uncertainty in the whole sale market.

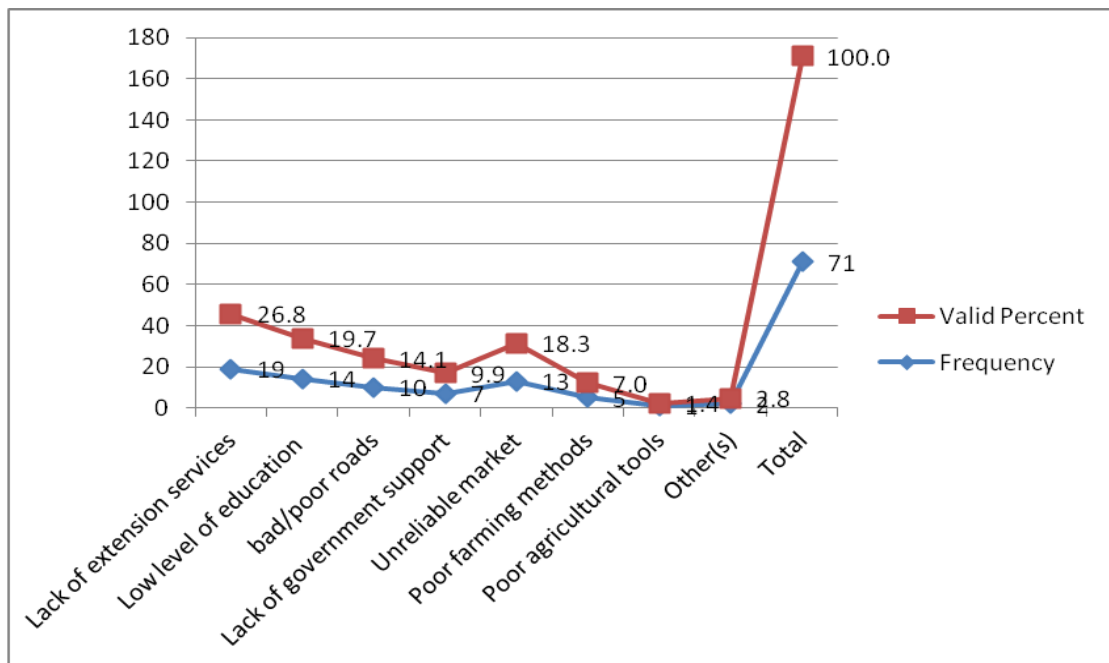
**Figure 4.14: Problems facing onion production**



**Source: Field data, 2013**

This study also showed that there are challenges facing onion producers as presented in Figure 4.15. Most of these challenges were related to policies infrastructures which were formulated and implemented by the government as shown in the following sub-sections.

**Figure 4.15: Challenges facing onion producers**



**Source: Field data, 2013**

#### **4.5.1: Lack of Extension Services**

Lack of extension services is one of the main challenges which face onion production in the study area (Figure 4.15). According to 3 ward extension officers, extension service is important to disseminate agricultural knowledge which makes them to adapt new agricultural skills hence improving their living standard. This study reveals that 23.3 percent agreed that lack of extension services was one of the challenges facing them since the three wards have 3 wards extension officers with no agricultural extension officers at village level. This is contrary to URT (1997) which directs every village to be served by one village agricultural extension officer and contended URT (2000) which required the government to deploy extension services to support the private sector in promoting growth and commercialisation of agriculture sector.

Further assessment on extension services was conducted to ward agricultural extension officer since it is contrary to the directives given through the agricultural and Livestock Policy (1997) which insists on the regular visits of extension officers

to farmers and livestock keepers. Findings showed that extension services were not offered regularly to farmers. Ward extension officers could not manage to visit all villages and the visits were conducted after every three months. This failure was due to lack of village agricultural extension officers, lack of fuel from the council headquarter, and the motorcycle used was too old such that it broke regularly. The problem of extension services was also revealed by District Agricultural and Livestock Officer who stated that it was difficult for extension officers to make regular visits to farmers in the villages due to budget constraint which makes them fail to provide extension officers with fuel and transport facilities like motorcycles.

#### **4.5.2: Low level of farmers' education**

Low level of education of farmers is another challenge which is encountered in the onion production as presented in Figure 4.15. Findings showed that 72.5 percent of the farmers had non-formal and primary education. Figure 4.3 showed that there is low level of education to the people in the study area. Low level of education leads to low productivity in production since it is difficult to adapt new skills and knowledge. Similar results was found by Oxaal (1997) who concluded that primary schooling helps to increase the productivity as well as increasing earnings of the peasant farmers and lack of it leads to low productivity hence existence of poverty

#### **4.5.3: Presence of Poor Roads**

There are poor roads in the study area which leads to high cost of transportation of agricultural produce to markets found far from the production area. This is justified by Mtatifikolo and Mabele (1999) in their study on Development Strategies and Poverty Reduction who found that areas with low rainfall, poor roads and long distance to markets have a high incidence of poverty as a result low productivity in agriculture.

The impact of transport was seen through the accessibility to areas with agricultural potential, provision of agricultural inputs and accessibility to markets. This is in line with the contention that transport reduces poverty by increasing economic efficiency and lowering operational costs and prices (www.ifrtd.org, 2003). Figure 4.15 reveals

that presence of poor roads is a challenge since it causes delay of onions to reach markets and leads to high cost of transportation of agricultural produce to markets found far from the production area. This was also found in IFAD (2003) which showed that impassable roads is a rural communities concern since it weakens the ability of producers to buy inputs and sell their crops as well as leading to high transportation costs hence high transaction costs. The same result was found by The World Bank (1994) cited in Mtatifikolo and Mabele (1999) that the existence of a dense rural road network is a necessary pre-condition to rural income growth and poverty reduction, otherwise poor roads and long distance to markets have a high incidence of poverty as a result low productivity in agriculture.

#### **4.5.4: Unavailability of Government Assistance**

The study revealed that inadequate government support from local government authorities as well as the central government to farmers is one of the challenges to 15.8 percent of farmers. It was found that the government do not offer subsidies to other crops beside maize and paddy. The same result was found by Cooksey (2012) who came up with the conclusion that fertilizer in Tanzania is used mainly on maize, tobacco and coffee as well as varying between regions the southern highlands big four regions consuming more.

#### **4.5.5: Lack of Reliable Market**

This study showed lack of reliable market as a challenge to 15.0 percent of farmers since it is a hindrance to the marketing and onion production process as a whole. Mtaita and Msuya (2006) pointed out that, lack of commercial marketing at villages has hindered farmers' interest to improve the management of onion, and encourage them to maintain subsistence level of technology and production.

#### **4.5.6: Application of Poor Farming Methods**

The study has revealed that application of poor farming methods is one among the challenges facing onion production to 11.7 percent of the farmers. Application of poor farming methods is caused by a number of factors such as lack of knowledge

and skills, inadequate provision of extension services, lack of enough extension officers at village and ward levels. This is supported by CUTS (2011) which revealed that Tanzanian farmers' still lack technical knowledge and adequate number of extension staff in most districts. Similarly, Kimaro, Mukandiwa and Mario (2010) showed that lack of agricultural extension services to build up the farmers' capacity leads to poor application of farming methods.

#### **4.5.7: Application of Poor Agricultural Tools**

Findings showed that 1.7 percent farmers showed that use of poor agricultural tools is a challenge facing onion producers in the study area. This causes producers to use long time when preparing the onion farms hence leading to low onion yields. Similarly, NCAER (1980) and Aggarwal (1983) cited in Verma (2002) in his work Impact of Agricultural Mechanization on Production, Productivity, Cropping Intensity Income Generation and Employment of Labour found that households owning tractors and those using tractors obtained higher yields than those who did not own tractors. It was found that farmers were unable to cultivate big farms using poor farming tools specifically hand hoe. Therefore they could not harvest enough produce to earn more to meet their daily needs.

#### **4.6 Suggestions to Improve Onion Production**

Respondents gave their views on the ways of improving onion production in the study area as well as Tanzania as a whole. Their areas of concern were on prices of agricultural inputs, condition of roads, primary cooperative societies, agricultural extension services, soft loans to farmers and other unspecified category. Reduction of prices of agricultural inputs was suggested by 21.7 percent of the respondents as a means of improving onion production.

Improvement of roads which are in a bad condition was seen by 18.3 percent of respondents as a way of assisting to improve onion production in the area. This is in line with the contention by URT (2003) that the impact of transport can be seen

through the accessibility to areas with agricultural potential, provision of inputs and accessibility to markets.

Moreover, 18.3 percent saw there is a need to improve existing primary cooperatives so that they can assist in the marketing process of not only onions but also all agricultural produce. Existence of strong cooperative societies will make farmers benefit as contended by Mwelukilwa (2001) in *The Role of Co-operatives Play in Poverty Reduction in Tanzania* that the role of cooperative societies is to provide effective support and marketing services to farmers' produce.

**Table 4.4: Suggestions to improve onion production**

	Frequency	Percent	Valid Percent	Cumulative Percent
Reduce prices of agricultural inputs	26	21.7	21.7	21.7
Improve roads	22	18.3	18.3	40.0
Improve primary cooperative societies	22	18.3	18.3	58.3
Improve extension services	23	19.2	19.2	77.5
Provide soft loans to farmers	23	19.2	19.2	96.7
Other	4	3.3	3.3	100.0
<b>Total</b>	<b>120</b>	<b>100.0</b>	<b>100.0</b>	

**Source: Field data, 2013**

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATION**

#### **5.1 Introduction**

This chapter introduces the summary, conclusion and policy implications of the study. It provides comments and strategies useful to improve onion production and how can onion production contribute to poverty reduction among rural population where onions are produced.

#### **5.2 Summary**

The analysis and discussion focused on the potentiality of onion production to poverty reduction. It looked on the following: respondents' characteristics (age, gender, marital status, education level of respondents and family size), purpose of onion production, type of onions produced, market prices of onions, income obtained from sale of onion and its expenditure priorities, benefits accrued from sale of onions, challenges and problems facing onion producers during the whole process of production chain i.e. from cultivation to sale of onions.

The findings showed that the majority of onion producers were male while women were seen to be few. All respondents had equal representation on the issue of marital status since only married has 35.8 percent while others like single, widow/widower, divorced their representation is below 25.0 percent of the respondents. Majority of respondents' family size ranges between three and five children/dependants. Age of the majority of the respondents is between 15 years and 49 years which is the working force. Most of the respondents had informal and primary education while respondents with secondary education and post secondary education were few.

The findings also showed that 71 respondents are onion producers and 49 are non onion producers. It was found that all respondents (onion and non onion producers) were engaged in production of other crops like simsim, maize, tomatoes, cashew nuts and pigeon pea. Majority of onion producers were producing mainly for both

domestic consumption as well as business. The findings showed that 60.6 percent of the onion producers preferred to produce red onions compared to other types.

Respondents had reasons of approximately equal weight on the cause of rising or declining of onion production in the study area. Findings on the rise and fall of onion production showed that 20.8 percent of the respondents see unpredictability of market, 26.7 percent climatic changes, high prices of agricultural inputs 27.5 percent, application of poor farming methods, 21.7 percent and other reasons 3.3 percent. Findings showed that prices for the past five years (2008 – 2012) range between Tanzanian shillings 300 and 1000 per kilogram while income obtained from sale of onions for the same period range between Tanzanian shillings 100,000 and 500,000 with 56.9 percent onion producers respondents while 43.1 percent responded to get more than 500,000 Tanzanian shillings.

On the other hand expenditure priorities of the respondents were on health services, education, purchase of building materials and purchase of household assets. Findings also showed that there were social and economic benefits accrued by respondents engaging in onion production. This is justified by 29.2 percent of onion producers respondents agreed to increase their income, 23.6 percent managed to build houses, 19.4 percent acquired fixed assets like land, 13.9 percent paid for the cost of health services for their families, 11.1 percent established businesses and 19.7 percent acquired domestic furniture.

Findings have also shown that onions produced are sold locally at the village market with 47.9 percent respondents selling their onions there, while 26.0 percent and 21.9 percent sold their onion produce at district and regional headquarters respectively. There is also small market share of 1.4 percent selling their produce at the primary cooperative society and 2.7 percent export their onions the neighbouring countries. Moreover, the study has shown that onion producers are facing various challenges during onion production. These challenges are; lack of extension services, low level of farmers' education, presence of poor roads, lack of government support to

farmers, unreliable market, application of poor farming methods as well as application of poor agricultural tools. About 23.3 percent of the respondents showed lack of extension services as one of challenges facing onion producers, while 18.3 percent saw low level of farmers' education as a challenge to them, poor conditions of roads in the study area were responded to by 14.2 percent of respondents as a challenge. Likewise, about 15.0 percent, 15.0 percent, 10.8 percent and 1.7 percent saw lack of government assistance, unreliable markets, application of poor farming methods and use of poor agricultural tools respectively as challenges facing onion producers in the study area.

Regarding problems facing onion producers in the study area, study findings has shown that 31.5 percent see low prices of onions as a problem to them, 31.5 percent presence of poor roads, hiked cost of transport was responded to it by 21.9 percent of the respondents, 13.7 percent had the opinion that unpredictable markets as the problems facing onion producers. Besides these problems 1.4 percent of respondents saw that apart from these mentioned problems there are other problems which face onion producers.

The study has found that if the following conditions are worked on properly then onion production could improve. These conditions include; reducing prices of agricultural inputs, make sure that roads are improved, restructure and improve status of primary cooperative societies, provision of extension services to farmers and loans to farmers.

### **5.3 Conclusion**

The findings and analysis have shown that onion production contributes to poverty reduction in the study area. This was revealed through income obtained from sale of onions and the ability of respondents to meet various costs such as health services, education, and construction of modern houses and acquisition of furniture. Despite of these benefits, there were problems facing the onion producers which include unstable market, high prices of agricultural inputs, application of poor farming

methods, lack of adequate market for the produced onions, inaccessible roads to transport onion produce to neighbour districts and regions looking for customers. When onion is purchased in the villages, traders pay low prices which do not match with the production costs carried by farmers during production.

### **5.3 Recommendations**

In view of the major findings and the above conclusions, the following recommendations were made in order to promote onion production and catalyze its contributions to poverty reduction to the three wards of Likunja, Nkowe and Mnacho and other onion producing areas.

The government has to create a conducive environment that encourages existence of reliable onion markets. This can attract fair prices of onions produced hence enabling production increase.

Improve the quality of roads so as to allow smooth transportation of onions and agricultural inputs. Improved roads can capacitate onion producers to enjoy economies of scale since prices of agricultural inputs will be attained at low prices and onions will be produced at low costs.

Provide credits and loans from micro finance institutions at conditions which do not harm the farmers so as to increase production. Availability of credits and loans will assist to stimulate agricultural activities in the study area and a country as a whole.

District authority should make sure that all agricultural produce are sold at authorized markets within the production areas. This will improve revenue collection for the district council hence improving socio- economic services provided by the council.

The government should make sure that villages are allocated with agricultural extension officers who will provide extension services to farmers hence eliminating the problem of application of poor farming methods thereby increase production.

Here the government should ensure that extension officers are employed and the council properly allocate them to villages. These extension officers will instil knowledge and skills to farmers to improve their farming methods.

Decision to reduce prices of agricultural inputs, improve quality of roads, strengthen primary cooperatives, and improve delivery of agricultural extension services and provision of soft loans to small scale farmers is a major step towards poverty reduction to the people who depend entirely on agriculture.

#### **5.4 Areas for further research**

The findings of this study have raised theoretical and methodological questions that need further investigation. To this end, the following areas for further research are recommended. Since the study has dealt with potentiality of onion production towards poverty reduction, there is a need to focus on other horticultural crops such as tomatoes and vegetables. The study covered a small area namely three wards of Likunja, Nkowe and Mnacho both of Ruangwa District, therefore, there is a need of similar studies to be conducted for the whole district and elsewhere in Tanzania.

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## APPENDICES

### *Appendix I: Questionnaire for households*

1. Village name: .....
2. Respondent's name (*if wishes*): .....
3. Sex:            1. Male [ ]    2. Female [ ]
4. Age: (In years).....

5. Marital status (tick appropriately)

1. Single        [ ]
2. Married      [ ]
3. Widow/widower [ ]
4. Separated    [ ]
5. Divorced     [ ]

6. Educational level (*tick appropriately*)

1. Non formal education [ ]
2. Primary education [ ]
3. Secondary education [ ]
4. Vocational education [ ]
5. College [ ]

7. What are the number of children/dependants and their education level and/or what economic activities are engaged in your household?

Number of Children	Level of education (Primary, Secondary, College, Non formal)	Socio-economic activity
1		
2		
3		
4		

8. Do you produce onions?

- 1. Yes [ ]
- 2. No [ ]

9. If yes, for what purpose?

- 1. Consumption [ ]
- 2. Business [ ]
- 3. Both 1 and 2 above [ ]

10. If no, what other crops do you produce?

- 1. Maize [ ]
- 2. Simsim [ ]
- 3. Sunflower [ ]
- 4. Pigeon peas [ ]
- 5. Other (mention).....

11. What type of onion do you produce?

- 1. Red onion [ ]
- 2. White onion [ ]
- 3. Yellow onion [ ]
- 4. Other [ ] Mention.....

12. What amount have you harvested for the past five years in kilograms?

Year	2008	2009	2010	2011	2012
Kilograms					

13. What do you think is the reason(s) for the rise or fall of onion production? (You can select more than 1 answer)

- 1. Market fluctuation [ ]
- 2. Climatic change [ ]
- 3. High prices of agricultural inputs (fertilizers, pesticides, labour [ ]
- 4. Poor farming methods [ ]
- 5. Others (Specify).....

14. What are the average prices of onions you have produced for the past five years per kilogram?

Year	2008	2009	2010	2011	2012
Price per kg (Tshs)					

15. What is the amount of income obtained from sales of onions for the past five years?

Year	2008	2009	2010	2011	2012
Amount(Tshs)					

16. What type of onion has a larger market share compared to the other and why?

Type	Reason(s) for its larger market share
	1.
	2.
	3.
	4.

17. What is your expenditure on the following per year? (Indicate in Tanzanian shillings)

No	Type of service	Amount spent in shilling	Is it affordable/not affordable
1	Health facilities		
2.	Education/ School fees		
3	Housing/building materials		
4	Assets possessed		

18. What are the social and economic benefits achieved due to income obtained from onion production? (*Tick appropriately*)

1. Income increase [ ]
2. Construction of a house [ ]
3. Ability to purchase assets [ ]
4. Access to health services [ ]
5. Establishment of trade/capital [ ]
6. Other [ ]. State.....

19. Where do you sale your produce? (*You may select more than one*)

1. Cooperative society [ ]
2. Local village market [ ]
3. District headquarters [ ]
4. Regional headquarters [ ]
5. Export/ foreign market [ ]

20. Are there any marketing problems/difficulties you face during selling of onions? (*You may select more than one*)

1. Low price [ ]
2. Bad/ poor roads [ ]
3. High transport cost [ ]
4. Market instability [ ]
5. Other(s). Mention.....

21. Which problems do you face in the production of onions? (*You may select more than one*)

1. Lack of extension services [ ]
2. Low level of farmers education [ ]
3. Existence of poor roads [ ]
4. Lack of government support [ ]
5. Lack of adequate markets [ ]

6. Poor farming methods [ ]

7. Absence or poor agricultural tools [ ]

8. Other [ ] Specify.....

22. What is your opinion in order to improve onion production?

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**Thank you for your cooperation**

**Appendix II: Questionnaire for Ward Agricultural Extension Officer**

1. Ward.....
2. Respondent's name (if wishes).....
3. Sex 1. Male [ ] 2. Female [ ]
4. Age.....
5. Educational level
  1. Ordinary secondary level [ ]
  2. Advanced secondary level [ ]
  3. Certificate [ ]
  4. Diploma [ ]
  5. Degree [ ]
  
6. What type(s) of onion is produced in your ward?
  1. Red [ ]
  2. White [ ]
  3. Yellow [ ]
  4. Other (Mention).....
  
7. Which type of onion is highly favoured by the soil and environmental condition of the ward?
  1. Red [ ]
  2. White [ ]
  3. Yellow [ ]
  4. Other. (Mention).....
  
8. Which type of onion is of high quality?
  1. Red [ ]
  2. White [ ]
  3. Yellow [ ]
  4. Other (Mention).....

9. How often do you visit your farmers in the ward?

- 1. Daily
- 2. Once per week
- 3. Twice a week
- 4. Once per month
- 5. After three months
- 6. Twice a year
- 7. Once a year
- 8. Non

10. What is the trend of onion produced for the past five years in the ward?

Year	2008	2009	2010	2011	2012
Kilograms					

11. Is the trend of onion production rising or falling?

- 1. Rising
- 2. Falling

12 (a). If rising, what are the reasons?

- 1. Market stability
- 2. Application of modern farming methods
- 3. Reasonable prices of onions
- 4. Climate
- 5. Government support

12 (b). If falling, what are the reasons?

- 1. Market instability
- 2. Application of poor farming methods
- 3. Bad climate
- 4. Low prices of onions
- 5. Lack of government support

6. High prices of agricultural inputs

7. Other. Specify.....

13. What are the prices of onions for the past five years per kilogram in the ward?

Year	2008	2009	2010	2011	2012
Price (Tshs)					
Price Grade					

Use these to indicate price grades: VL= Very Low; L= Low; R= Reasonable, H= High, VH= Very High

14. Where do you sale onions produced in the ward?

1. Cooperative Society

2. Village Market

3. District headquarters

4. Regional headquarters

5. Foreign market

6. Other (Specify).....

15. What is the total income obtained from sales of onions for the past five years in your ward?

Year	2008	2009	2010	2011	2012
Amount (Tshs)					

16. What are the expenditure priorities among the onion producers in your village?

1. Health services

2. Expenses on education

3. Building materials

4. Travelling

5. Clothing

6. Others [ ]

17. What problems do farmers face in the production of onions?

- 1. Lack of extension services [ ]
- 2. Low level of farmers education [ ]
- 3. Lack of government support [ ]
- 4. Existence of bad roads [ ]
- 5. Lack of adequate markets [ ]
- 6. Poor farming methods [ ]

18(a). Are there any problems facing farmers while selling onions?

- 1. Yes [ ] 2. No [ ]

18(b). If yes, what are the reasons?

- 1. Low prices [ ]
- 2. Unstable market [ ]
- 3. Poor roads [ ]
- 4. High transportation cost [ ]
- 5. Absence of markets [ ]
- 6. Absence of standard weighing scale [ ]
- 7. Low quality of onions [ ]
- 8. Other (Specify).....

19. Is there any plan(s) of the ward to solve the problems affecting onion production?

Mention.....  
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20. What problems do you face in delivering extension services to farmers?

- 1. Lack of transport facility [ ]
- 2. Low level of farmers education [ ]
- 3. Inadequate support from the district agricultural officer [ ]
- 4. No budget for extension officer [ ]
- 5. Other (Specify).....

21. What is your opinion on the contribution of onion production toward poverty reduction among the people of your ward?

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**Thank you for your cooperation**

### Appendix III: Questionnaire for Ward Executive Officer

1. Ward.....
2. Respondent's name (if wishes).....
3. Sex: 1. Male [ ] 2. Female [ ]
4. Age (in years).....
5. Educational level
  1. Primary level [ ]
  2. Ordinary secondary level [ ]
  3. Advanced secondary level [ ]
  4. College certificate [ ]
  5. Ordinary Diploma [ ]
  6. Degree [ ]

6. What is the amount of onion produced in the ward for the past five years (*indicate in kilograms*)

Year	2008	2009	2010	2011	2012
Kilograms					

7. What is the total income obtained from sales of onions for the past five years in the ward?

Year	2008	2009	2010	2011	2012
Amount(Tshs)					

8. Where are the onions produced in your ward sold?

1. Cooperative society [ ]
2. Local village market [ ]
3. District head quarter [ ]
4. Regional head quarter [ ]
5. Foreign market [ ]

9. What problems do farmers face during the production of onions?

- 1. Lack of extension services [ ]
- 2. Low level of farmers' education [ ]
- 3. Lack of government support [ ]
- 4. Existence of bad roads [ ]
- 5. Lack of adequate markets [ ]
- 6. Poor farming methods [ ]

10. Are there any initiatives for solving the problems facing onion producers in your ward? *(If any, mention them)*

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11. What is your opinion on the contribution of onions towards poverty reduction among the people in your ward?

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**Thank you for your cooperation**

**Appendix IV: Questionnaire for District Agricultural and Livestock Officer**

1. Respondent's name (if wishes).....

2. Sex: 1. Male [ ] 2. Female [ ]

3. Age (in years).....

4. Educational level

1. Ordinary [ ]

2. Diploma [ ]

3. Degree [ ]

5. What is the amount of onion produced in the district for the past five years

*(indicate in kilograms)*

Year	2008	2009	2010	2011	2012
Kilograms					

6. What is the total income obtained from sales of onions for the past five years in the district?

Year	2008	2009	2010	2011	2012
Amount(Tshs)					

7. Where does onions produced in your district sold?

1. Cooperative society [ ]

2. Local village market [ ]

3. District head quarter [ ]

4. Regional head quarter [ ]

5. Foreign market [ ]

6. Others. Mention.....

8. What problems do farmers face during the production of onions?

1. Lack of extension services [ ]

2. Low level of farmers' education [ ]

3. Lack of government support [ ]

- 4. Existence of bad roads [ ]
- 5. Lack of adequate markets [ ]
- 6. Poor farming methods [ ]

9. What initiatives have been taken to improve onion production in the district?

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10. What is your general opinion on the contribution of onions towards poverty reduction among the people in the district?

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**Thank you for your cooperation**