

**VEGETABLE PRODUCTION AND HOUSEHOLD POVERTY  
REDUCTION IN LUDEWA DISTRICT**

**By  
Faraja Mlelwa**

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

**2013**

**VEGETABLE PRODUCTION AND HOUSEHOLD POVERTY  
REDUCTION IN LUDEWA DISTRICT**

## CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled **Vegetable Production and Household Poverty Reduction in Ludewa District** in partial/fulfillment of the requirements for award of the degree of Master of Science in Development Policy of Mzumbe University.

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DIRECTOR, INSTITUTE OF DEVELOPMENT STUDIES

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## **DEDICATION**

I dedicate this dissertation to my lovely Mum Eva Tusekile and my late Father Timothy Mlelwa. Who laid the foundation of my education. I also dedicate this work to all my friends their presence and prayers have been the foundation and provided immense powers to this dissertation

## ABBREVIATIONS

CTA	Centre for Technical Agriculture
DFID	Department for International Development
DP	Development Policy
EU	European Commission
FAO	Food and Agriculture Organisation
HBS	Household Budget Survey
HDI	Human Development Index
HH	House Hold
IFAD	International Fund for Agricultural Development
MSc	Master of Science
NSGRP	National Strategy for Growth and Reduction of Poverty
OECD	Organisation for Economic Co-operation and Developments
SPSS	Statistical Package for Social science
TZS	Tanzania Shilling
UNDP	United Nations Development Program
WHO	World Health Organisation

## **ABSTRACT**

This study examines the contribution of vegetable production to household poverty reduction. It was conducted in Njombe region, using Ludewa District as a case in point. Specifically, the study intended to: identify types and quantity of vegetable grown in the study area, establish the contribution of vegetable production to household income, compare income from agricultural activities (i.e. farming) with income from vegetable and non vegetable farmers. It was to find out the effects of vegetable production on income poverty in the district. Simple random and purposive sampling techniques were used to get a total of 70 respondents. Data were collected through questionnaires, semi-structured interviews and checklists. Both qualitative and quantitative methods were used to analyze data.

The results of the study showed that, vegetable production contributes to the increase in the income of vegetable producers (smallholder farmers). On the side of non-income poverty, there is increase in quantity of vegetable production, increase in food security, as well as improvement in access and affordability of health and education services. Thus, this study has established that there is significant contribution of vegetable production to household income, hence poverty reduction. It can be concluded that there is huge potential in using horticulture for poverty reduction.

To make horticulture activities sustainable, it is recommended that, there must be deliberate efforts in improving access to land by legally allocating special area for horticulture. Since most of the farmers are found in rural areas there is a need to improve infrastructure for easier rural transport.

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## **CHAPTER ONE**

### **1.0 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**

Since the 'Green Revolution' was initiated in the 1950s, vastly more resources have been channeled into the development and improvement of cereal grains compared to horticultural crops. As a result, productivity increases in horticultural crops have been much smaller as compared to rice, wheat or maize.

Yet, farmers all over the world find it profitable to diversify into horticultural crops, and worldwide production of horticultural crops has grown faster than that of cereal crops, albeit from a much lower base. , the area under horticultural crops worldwide has more than doubled. The increases in total volumes of fruits and vegetables traded worldwide have been dramatic and the total value of horticultural crops traded at present is more than double that of cereal crops. Although the supply of fruits and vegetables has increased continuously on a global scale, much of this growth has been concentrated in Latin America and China.

In Sub- Saharan Africa there has seen virtually no increase over the past 40 years. Such low levels of fruit and vegetable consumption in some parts of the Africa have devastating health effects. It is estimated that insufficient fruit and vegetable intake causes some 1.7 million deaths each year, making it one of the top ten risk factors contributing to mortality.

Apparently, due to the limited attention that public research institutions have given to horticultural crops, yield increases in cereals have outstripped yield increases in horticultural crops.

Nevertheless, the expansion of horticultural crops has exceeded that of rice, wheat and maize throughout Africa. The share of area under horticultural production is increasing in all regions and globally now stands at 6.7%. The expansion of horticultural production has been most impressive in South Africa, where nearly 20% of all arable land is currently under fruit and vegetable production (Keller, 2004).

In Tanzania, for instance farmers involved in horticultural production usually earn much higher farm incomes as compared to cereal producers. For farmers of Ilula in Iringa region who produce tomatoes, and of Mang'ola Karatu in Arusha region who produce onions, simultaneous cultivation of fruits and vegetables allows productive employment where the labour/ land ratio is high, since horticultural production is usually labour intensive.

Increasing horticultural production contributes to commercialization of the rural economy and creates many off-farm jobs. However, expanding the scale of horticultural production is often hindered by lack of market access, market information, and many gender problems. Still demand for horticultural produce is rising, both in domestic and national markets (FAO and WHO, 2001).

Vegetables are very important component of the diet of most Tanzanians as well as an important cash crop for many small scale farmers. Vegetable production is found in virtually every part of the country. In most areas vegetable production and consumption are expanding rapidly. This is especially so in regions with rapidly expanding populations, resulting in large amounts of land near urban centers being devoted to vegetable production.

Meela (1998) reported that in the southern highlands of Tanzania, vegetables form the bulk of non-traditional crops sold in local markets and have contributed significantly to food security and farmers' income.

Studies done by Susana in 2002 showed that yields of the five vegetables, namely, amaranthus, okra, tomato, sweet potato leaves, sweet pepper and collarb, tested under

organic farming in Mkuranga district, increased significantly and thus could have significant effect on overall income of producers as farmers were able to earn 7620/= Tzs per week from vegetable sales. On the other hand, in the past years, coconut used to play an important role in food security and household income generation in Mkuranga district.

However, since late 1990's the situation has changed drastically because of coconut lethal disease. The impact of the disease is more significant in Sotele and Kitomondo villages. Studies done in Mkuranga district showed that farmer's income from coconut has declined from 1,200,000 to 60,000 Tzs per year for well-off farmers and to as low as 30,000 Tzs among poor farmers (Mwinjaka et al., 2002).

Dependence on coconut as a source of cash has shifted to other crops like cashew nuts, oil palm, mangoes and pineapples. However, women farmers who are poor in resource resorted to faster growing and rewarding crops like vegetables. Traditionally vegetables are considered as women's crop and family food in this district. Production has been subsistence in nature, using no fertilizers but limited technology. Hence production and productivity of vegetables has been low and could not meet household's demands. Use of farm inputs such as fertilizer was limited because of the low income of the households and the high cost of inputs

One of the major development problems facing the world today is growing phenomenon of poverty(Peralta, 2003). It is estimated that over 1.3 billion people live on less than one dollar per day, and one billion people cannot meet basic requirements (Peralta, 2003). Furthermore, 315 million people (one in every two people) in Sub Saharan Africa survive on less than one dollar per day and 184 million people (33% of the African population) suffer from malnutrition (UNDP, 2002).

In Tanzania the situation is worse, as 50% of Tanzanians are considered to be basically poor with approximately one third of people living in abject poverty (URT, 2000). According to the Household Budget Survey (HBS) of 2000/2001, the proportion of the

population below the national food poverty line is 18.9 % and that below the national basic needs poverty line is 35.7%. Indicators of income poverty also show growing disparities between urban and rural population, as well as across and within regions and districts; the urban poor constitute about 13% compared to 87 % in rural areas (URT, 2003).

Ludewa District in Njombe region is among conducive areas where the smallholder farmers engage in production of vegetables. It is estimated that more than 10% of vegetables produced here are transported to different areas including Mbeya regional market and Iringa. Smallholder farmers in Ludewa District are being faced by problems, some of these have been targeted for solution by the District Council for instance access markets, pesticides for pest control, formation of financial institutions like SACCOS to support them financially and consistently with agricultural inputs (KDC, 2010).

## **1.2 Statement of the problem**

Due to unpredictable climate change resulting in unreliable and low rainfall, productivity of major food crops such as maize and rice have been dropping drastically. This has resulted in increased rural poverty in some areas. Horticultural crops production such as vegetables in areas where the crops can be irrigated or sustain small quantity of rainfall could be used as measures to cope with failure of major crops and hence for poverty reduction.

Ludewa District is one of the potential areas for farming; however, before recommending it for wider adoption and promotion, it is necessary to assess the extent of its contribution to reducing household poverty. Such assessment has been recommended before a poverty reduction initiative could be adopted (Humphrey *et al*, 1993). But together with this process of shifting from cereal production to vegetable production; these farmers are still poor. This study intends to evaluate contribution of vegetable production to poverty reductions at household level in Ludewa district

### **1.3 Research question**

1. What are the types of vegetables produced in the study area?
2. What is the trend and quantity of vegetable production in the study area?
3. What is income of the vegetable producers and non vegetable producers?
4. What are the effects of vegetable production to household poverty reduction in Ludewa district?

### **1.4 The General Objective**

The general objective of this study was to assess the contribution of vegetable production to household poverty reduction in Ludewa District.

#### **1.4.1 Specific Objectives**

1. To identify the types of vegetables produced in an area.
2. To determine the trend in vegetable production.
3. To compare income from agricultural activities (i.e. farming) for vegetable and other non vegetable farmers
4. To find out how vegetable production contribute to reduce non- income poverty at the study area

### **1.5 The significance of the study**

Despite Tanzania's efforts to alleviate poverty among people in rural communities, still poverty remains a very big problem. This study will therefore be significant due to the following reasons:

First, the data from this study will generate recommendations for enhancing the role of vegetables for diversified income generation in home garden production and commercial farming systems in Tanzania as a developing country.

Second, information which will be obtained from this study will help policy makers and other development practitioners to make more informed decision with regard to

vegetable production and poverty reduction in the study area and other similar areas in Tanzania.

Last but not least, successful completion of this study will be partial fulfillment of the requirements for award of the degree of Master of Science in Development Policy (MSc DP)

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

Literature review in this study is divided in two parts. The first is theoretical literature review which puts horticulture in the context of a body of principles offered to explain the phenomenon of horticulture and household income generation anywhere in the world. The second, empirical literature review relates horticulture and household income generation in the observed experience of Ludewa District.

#### **2.1 Literature Review**

##### **2.1.1 The concept of Poverty**

The prior problem faced by this theoretical literature review is poverty and how to solve or alleviate it by generation of income. Thus the review addresses the concepts of poverty and poverty alleviation generally before embarking on horticulture as the most promising strategy for household income generation and development in Ludewa District.

Poverty is not an easy concept to define (Geoff & Kate, 2009). As a result, a range of definitions exists, influenced by different disciplinary approaches and ideologies. The dominant western definition since World War II has defined poverty in monetary terms, using levels of income or consumption to measure poverty (Grusky & Kanbur, 2006 cited in Geoff & Kate, 2009) and defining the poor by head count of those who fall below a given income/ consumption or “poverty line” (Lipton & Ravallon, 1993 cited in Geoff & Kate, 2009).

However, this economic definition has been complemented in recent years by other approaches that define poverty in a more multidimensional way (Subramanian, 1997 Cited in Geoff & Kate, 2009). These approaches include the basic needs approach (Shreeton, 1981 cited in Geoff & Kate , 2009 ), the capabilities approach ( Sen, 1999 cited in Geoff & Kate , 2009) and the human development approach ( UNDP, 1990 cited in Geoff & Kate , 2009 ).

Their acceptance is reflected in the widespread use of the United Nations Development Programmes (UNDP) Human Development Index (HDI), which is the composite measure of three dimensions of human development: (i) life expectancy, (ii) educational attainment and (iii) standard of living, measured by income in terms of its purchasing power parity (UNDP, 2006 cited in Geoff and Kate, 2009).

It is also reflected in the Organisation for Economic Co-operation and Developments (OECD) conceptualisation of multidimensional poverty, defined as interlinked forms of deprivation in the economic, human, political, social-cultural and protective spheres (OECD, 2006 cited in Geoff & Kate , 2009 ).

This study adopted the definition by Narayan (2000 cited in Geoff & Kate, 2009). Narayan (2000 cited in Geoff & Kate, 2009) defines poverty as a sense of helplessness, dependence and lack of opportunities, self-confidence and self-respect on the part of the poor. The acknowledgement of the multidimensionality of poverty is reflected in the range of both quantitative and qualitative methodological approaches adopted to conceptualise and measure poverty.

### **2.1.2 Poverty alleviation**

Poverty alleviation refers to lifting the poor out of poverty (Mundy & Gladbach, 1999). Typically two approaches have been discussed extensively in various literatures: alleviation through growth and alleviation through redistribution (Mundy & Gladbach, 1999). Alleviation through growth is fundamental to combating poverty: standards of living cannot rise without new wealth generated through economic activity. An anti-poverty strategy must seek ways to generate wealth by revising investment, wage structures, terms of trade and other factors.

International Fund for Agricultural Development (IFAD), (2007) revealed that more than one billion people in the world live on less than \$ 1 a day, 2.7 billion struggle to survive on less than \$ 2 per day, more than 800 million people go to bed hungry every

day, including 300 million children. Every 3.6 seconds a person dies of starvation, and most of those who die are children under age of 5. Every year 6 million children die from malnutrition before their fifth birthday.

However, the European Commission (EC) and the Technical Centre for Agricultural and Rural Cooperation (CTA), show that poverty in Africa is pervasive, and predominantly rural (Mundy & Gladbach, 1999). Some 40% of the population of Sub-Saharan Africa live below the international poverty line of \$ 1 per day (in 1985 purchasing power dollars), and this figure has risen slightly since the mid 1980s.

This figure understates the vulnerability of many to the shocks of drought and war. The pattern of poverty is changing. The numbers of poor are rising in the cities, in dry areas and areas with poor soils, in war-affected regions, and among women, the landless and the elderly. These changes will call for a major rethinking of anti-poverty strategies. As poverty becomes more and more urban, for example, policy makers will have to design approaches that provide low-cost food at stable prices. Policies to do this are likely to be very different from those currently being pursued.

### **2.1.3 Household income and its generation**

Household income is a measure of the combined incomes of all people sharing a particular household or place of residence. It includes every form of income, e.g., salaries and wages, retirement income, near cash government transfers like food stamps, and investment gains. Average household income can be used as an indicator for the monetary well-being of a country's citizens.

Mean or median net household income, after taxes and mandatory contributions, are good indicators of standard of living, because they include only disposable income and acknowledge people sharing accommodation benefit from pooling at least some of their living costs. Average household incomes need not map directly to measures of an individual's earnings such as per capita income as numbers of people sharing households

and numbers of income earners per household can vary significantly between regions and over time.

The household (HH) is "the basic residential unit in which economic production, consumption, inheritance, child rearing, and shelter are organized and carried out"; [the household] "may or may not be synonymous with family". The household is the basic unit of analysis in many social, microeconomic and government models. The term refers to all individuals who live in the same dwelling.

In economics, a household is a person or a group of people living in the same residence. Most economic models do not address whether the members of a household are a family in the traditional sense. Government and policy discussions often treat the terms *household* and *family* as synonymous, especially in western societies where the nuclear family has become the most common family structure. In reality, there is not always a one-to-one relationship between households and families.

#### **2.1.4 The concept of horticulture**

Horticulture is a science and art of growing fruits, vegetables, flowers, shrubs and trees. Horticulture originally meant the practice of gardening and by extension now means the cultivation of plants once grown in gardens. In contrast, agriculture by derivation referred to more open forms of culture such as production of grains, grasses etc.

Commercially horticulture is subdivided into nursery industry (production of fruit trees for fruit growers and ornamental plants for the ornamental horticulturist). Plant growing industry (supply annual, biannual and perennial plants to the vegetable and flower as well as ornamental horticulturist) and the seed production industry (produces and supply seeds required by vegetable and flower growers).

Horticulture as an industry dates back in 17<sup>th</sup> Century when growth of large cities made it impractical for individuals to produce necessary garden crops on their own property. To-date modern horticulture is a multi-million dollar business in advanced countries

such as The Netherlands, Germany, France, Belgium, United States, Japan China and countries of former Soviet Union, Australasia and in Africa, South Africa is the lead followed by Kenya, Zimbabwe, Zambia. While Tanzania has a higher potential than most of the African Countries, this potential has yet to be realized.

#### **2.1.4.1 Horticultural production in Malaysia**

In Malaysia horticulture is produced under small scale operation because the time lapse between harvesting and processing of the fresh fruits is critical, that the quality of horticultural is affected by the delay in processing of the fruits bunches. In the late of 1960s a new highly fielding variety of horticulture known as Tenure hot was developed by the research effort of the estate sector. The crops matured within very short period of time, one to two months of field of planting.

Thus planting horticulture in Malaysia expanded very fast in the last two decades. (Jejekins 1989) expressed that the area under horticultural production in 1960 was 24600 hectares by 1970 it had increased to 161200 hectares and in 1983 the planted area was 353000 hectares. The number of horticultural production rise from 62 in 1960 to 260 in 1970 and than 728 in 1983. In terms of field of fresh fruits bunch output has hardly varied between 17 and 18 tons per hectares (Jejekins, 1989).

The Malaysia Horticultural Organization created a marketing pool to cater for the number of vegetable producers in the country selling mainly to consumers in Britain after the Second World War. The marketing pool was operated purposely so as to minimize marketing costs because of the absence of the price differentials to be exploited. But there was criticisms on the pool operation which led to its disbandment due to the increase in number of producers hence the replacement of pool operation by a free market system where the vegetable producers compete to obtain the best price for their output. Thus the price was determined by the demand and supply. Therefore Malaysia earns foreign currency from horticultural products (IOM, 2002).

#### **2.1.4.2 Horticulture in India**

India is an agriculture based country. Hundreds of fruits and vegetable types are vegetable grown in all parts of India. Fresh fruit and vegetables reach small scale fruits vegetables suppliers, they are then sent to local markets as well as fruits and vegetables exporters. Last decades have seen the number of Indian fruit vegetables suppliers and fruits vegetables exporters rising to an all time high. Especially there has been a steep rise in the number of vegetable exporters.

The total production of fruits and vegetables in the world is around 370 MT. India ranks first in the world with an annual output of 32 MT. While there are almost 180 families of fruits that are grown all over the world, citrus fruits constitute around 20% of world's total fruit production. Major Indian fruits consist of mango, banana, citrus fruits, apple, guava, papaya, pineapple and grapes. The fruits are processed into various products such as fruit juices and concentrates, canned fruit, dehydrated fruit, jams and jellies etc (Engle and Altovero, 2000).

India with its current production of around 32 million MT of fruit, accounts for about 8% of the world's fruit production. The diverse agro-climatic zones the country makes it possible to grow almost all varieties of fresh fruits and vegetables in India. The fruit production in India has recorded a growth rate of 3.9%, whereas the fruit processing sector has grown at about 20% per annum.

However, the growth rates have been extensively higher for frozen fruits & vegetables (121%) and dehydrated fruits and vegetables (24%). There exist over 4000 fruit processing units in India with an aggregate capacity of more than 12 lakh MT (less than 4% of total fruits produced). It is estimated that around 20% of the production of processed fruits is meant for exports, the rest caters to the defence, institutional sectors and household consumption. Mango and mango-based products constitute 50% of export (Engle and Altovero, 2000).

India is the second largest producer of vegetables in the world (ranks next to China) and accounts for about 15% of the world's production of vegetables. The current production level is over 71 million MT and the total area under vegetable cultivation is around 6.2 million hectares which is about 3% of the total area under cultivation in the country. In case of vegetables, potato, tomato, onion, cabbage and cauliflower account for around 60% of the total vegetable production in the country. Vegetables are typically grown in India in field conditions; the concept is opposed to the cultivation of vegetables in green houses as practiced in developed countries for high yields.

Successful vegetable farmers do much more than produce vegetables; they also manage money, people, and natural resources effectively. A new book from NRAES, the Natural Resource, Agriculture, and Engineering Service, can broaden the knowledge and guide the planning of those who grow vegetables or are considering beginning a vegetable production business.

#### **2.1.4.3 Vegetable production in Hanoi, Viet Nam**

Since the beginning of economic transformation from a centralized economy to a market economy, vegetable production has increased rapidly in the Hanoi district. In 1991 the vegetable area was 5 100 hectares and in 2002 it reached 8 000 hectares. However, because many smallholders lacked knowledge on production technology and because they were attracted to short term benefits, many smallholders overused chemicals to increase crop yields.

This resulted in many consumers being poisoned and in time spurred the first experiments to be held on safe vegetables production in 1989. In 1995 a trial protocol for safe vegetables was established and in 1996 a safe vegetable programme was implemented. This has offered a more sustainable opportunity for smallholders and the area used for safe vegetable production has gradually increased; in 2000 it accounted for 4.5 percent of the total area used for vegetables grown in the Hanoi district.

#### **2.1.4.4 African perspective**

Horticulture is a well-established and economically important industry that makes a significant contribution to livelihoods in the dry land; rain fed and irrigated farming systems. African indigenous vegetables play a highly significant role in food security of the underprivileged in both urban and rural settings (Schippers, 1997). They can serve as primary foods or secondary condiments to dishes prepared from domesticated varieties. They are also valuable sources of energy and micronutrients in the diets of isolated communities (Grivetti, 2000).

Further, they may serve as income sources and may be marketed or traded locally, regionally, even internationally, and the primary importance of edible wild species during periods of drought and or social unrest or war is well documented. However, the important role of African indigenous vegetables in Tanzania's health sector, diets and as an income source is threatened through extinction of the genetic resources of these species. Many of the major species are indigenous and particularly well adapted.

They include fruit and nut crops from trees or bushes, such as olives, grapes, pomegranates, citrus, figs, almonds, pistachios, walnuts, dates and other stone fruits such as plums, apricots and cherries, as well as the principal vegetables, such as beans, peas, cowpeas, garlic, onions, tomatoes, potatoes, aubergines, peppers, melons and cucumbers. Many of these crops have been farmed in the region for hundreds of years. They provide options for income diversification and pathways out of poverty (Humphrey *et al.* 1993. Smith *et al.*, 1996).

#### **2.1.4.5 Tanzania perspectives**

Agriculture plays an important role in poverty reduction, particularly in poorer countries such as Tanzania where the majority of people depends on agriculture for their livelihood. Growth in agricultural value added had the largest impact on poverty reduction in Asia in the 1970s and 1980s. However, left alone, agriculture could also become a poverty trap. That is what is happening in many poorer countries in sub-Saharan Africa where the agriculture sector has been left behind. There are no adequate

investments in rural infrastructure, agricultural technology, equipment or basic inputs. As a result, agricultural productivity either remains stagnant or increases only at a very slow rate, if at all (Policy forum, 2009).

In Tanzania, agricultural value added grew by 4 per cent a year during the last decade. With the high annual rate of population growth (nearly 3 per cent in many rural regions, as high as 4 per cent in others) one can't expect agriculture to help reduce poverty at this rate of growth as the value added would be sufficient only to cover the increased population. Consequently, there won't be any significant improvement in the incomes of the people. This is one of the reasons behind the stubbornly high poverty rates in Tanzania.

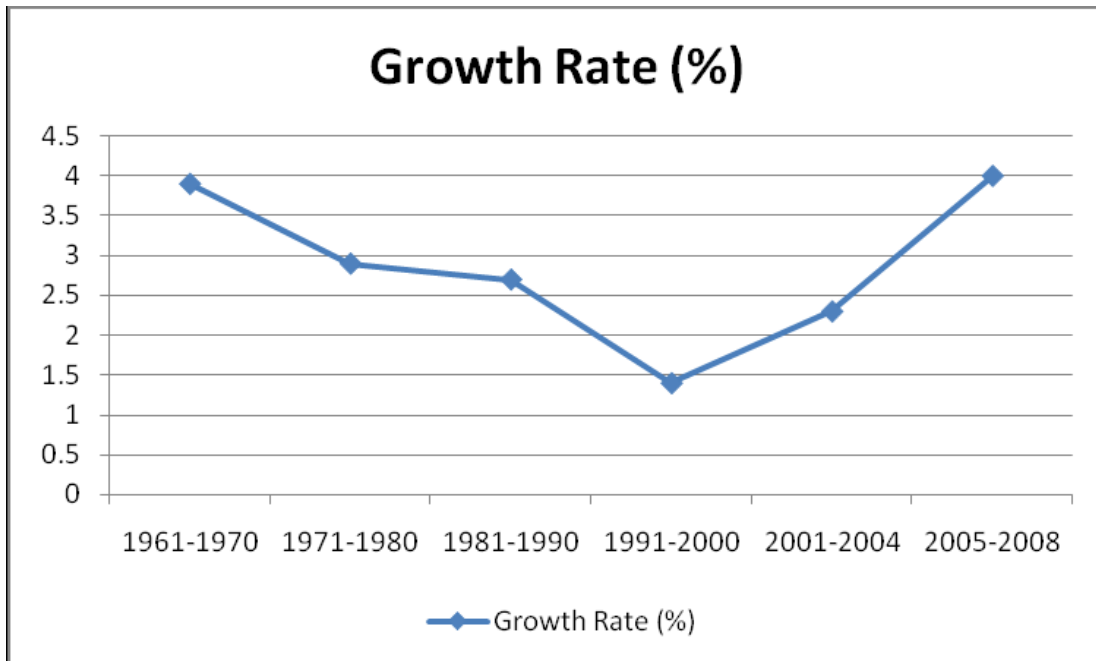
#### **2.1.4.6 Government commitment on improving agriculture sector**

Tanzania continues to uphold the agricultural sector as the foundation of its economy and a driving force of its development. The 2010 Budget Speech of the Ministry of Agriculture, Food and Cooperatives indicates that the sector is the source of livelihood and employment to more than 70 percent of the Tanzanian population, a majority of whom live in rural areas. Moreover, the agricultural sector contributes about 95 percent of the food consumed, and it contributed 26.7 percent of the country's Gross Domestic Products (GDP) in the 2009/2010 financial year. Besides, 30 percent of the country's exports are agricultural products and 65 percent of the raw materials used in Tanzanian industries are sourced from the agricultural sector.

The above facts indicate that the country will not achieve sustainable development at the level of reducing poverty for a majority of Tanzanians without investing a great deal in the agricultural sector. It is important to note that the current growth of the agricultural sector is only 4 percent. This growth is still the highest in the history of Tanzanian agriculture. However, since 1961, the sector's growth rate was not encouraging. For example, the Food and Agriculture Organization FAO (2010) study indicates that the agricultural sector grew at an average rate of 3.9 in the first decade (1961-1970) but it

later fell to 1.4 in the fourth decade (1991-2000) before rising again steadily from 2001 onwards, as shown in Figure 1.1 below

**Figure 1:1 The growth of the agriculture sector (1961-2008).**



Source: FAO, 2010

Nonetheless the current growth rate is not enough to ensure a maximum contribution of the sector to the Tanzania economy. Therefore, the Tanzania Government is committed to transforming the agricultural sector from its low productivity to a modernized and highly productive sector, which will be supported by industrial and service activities in both rural and urban areas.

This commitment was initially stated in the Vision 2025 in 1995, and the Agricultural Sector Development Programme (ASDP), which began to be implemented in 2006. More specifically, the Government has shown commitments to plan strategically in order to modernize the sector and to make it more productive, to ensure availability of agricultural inputs (like fertilizers, seeds etc.), and to expand and modernize irrigation farming.

The Government's commitment was further underscored by the new *Kilimo Kwanza* (Agriculture First) initiative, which envisages increasing the growth rate of the agricultural sector from 4 to 10 percent. The *Kilimo Kwanza* resolution was launched on 3rd August, 2009 in Dodoma by his Excellency President Jakaya Mrisho Kikwete as the Tanzania's Green Revolution strategy aiming at modernizing and commercializing agriculture.

This initiative is conceived as multidimensional, bringing together different sectors from the public and private spheres, interacting strategically in order to improve the agriculture sector. The initiative comprises both policy instruments and strategies designed to transform the sector. Implementation of the *Kilimo Kwanza* resolution comprises ten pillars, which calls for cooperation between governmental sectors, private sector, the third sector, and farmers who are supposed to be implementers of the programme.

Marketing of horticultural products is driven by the private sector and has never been under the control of government. The main government intervention is on taxation, where local governments charge cess on per bag or tenga (basket) basis, at the market place. These taxes are often layered, with the same product being charged cess more than once before it reaches the consumers. For example, a visit to Kariakoo market in Dar es Salaam revealed that a wholesaler pays a cess of Tshs 300 per 70 Kg tenga of tomatoes and Tshs 400 per 150 Kg bag of onions. Once sold to the retailer, cess is payable at the market destination at the rate of Tshs 250 for onions and Tshs 200 for tomatoes. Thus the same produce may be charged more than once depending on the number times it passes through a market place.

Vegetables and fruits are transported to major markets such as Dar es Salaam mainly on hired lorries of 4-7 tons, though often overloaded by as much as 30-40% to minimize access charges ( Mbelwa,2000)

#### **2.1.4.7 Vegetables at the household level**

Vegetables are an important source of food for the household. Although the actual quantity of carbohydrates, protein and fats may be limited in some cases, the real value of vegetables lies in the minerals, vitamins and fiber present in fresh vegetables. When a household produces vegetables on their own land, freshness is guaranteed. Vegetable production is a form of intensive agriculture.

Large volumes of produce can be obtained from very small areas of land, so long as the plants are provided with adequate water, nutrients and pest and disease management. In the field (with good management practices), for example, onion yields of 5kg/m<sup>2</sup> and cabbage yields of 4kg/m<sup>2</sup> (90 days from planting) are achievable. Fresh vegetables are an important part of the human diet and surplus vegetables usually find a ready market, and have the potential to provide a valuable new source of family income. As familiarity with vegetable production technology increases, the rewards for developing agronomic skills will increase and the potential for increasing financial rewards will be enhanced.

When promoting vegetable production, emphasis should be put on the potential to provide good nutritious food for the family, while at the same time developing the concept of marketing surplus produce for cash. Gender-focused initiatives in many developing countries, women and children primarily undertake vegetable production.

It is important to ensure that they also participate in sharing the benefits of their labour, especially as vegetable production enterprises become more commercialized. This requires that women and youth be involved in marketing their produce, but also retaining control over the money they earn. This will not only allow women to be more self-sufficient, independent and increase their capabilities of looking after the family, but will also improve their social status in their families and in their communities.

It may be crucial to carry out some gender-sensitization activities in the community to ensure people understand why it is important that people are rewarded for their efforts. It

may also be necessary to find innovative ways of strengthening women's control over their earnings, for example by promoting group savings.

(FAO. 2001)

## **2.2 Empirical Literature review**

Studies on vegetable production and horticultural in general have been conducted in various corners in different countries. The focus of this study is on household income generation in Ludewa District. The findings of this study are on vegetable production and household income generation for the reduction of poverty in Ludewa District.

The presences of vegetable in daily diet have been strongly associated with reduced risk for some forms of cancer, heart diseases, stroke and other chronic diseases. Some components of vegetables are strongly antioxidants and function to modify the metabolic activation and detoxification/disposition of carcinogens and even influence processes that alter the effect of tumor cells (Wargovich, 2000). The author further stated that diuretic actions of vegetables are especially important in cases of edema or swellings, kidney and heart conditions. Vegetables prevent habitual constipation and keep the entire intestinal tract free from harmful germs (PROTA, 2004). Also vegetable production helps in reducing income poverty through crops exchange.

FAO, (2001) revealed that Vegetables can make a significant difference to smallholder livelihoods. Vegetable production needs only a small area of land, with minimal capital outlay and can provide access to a valuable food under subsistence conditions, but also has the potential to provide an initial step towards establishing an income base for poorer households.

Vegetables form a large and diverse commodity group: although they do not have botanical features in common, they generally share similarities in cultivation methods. For example, tomatoes, melon and watermelon are commonly classified as vegetables, although traders and consumers classify them as fruits (which botanically are correct).

Usually smallholders intensively cultivate vegetables in gardens, and promoting vegetables in gardens can help smallholders in a number of ways:

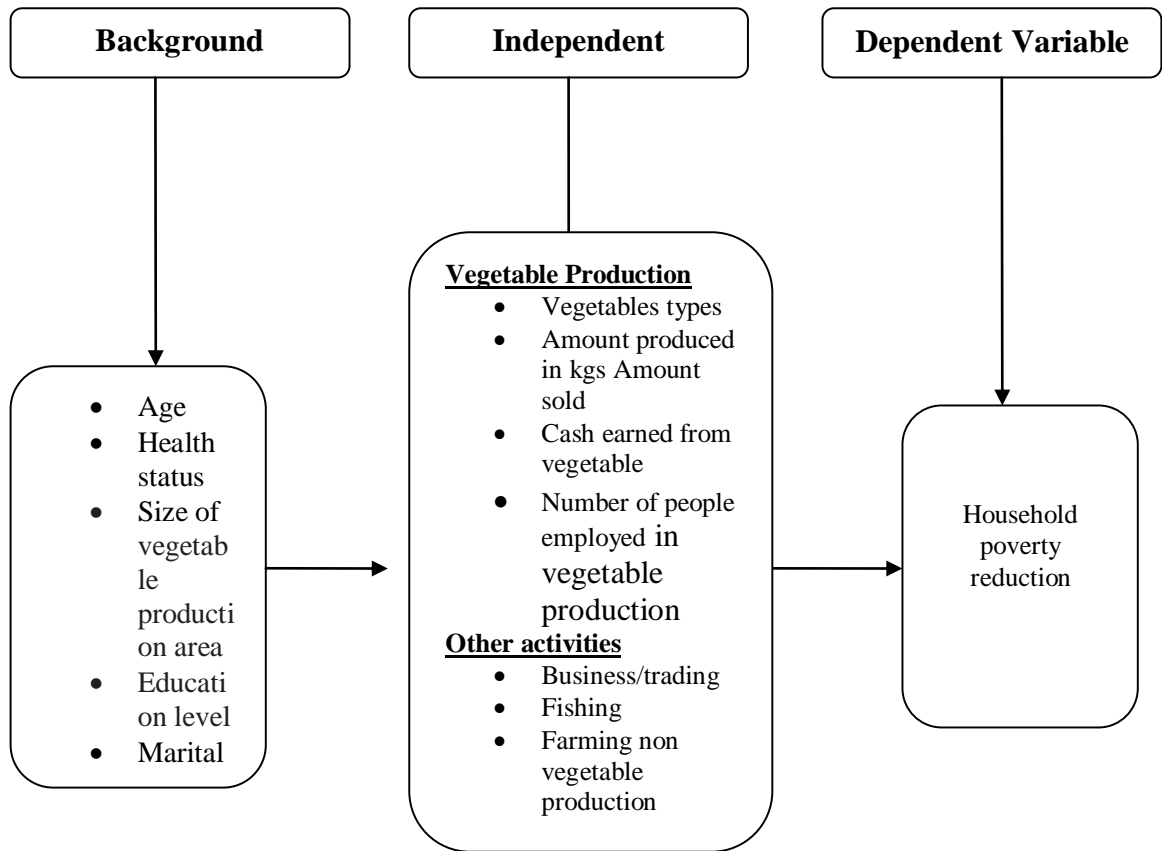
- It provides vegetables at a low cost;
- It provides a regular supply of vegetables;
- It provides a more varied diet for the farm family;
- it can teach smallholders how to grow vegetables: test cultivation practices carried out in a garden are less risky and less costly, than if vegetables were planted on a larger scale;
- It allows for testing out vegetables that were never planted before;
- It can provide income from the sale of vegetables;
- It can provide gender employment and gender participation in economic activities;
- It can provide employment for the disabled and the elderly.

Vegetable grower in Ludewa district, have opted to produce vegetable as a means of income generation since vegetables production has minimum cost compared to cereal crops production. For women and youth have found that producing vegetables is the faster way to earning income.

### **2.3 Conceptual framework and research model**

Consistent with conceptualization of vegetable production and household income generation, the current study was guided by the following framework. The research groups the variables into three parts as follows: background, independent variables and dependent variables

**Figure 2: Conceptual framework**



*Source: Researcher 2013*

The assumption of the conceptual framework relies that health status (background variables) has relationship with the conception of varieties of vegetables (independent variable) which has an influence towards house hold income for those household which engage in production of vegetables as a means of income generating activities. Hence the amount of vegetable production, amount sold and cash earned will by large determine the house hold income.

Furthermore size of vegetable production area (background variable) has relationship with number of people employed in vegetable production (independent variable), which will influence amount of the vegetable production which will directly determine the cash earned which in turn will influence the house hold income (dependent variable).

In addition, the conceptual framework assumes that other activities such as business, fishing, farming non vegetable production (independent variables) have direct influence on house hold income. Therefore this research determines to find out how do independent variables influence the house hold income (dependent variable).

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This chapter presents the methodology and procedure and procedure used in conducting the study. The chapter is organized as follows: research design, area of study, sample size, the sampling techniques, data collection techniques and finally, data presentation and analysis.

#### **3.1 Research design**

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

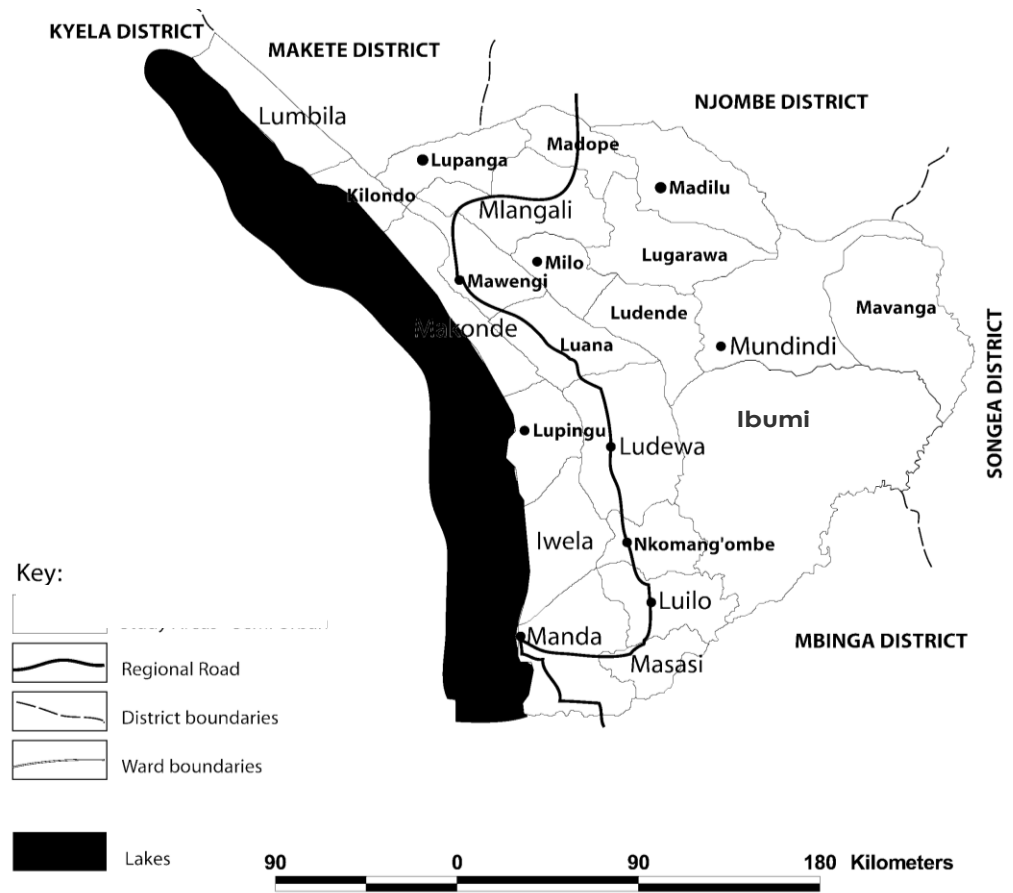
This study adopted a cross sectional research design. This research design was adopted since it was not repetitive in nature and it was done one time at a particular time. Furthermore, this research design was also adopted because it facilitated the researcher to do a thorough investigation to the section of the population for a well specified place.

#### **3.2 The Study area**

The study was conducted in Ludewa District in Njombe Region, which is located between latitude 10° 05' and 33' South of equator and longitude 34, 49'21' East of Green which.

The region has been affected by poverty just like any other parts of Tanzania. Youths are specifically affected by the phenomena than any other age group because this group is denied employment opportunities which are more parable, as a result majority of them are involving in self employment which are also regard to be very informal in such a way that their access to financial capital is very limited,.

**Fig 3:LUDEWA DISTRICT MAP WARD BOUNDARIES**



Source: Ludewa District Council 2013

### **3.4 Target population, sample size and sampling techniques**

#### **3.4.1 Target population**

The target population of this study were individuals who are vegetable growers non vegetable producers, local leaders i.e Ward Extension Officer(WEO) and Village extension Officer (VEOs) and District extension officer (DEO)

#### **3.4.2 Sample size**

The total sample sizes of 70 people were picked randomly, while 8 of them are the key informants.

**Table 3.1: Composition of the Sample**

<b>Categories</b>	<b>Total Number</b>
WEO	1
District Extension officers	3
Vegetable grower	51
Non vegetable grower	10
VEO	5
<b>Total</b>	<b>70</b>

Source: Field Data 2013

#### **3.4.3 Sampling techniques**

This study used the following procedures: random and purposive sampling.

##### **3.4.3.1 Purposive Sampling**

Purposive sampling is also called deliberate sampling. This sampling technique involves deliberate selection of a particular unit of the universe for constituting a sample, which represents a universe (Kothari, 2004). This technique does not give any guarantee estimating that every element in the population has a chance of being included in the sample (Adam & Kamuzora, 2008). This technique was also used because it is cheap and quick to choose a sample and the result obtained from analysis of a deliberately

chosen sample are tolerably reliable (Kothari, 2004). To this end, three officials a district extension officer and five local leaders (village executive officer) in the study area were chosen.

#### **3.4.3.2 Simple random sampling**

Is a list of the entire population from which a sample will be drawn. This is a technique which has the property that every possible combination of subjects in the population to be studied has an equal chance of being selected (Ndunguru, 2007). The researcher applied random sampling technique because it is the best techniques to obtain an optimum sample.

In Kothari (1990:56) random sampling design, every item of the universe has an equal chance of inclusion and the results obtained from probability or random sampling will be assured in terms of probability i.e., researcher was able to measure the errors of estimation or the significance of results which obtained from a random sample. This fact brings out the superiority of random sampling design over the deliberate sampling design. And this is the reason why this study considered random sampling as the best technique of selecting a representative sample.

### **3.5 Types and sources of data**

Chiefly, the nature of the problem under study and nature of respondents determine the methods of collecting data (Kothari, 2004). This study used both primary and secondary data. Primary data used to collect directly from respondents by means of questionnaires and in depth interviews. Primary data supplemented by secondary data, gathered through the review of existing documentary sources. Such documentary sources included; monthly project reports, annual reports, newsletters, magazines, other studies.

#### **3.5.0 Data collection methods**

##### **3.5.1 Questionnaire**

The questionnaire demanded just a short type answers as well as detailed explanation if necessary. This is to avoid ambiguities that must hinder the report quality. This method

is simple compared to other methods, it is free from bias, less expensive and does not exact much pressure on the respondent hence makes them more comfortable. (Kothari; 2004)

Open and closed structured questionnaires used in the study during data collection. *The method chosen is due to its strength in capturing empirical data from formal and informal. The prepared questionnaires were translated into Swahili to make them very simple, clear and more understandable to the respondents of all education backgrounds.*

### **3.5.2 Interview**

This is an interaction process between the interviewee and the interviewer in the cause of data collections (Rwegoshora, 2006). The study used interview method to strengthen data collection as questions were rephrased to make them clear in front of the respondents so that more relevant data collected.

Interview used interchangeably with questionnaires with the presence of the study. Basing on the number of informants, the study used individual interview where individual members taken from selected sample spaces were interviewed.

### **3.5.3 Observation**

Observation is a method of data collection whereby the study is able to observe changes and behaviour of the subject matter under the study (Rwegoshora, 2006). The study used both participatory and non participatory designed observation. In this, a researcher was able to take some pictures when the vegetables are in the field and also when they are in the market.

### **3.5.4 Documentary review**

This method used to collect secondary data. Under this method a content analysis were done so as to tap all the necessary information/data necessary for answering the research questions, from different documents/already made data. These readymade data are those

which were collected previously and they are now available in journals, news papers, books, internet and other related sources.

### **3.6 Data analysis methods**

Both qualitative and quantitative were collected. Data processing involved; coding, editing and classification using Statistics Package for Social Sciences (SPSS) programme for analysis of quantitative data. The data were presented in the form of tables and figures. The same applied for other quantitative data obtained from documented sources. Qualitative data and information from personal interviews were grouped according to emerging issues and themes in the study.

### **3.7 Concerns for validity and reliability**

Validity and reliability are closely related terms. Maxwell (1996:87 cited in Makombe 2006:85) defines validity as the correctness or credibility of a description, explanation, interpretation, account or conclusion. In the same vein, Ott & Larson (in Ballinger, 2000:101 cited in Makombe, 2006: 85) state that validity refers to whether the variables “measure what they are intended to measure”. As for reliability, this concept refers to “the degree to which the same results would be obtained in repeated attempts of the same test” (Gall &Gall in Ballinger, 2000:102 cited in Makombe, 2006: 85).

In this study, several measures were taken to ensure the validity of the study. First, in order to have valid descriptions, all in depth interviews were manually recorded and later transcribed word for word. It was expected that by so doing the data were not only accurate but complete as well.

Second, related to the two measures already stated, were the uses of documentary sources as one of the methods for data collection. This method allowed the researcher to read different literature where gets different cases of the related study.

The researcher was very attentive all the time during the in-depth interviews and strive not to interrupt them. Questions were asked whenever appropriate. Since the

documentary review took place, the researcher was able to cross check the accuracy of the information provided previously.

Third in analyzing the data, questionnaires, documentary reviews, and in-depth interview data were equally considered so as to be able to come up with valid alternative explanations where necessary. This strategy was important in order to work towards theoretical validity as well as to guard against researcher bias.

## **CHAPTER FOUR**

### **RESEARCH FINDINGS AND ANALYSIS**

#### **4.1 Introduction**

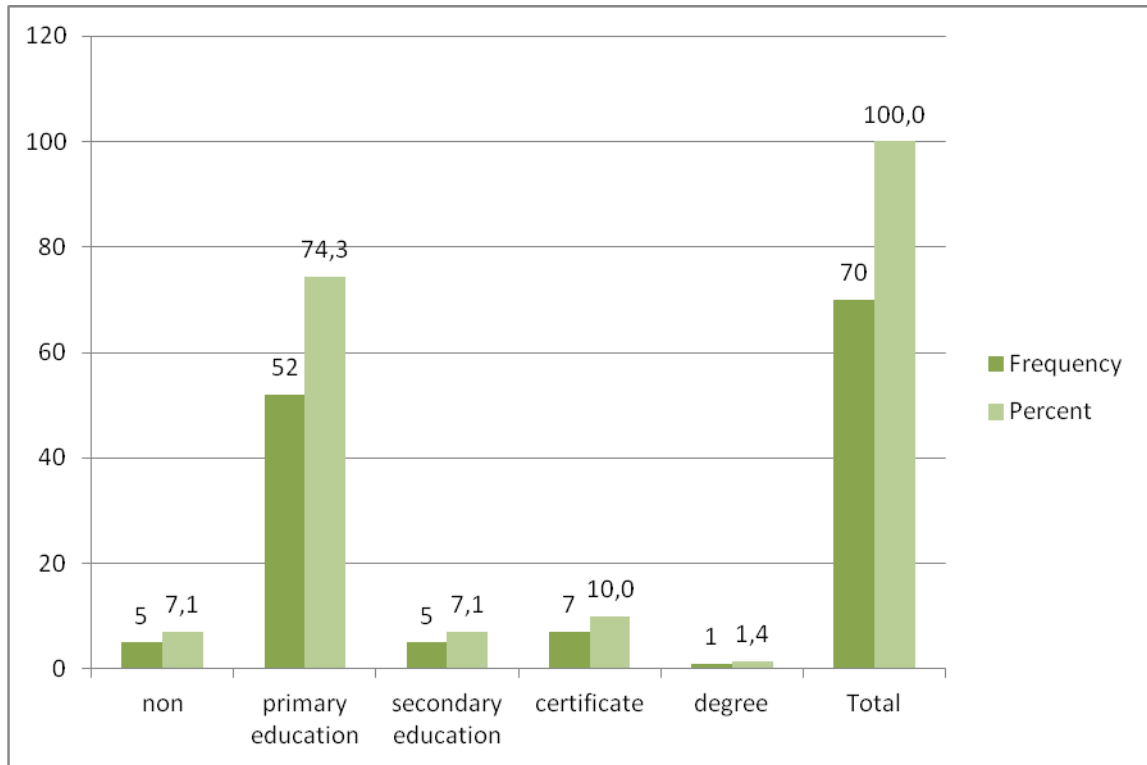
This chapter presents the analysis and discussion of the findings of this study. The study findings are laid out according to the questions and research objectives. This chapter is organized in the following manner: Characteristics of the sampled vegetable grower and none vegetable grower, types and quantity vegetables produced, income from other sources and effects of vegetable production to accessibility of food, education, health and chapter summary.

#### **4.2 Social demographic characteristics of the respondents**

##### **4.2.1 Education levels of Respondents**

Figure 4.1 shows that 5(7.1%) of respondents had informal education, in sense that they have not attended even standard one. 52(74.4%) had primary education level, while 5(7.1%) had secondary level and 8 (11.4%) had higher level of education. Data shows majority of vegetable and none vegetable growers have attained primary education as their highest level of education 7(10%) of the respondents possess certificates of different professions like carpentry and other technical fields. Majority of individuals after completion of primary education and failed to continue with secondary studies, mainly they opt to engage in agricultural activities and small business which can be held in rural villages.

**Figure 4.1 Distribution of respondents by education**



Source: Field data 2012

The aspect of education was considered as fundamental in this study since the absence of education is a bottleneck for social economic development. The aim was also to examine the levels of education of respondents who are interested in vegetable production.

The high level of education an individual person has may determine his/her intellectual ability to fight against poverty. It is declared that education is an important factor for human social economic development (Stiftung, 2006)

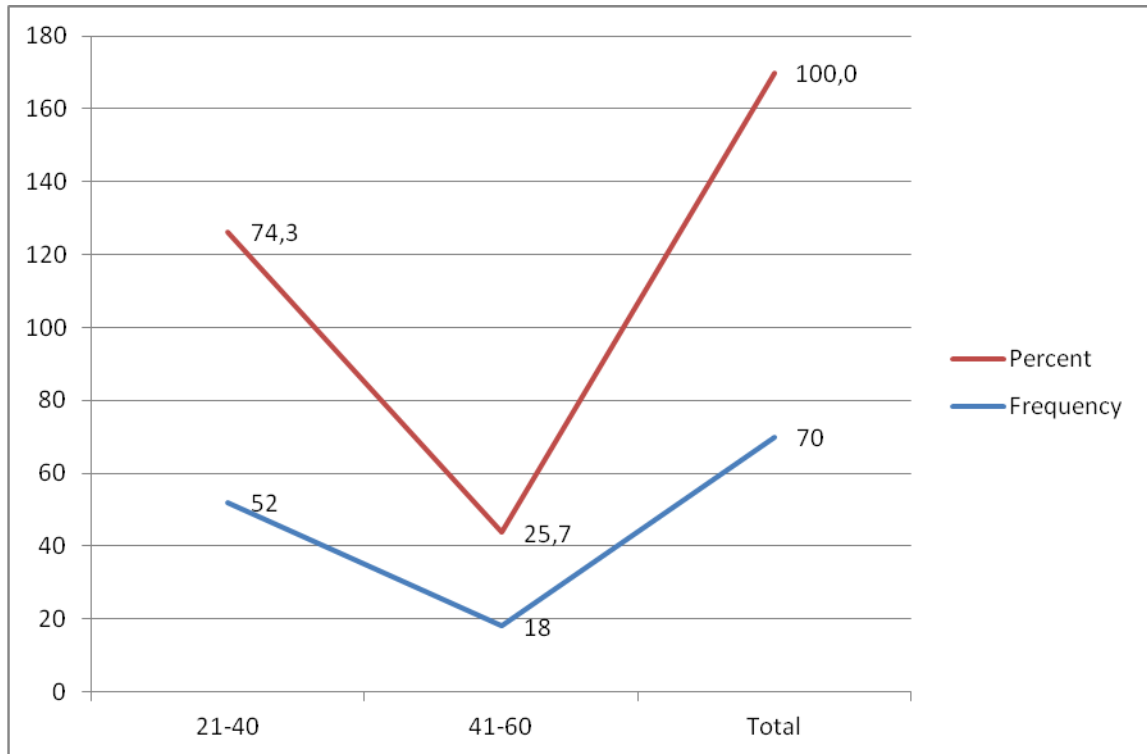
This situation attributed by the fact that most respondents had low education i.e. they are mostly primary education holders, which could not enable to obtain jobs in formal sector because level of education determines where to work. This result agrees with the study done by Gershon et al, (1988) who revealed that an individual education level usually place a person where to earn his/her income.

#### **4.2.2 Age of the respondents**

The scrutiny of respondent's age under this study simply aimed at finding out the age group that was most interested in vegetable production. This helped to determine whether older or younger people are the ones keen on vegetable production in the study area.

Figure 4.2, presents the age of the study group which ranged between 21- 65 years old. This shows that the majority of respondents were in the middle age 21-40 which is suitable age for conducting any economic activities. In respect to this, 52(74.3%) of respondents involve in vegetable production compared to the age of 41-60 which is only 18 respondents equal to 25.7 percent of all respondents in study area.

**Figure 4.2 Respondent's age**



Source: Field data 2013

#### **4.2.3 Sex of the respondents**

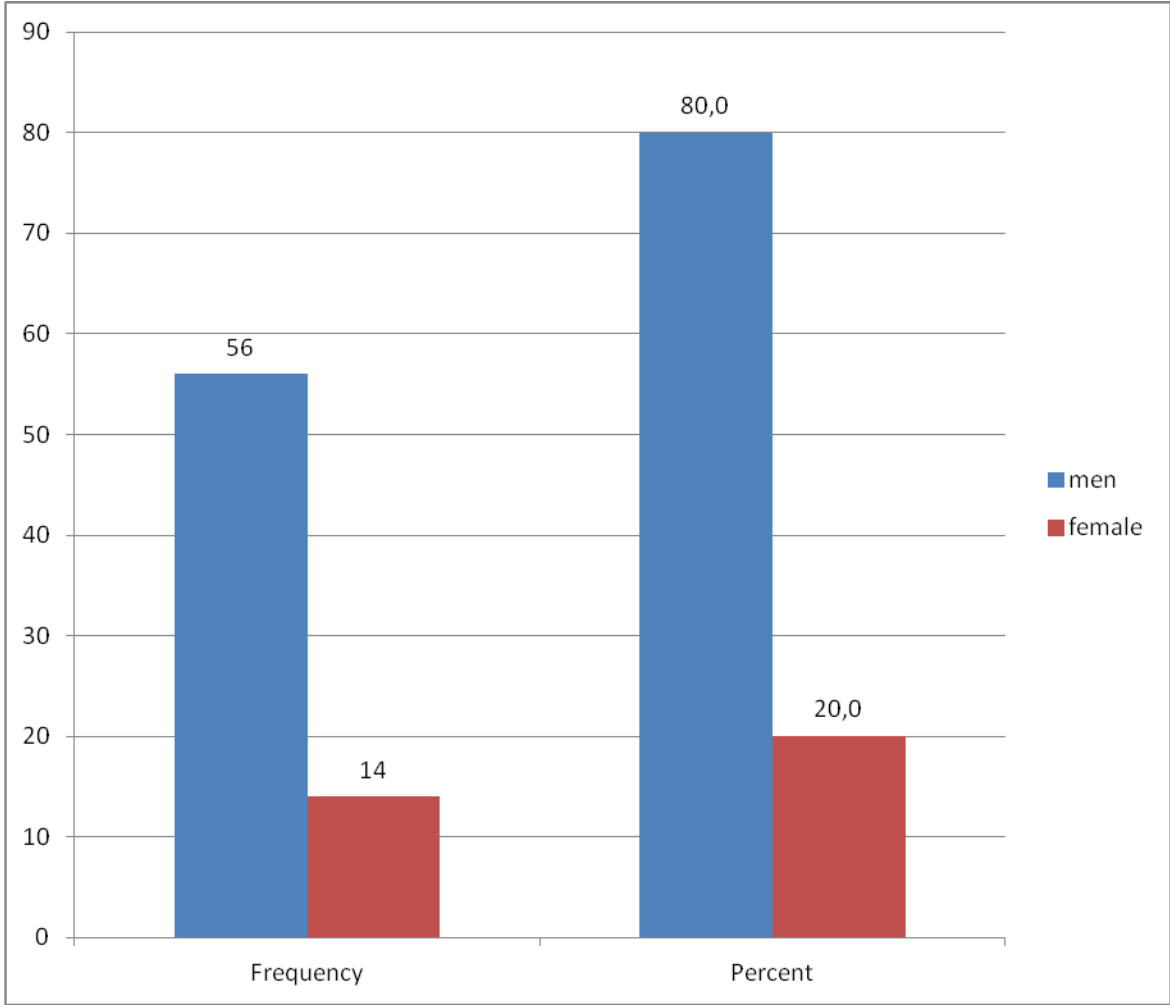
The next respondent's characteristic was sex, also scrutinized in order to learn gender participation in vegetable production. This helped the research to understand whether it is males or females who most engage in vegetable production.

Figure 4.3 shows that most of the respondents were male, 56 (80%) of all respondent. Women counted only 14 (20%) of the total respondents. Findings from the figure suggest that majority of men are engaged in vegetable production, especially onions which need special attention than other types of vegetables.

It was also observed that a smaller number of the female engages in vegetable production only for the purpose of ensuring food security at home while men are producing for business purposes. However during the interview, it was revealed that the rationale for the men being the biggest group interested in vegetable production was due

to the fact that men are able to comply with the challenges concerning vegetable production, since this production needs special attention and care during the whole period.

**Figure 4.3 Distribution of the respondents by sex**



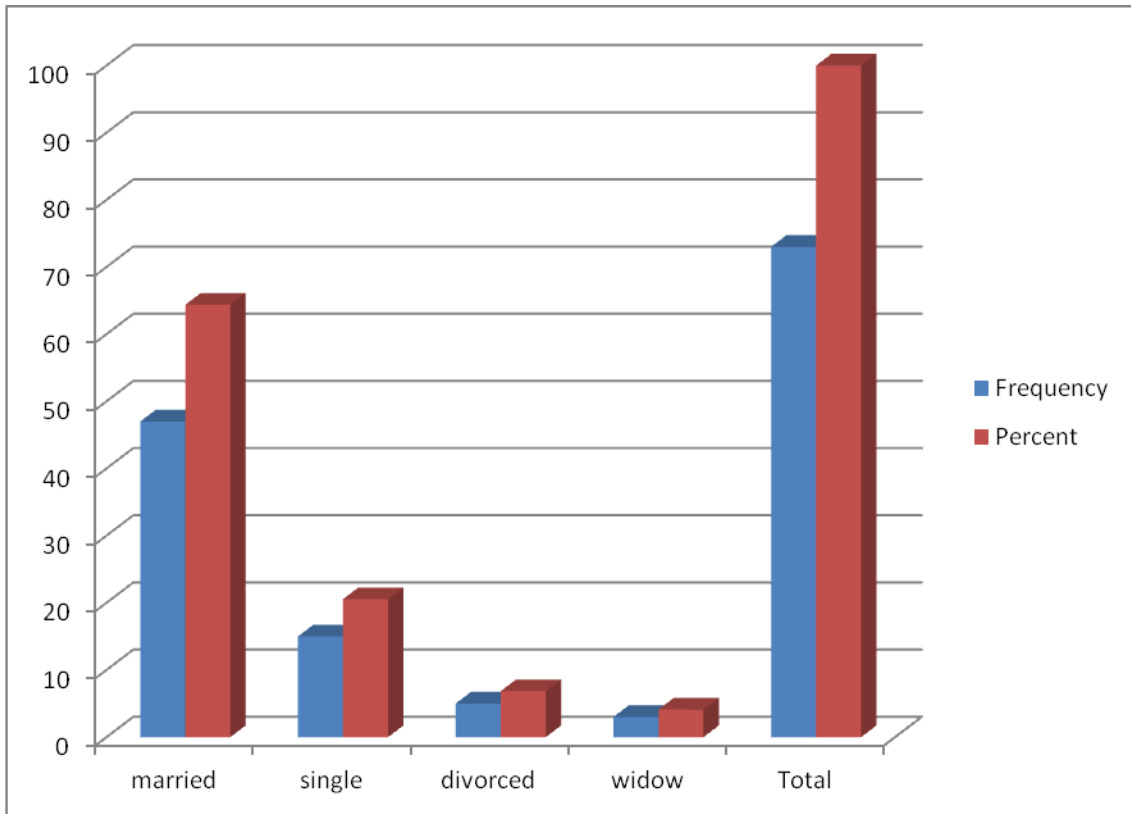
Source: Field data 2013

**4.2.4 Marital status of the respondents**

Figure 4.4 shows that 47 (67.1%) respondents were married, of whom 37 (52.8%) males and 10 (14.2 %) females. Figure 4.4 also shows that 15 (21.4%) were single, of whom 11 (15.7%) were males and 4 (5.7) females. Five (7.1 %) were divorced, of whom

1(1.4%) male and 4 (5.1%) females. In addition to that the findings shows that 3 (4.3%) were widows as it is illustrated in the same figure 4.4 below.

**Figure 4.4 Marital status of the respondents**



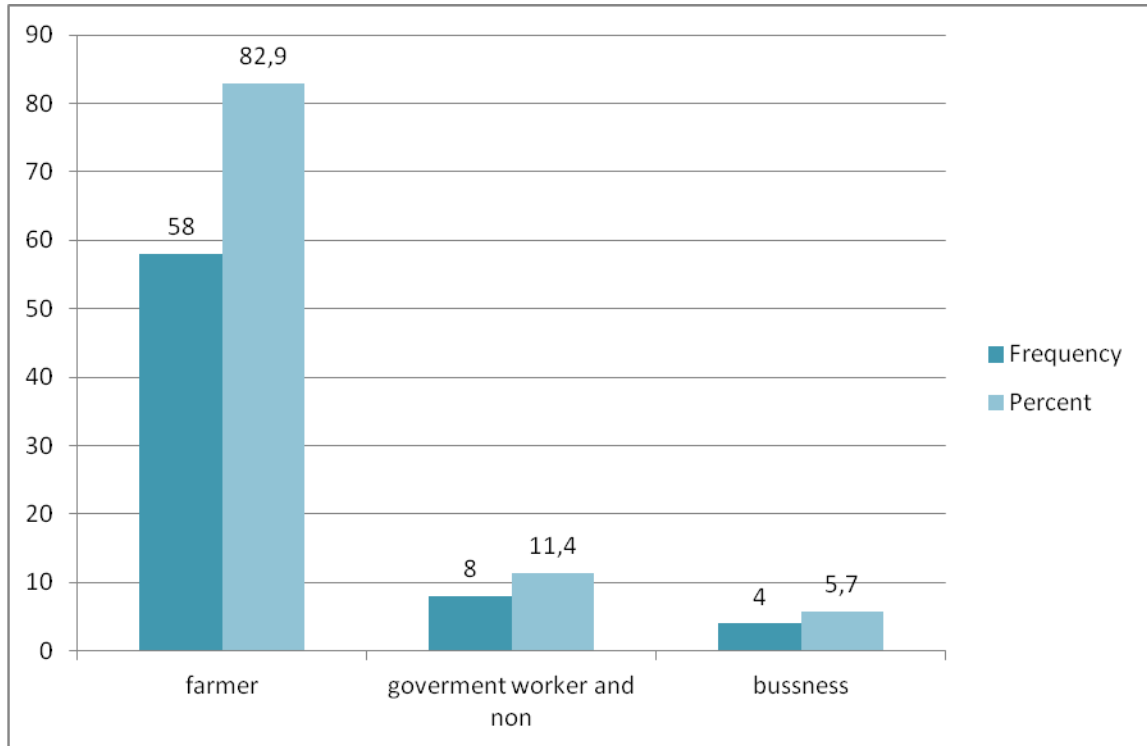
Source: Field data 2013

These study findings suggest that, a large number of respondents were married. It implies that married persons are mostly participating in economic activities which enable to earn more income. This is because of fulfilling family responsibility such as food, and other family obligation.

#### **4.2.5 Occupation of respondents**

Figure 4.5 shows that 58(82.9%) of the respondents were farmers, 8(11.4%) of the respondents were officials (government workers) and 4(5.7%) of the respondents were doing small business.

**Figure 4.5 Distribution of respondents by occupation**



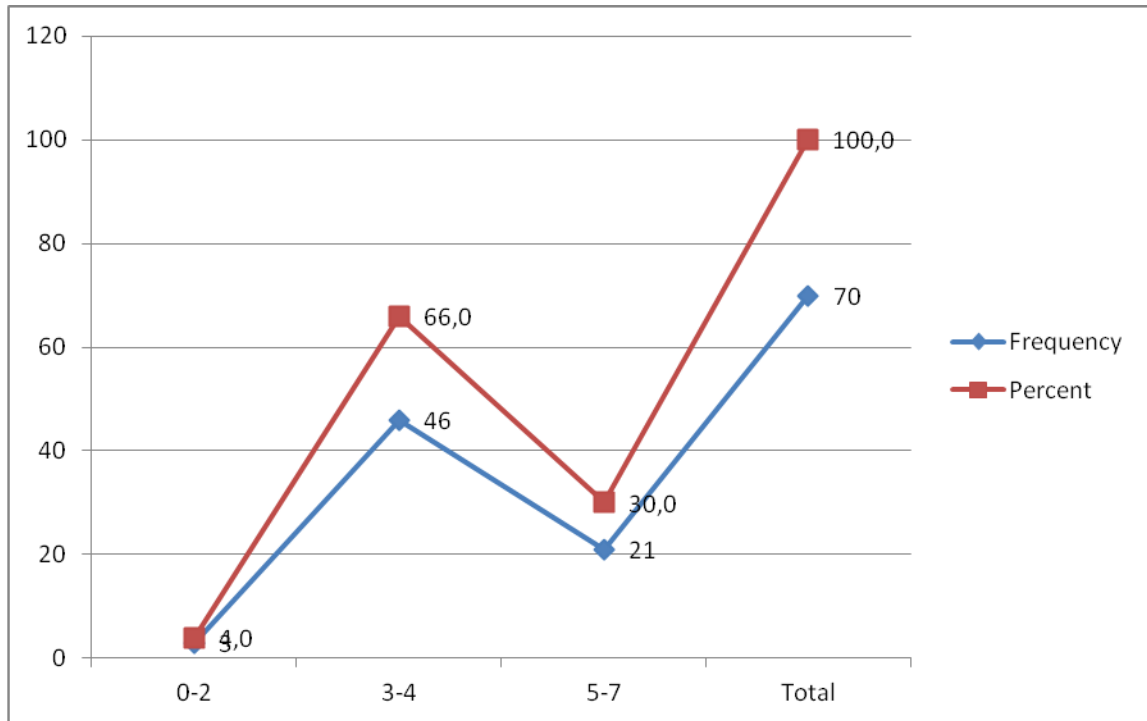
Source: Field data 2013

These result findings indicate that 82.9% of the respondents were farmers, or vegetable producers. This finding implies that due to the nature of the social economic activities, the majority rely on agriculture production. In rural villages most of the people depend it to gain income.

#### **4.2.6 Family size of the respondents**

In order to know the household size of the respondent, a question was asked to give out the total number of people who reside with him/her. The result in the figure 4.6 revealed that 66% of the respondents admitted to have 3-4 family size, followed by 30% who claimed to have 5-7 family size. The finding also shows that very few respondents 4% fall under the 0-2 category.

**Figure 4.6 Family size of respondents**



Source: Field data 2013

These results findings indicate that majority of the respondents had a family of size of 3-4 members. Study of respondents implies that most of them are youths and their marriages are still new. Married individuals with dependants at the family level have great probability of engaging in social economic activities like vegetable production for the sake of responding to different family challenges. These findings also indicate that 30% of the respondents claimed to have 5-7 family size, which implies that individuals in this age tend to become weak and opt to do other activities rather than growing vegetable which needs special attention.

### **4.3 Types of vegetables grown by smallholder farmers in the study area**

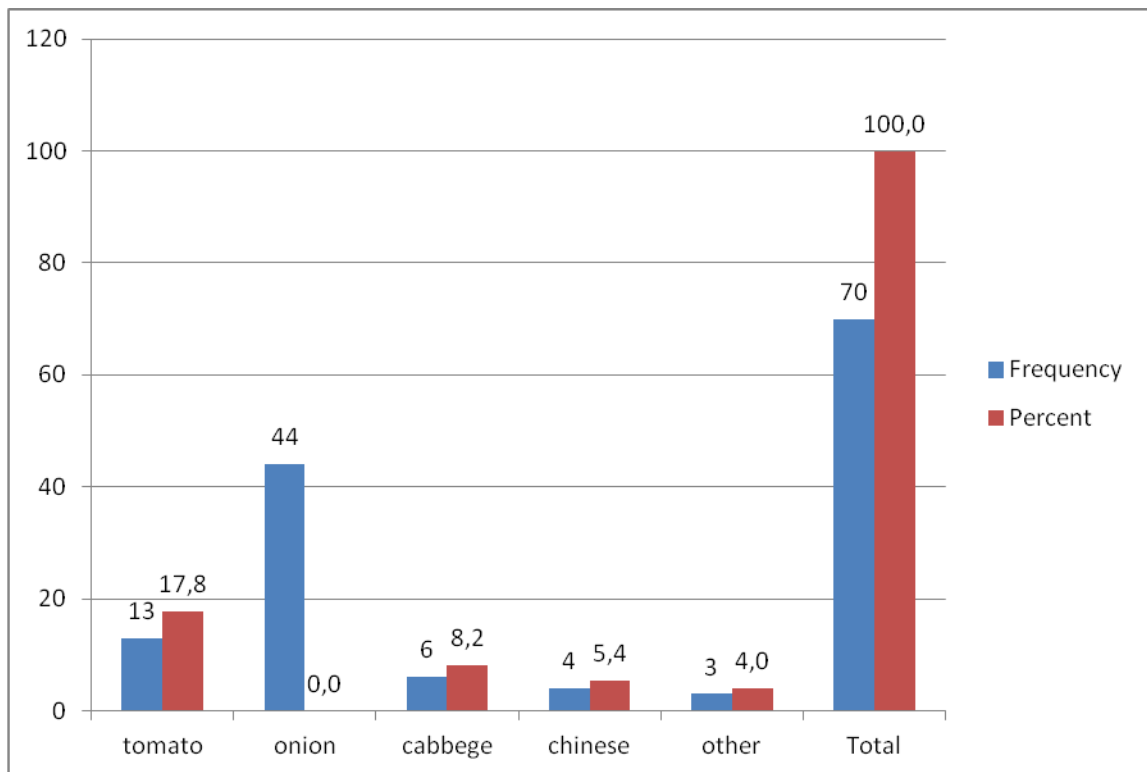
#### **4.3.1 Varieties of vegetable grown**

Figure 4.7 summarizes different varieties of vegetable products grown by the smallholder farmers in the study area. The results in the figure show that *Onions* were grown by majority 44 (62.6%) of smallholder farmers. This is followed by tomatoes 13 (18.6 %), cabbage 6 (8.6 %) and chinese 4 (5.7%). However, notable differences in the

proportion of respondents who reported production of the remaining vegetable products were apparent. For example, while a relatively larger number of smallholder farmers reported growing salad 1(1.4 %), “mnafu” 1 (1.4%) and spinach 1 (1.4 %), very few sample smallholder farmers reported growing of “figiri”.

The reason given for this variation is that it is partly due to differences in profitability of the products, and availability of customers. That is, farmers preferred to cultivate vegetables with high profit, good number of customers, and suitable to climate. These vegetables include onions, tomatoes and chinese as compared to the vegetables with either low profit, low number customers such as spinach, “mnafu” and “figiri”.

**Figure 4.7 Types of vegetable grown in the study area**



Source: Field data 2013

#### **4.3.2 Quantity of vegetable crops produced by smallholder farmers**

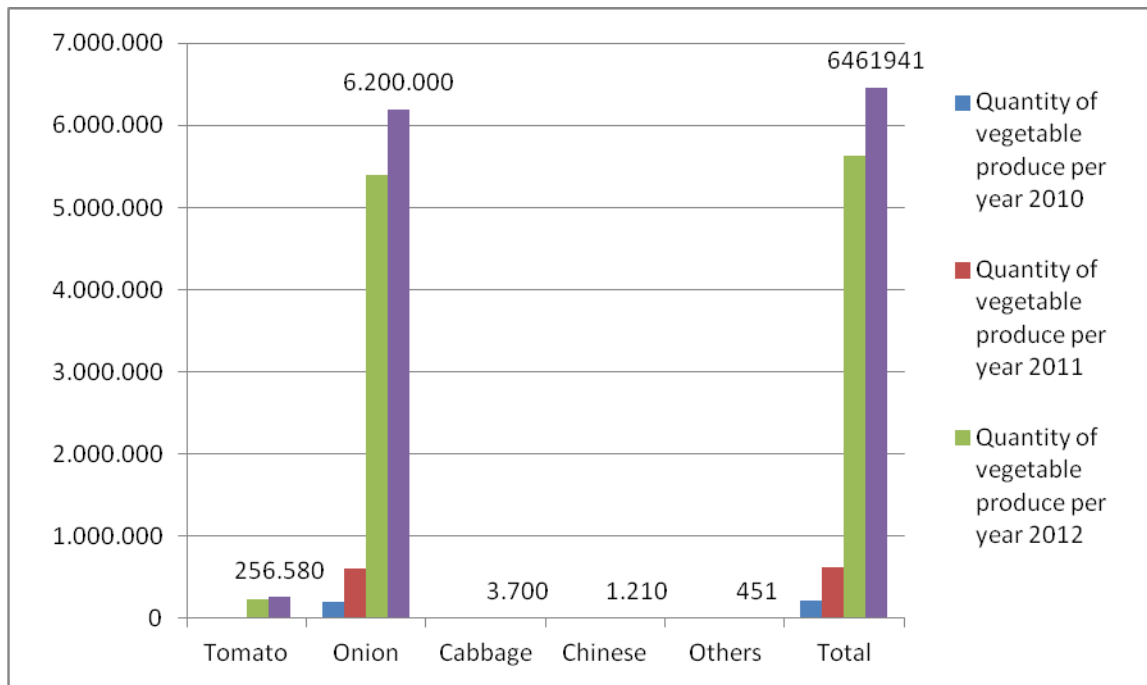
Figure 4.8 presents the average quantities of vegetable crops grown by the sample smallholder farmers in the study area. Worth noting from the presented results, is that

the quantities of all varieties of vegetable products grown by the sample farmers in the study area show a general increasing trend over time.

It was observed that the majority are shifting from producing other agricultural products to vegetables. It was established that, the leading factor responsible for this trend is increase in the number of customers for vegetable products due high population growth of the nearby town and cities, i.e. Njombe, Songea and Mbeya City.

In recent years many people in the study area opted to grow onions rather than any other vegetable since the producer earn more money within a short time compared to other agricultural products. Other reasons are firstly, relative high price of the vegetables as compared to similar products; hence increase demand of the vegetables. Secondly, availability of agricultural inputs like modern seeds, manure and manpower facilitate increases vegetable production.

**Figure 4.8 Quantity of vegetable crops produced in kgs**



Source: Field data 2013

#### **4.4 Trend in Vegetable production**

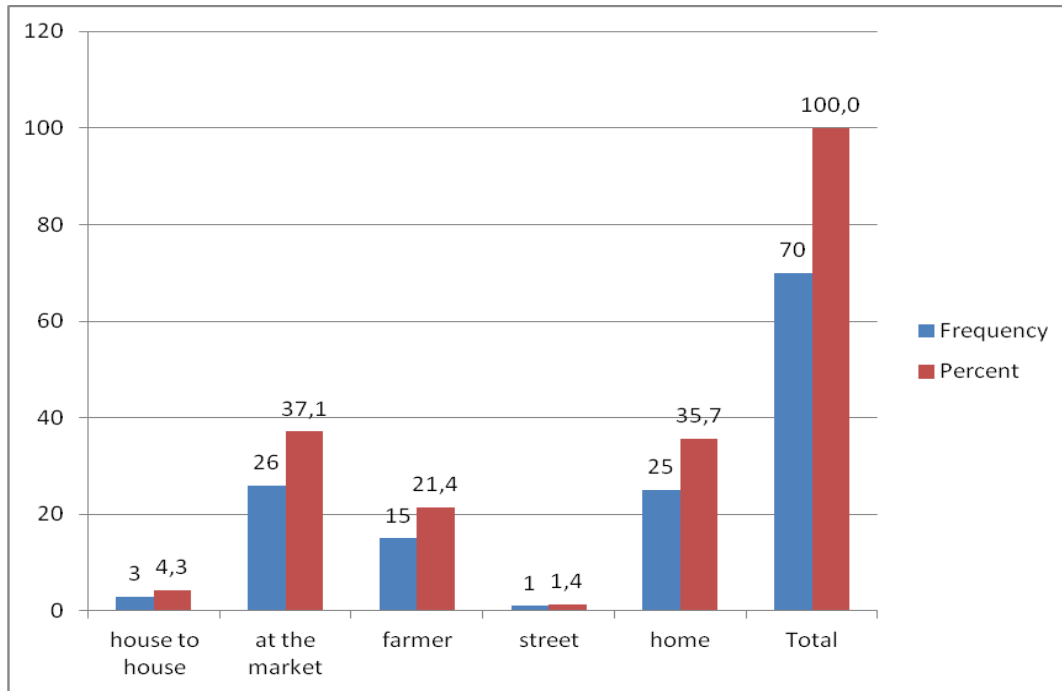
When asked the trend of vegetable in recent three years all the officials said that there is an increase of vegetable production in recent years. Most farmers at the study area prefer to produce onions rather than any other kind of vegetable, although some vegetables are being produced, it is not paying like onions where everyone likes to produce onions.

Despite of this increase in production farmers could produce even more than that, but due to unreliable market and poor infrastructure farmers produce only that which can be affordably sold. When also asked about obstacles that farmers or vegetable producer encounter despite of increasing production, they said transport is one of the challenges they encounter. Poor infrastructure leads to high price of hiring tracks which reduces income. They suggested that if the infrastructure will be good it will help vegetable producers to transport their vegetables to the market early and at low price.

#### **4.5 Marketing of the vegetables produced**

In order to understand the market of produced vegetable, respondents were asked where they sell their crops after harvesting them. The results in the figure 4.9 summarizes the answer as follows; 25(35.7%) of the respondents said they used to sell their vegetables at home, 15(21.4%) of the respondents said they sell their vegetables at the market while 3(4.3%) of the respondents said that they sell from house to house and 1(1.4%) of the respondents said they sell their vegetables by the street.

**Figure 4.9 Market of vegetables produced**



Source Field data 2013

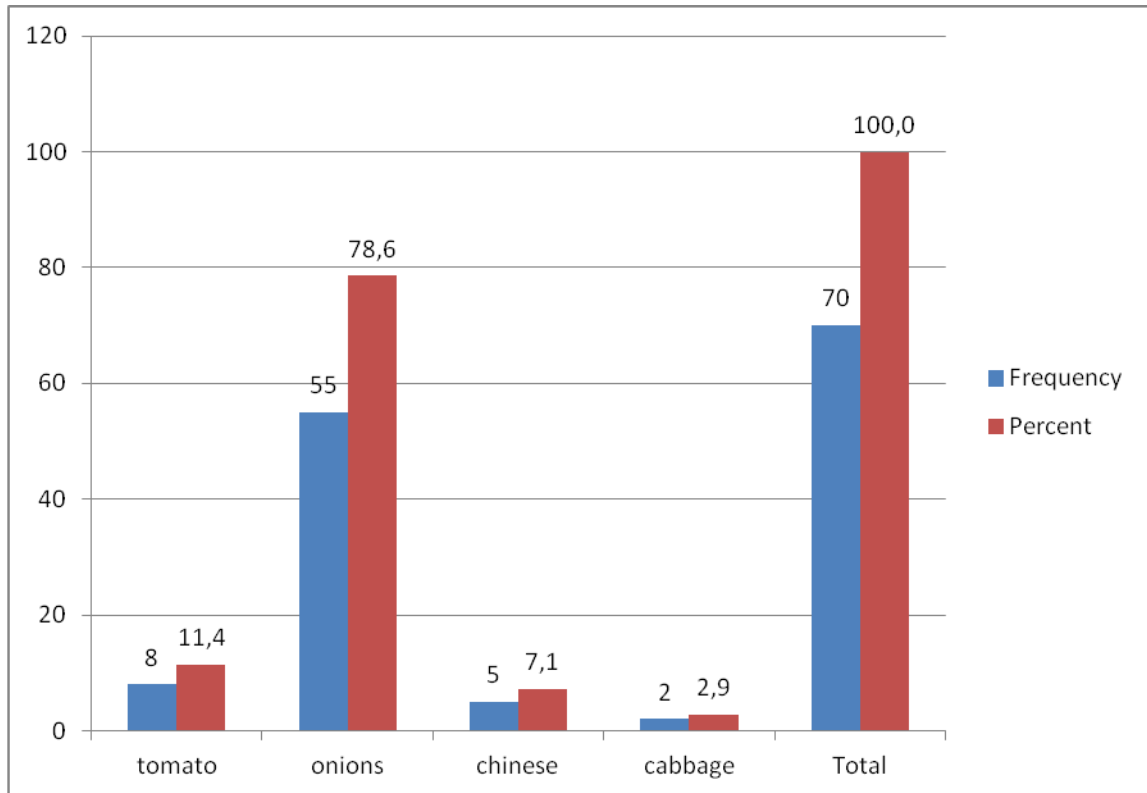
These study findings indicate that the majority of the respondents 37.1% were selling their vegetables at market. It is apparent that the market is the centre where different buyers come and buy. The study also indicates that 35.7% of the respondents, used to sell their vegetables at home. The researcher went further to know why they sell vegetables at home. The respondents who were interviewed agreed that all who produce vegetables in high quantity normally tend to preserve their product at home where buyers come and pick them. Others, 15 (21.4%) of the respondents, indicated that they used to sell their products directly from the farms where buyer come and pick vegetables, especially onions.

#### **4.6 Vegetable with high market demand**

Figure 4.10 presents the type of vegetable which is highly demanded at the market. The findings show that 55 (78.6%) of the respondents said onions is in higher demand than any other vegetable, followed by 8 (11.4%) of respondents who agreed that tomato is

also one of the demanded products, chinese 5 (7.1%) of the respondents and cabbage 2 (2.9%) of the respondents.

**Figure 4.10 Vegetable with high market demand**



Source: Field data 2013

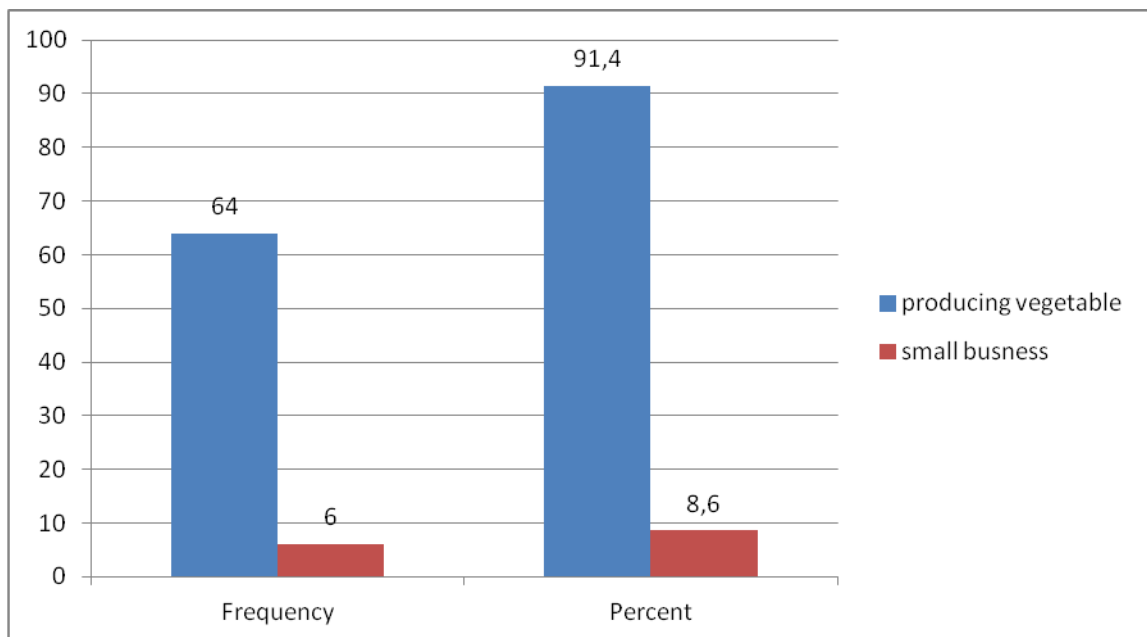
The findings in the figure above indicate that 55(78.6%) of respondents suggest that onions were the first type of vegetable with high demand at the market. The study revealed that despite of fall in the price of the onion this year, still it is in high demand. Onions were sold in and out of Ludewa district, ie Njombe, Mbeya, Songea and Dar es salaam. Tomatos also were demanded in the market. Eight (11.4%) of the respondents, revealed that tomatoes also were in demand. Still most of the people do not like to produce tomato as one of the income source; and 5(7.1%) of the respondent indicated that chinese was in low demand and it was produced only for home purpose. Likewise cabbage 2(2.9%) was reported to be only for family use and not for the business purpose.

#### 4.6 Activity which earns more income

In order to understand the activity that earns more income in study area, a question was asked to identify it.

Figure 4.11 shows that 64(91.4%) of the respondents said that producing vegetable earns more money compared to other activities. Also study results show that 6(8.6%) of the respondents are involved in small business.

**Figure 4.11 Activity which earns more income**

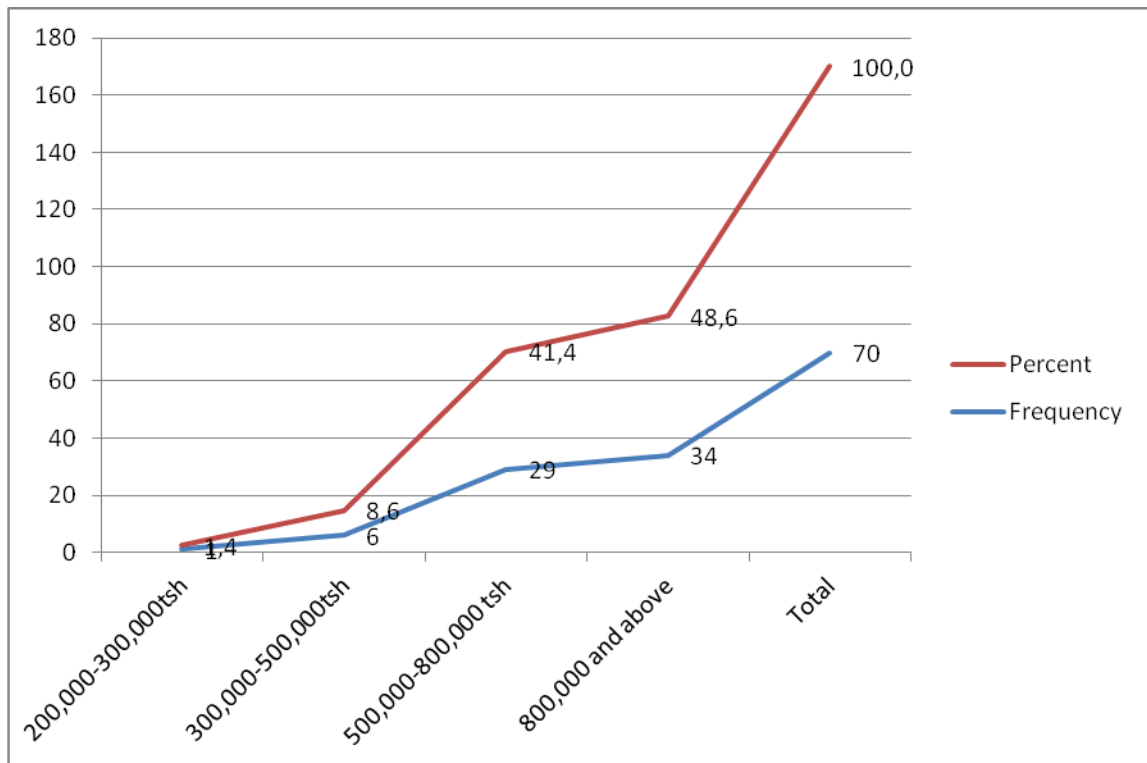


Source: Field data 2013

#### 4.7 Amount of money obtained from vegetable production

Figure 4.12 shows the amount of money obtained from vegetable production. The question asked here sought to know amount of money earned from vegetable production. One (1.4%) of the respondents answered that they get 200,000/- to 300,000/-; 6 (8.6%) of the respondents that they get 300,000/- to 500,000/-; 29(41.4%) of respondents that they get 500,000/- to 800,000/-; 34(48.6%) of the respondents that they get more than 800,000/-.

**Figure 4.12 Amount of money obtained from vegetable production**



Source: Field data 2013

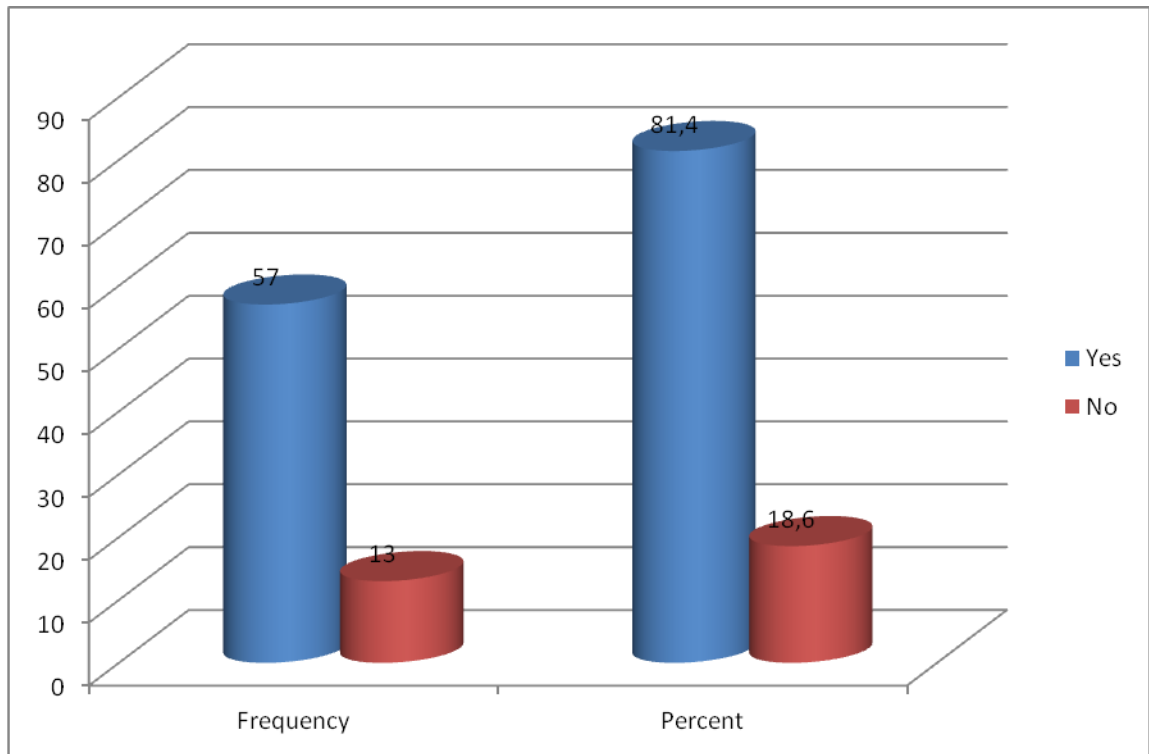
The result findings presented in figure 4.12 revealed that 34 (48.6%) of the respondents said that they earn Tzs 800,000/- and above from vegetable production, followed by 29(41.4%) of respondents who said they get about Tzs 500,000/- to Tzs 800,000/- from vegetables, while 6(8.6%) of respondents and 1(1.4%) of respondents get Tzs300,000/- to Tzs 500,000/- and Tzs 200,000/- to Tzs 300,000/- respectively. From the point of view of majority, the information shows that most of the vegetable producers obtain enough money from this horticultural activity. This has been proven by the researcher’s observation which showed that almost every one under the study area is shifting from other economic activities to horticultural/vegetable production.

#### **4.8 Perception of importance of vegetable production**

Figure 4.13 indicate that among the respondents interviewed 57(81.4%) responded “yes” to the question whether it is important to produce vegetable in order to improve household income. On the other hand 13(18.6%) responded “no”. The results show that

the majority of the respondents perceive producing vegetable to be at the moment the new alternative for income generation to them. During data collection the researcher observed that the majority opt to grow vegetable than any other agricultural products.

**Figure 4.13 Respondents' perception of importance of vegetable production**



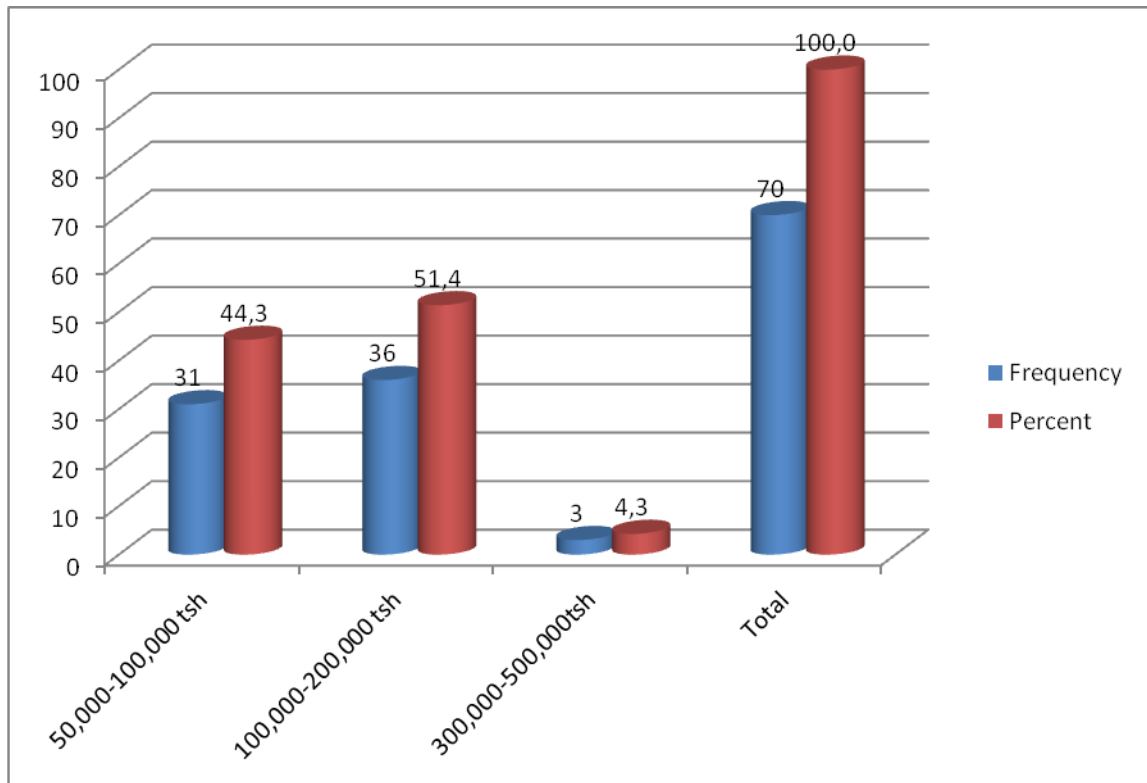
Source: Field data 2013

#### **4.9 Income from other activities**

In order to know the income from other activities undertaken by the respondents, the latter were asked to mention the amount get from other social economic activities at the study area.

The results are presented in Figure 4.14. They revealed that 31(44.3%) of the respondents, received Tzs 50,000- Tzs 100,000/- from other sources while 36(51%) of respondents get Tzs 100,000- Tzs 200,000/- from other income generating activities. Also very small number of respondents 3(3.4%) get Tzs 300,000- Tzs 500,000/- from other income generating activities.

**Figure 4.14 Income from other activities**



Source: Field data 2013

From the figure above, findings indicate that income from other activities is not as much as is earned from vegetable production. Those who produce onions received more income from that than from any other income activities. Thirty (51.4%) of the respondents indicated that only Tzs 100,000/- to Tzs 200,000/- were being gained through other income activities per annum, followed by Tzs 50,000/- to Tzs 100,000/- gained by 31(44.3%)

#### **4.10 The effect of vegetable production on households' poverty reduction**

Income determines the purchasing power at household level, such that the higher the income the higher the ability of the households to meet basic social services. Respondents were requested to indicate the contribution of vegetable production to household income.

The findings in Table 4.1 show that, vegetable producers in the study area received significantly higher income per annum after being involved in vegetable production compared to the period before engaging in vegetable production. These findings suggest that, vegetable production has significantly higher contribution toward reducing income poverty among households in the study area than any other production.

**Table 4.1: Annual income (Tzs) received by sample vegetable grower in study area**

<b>Annual income</b>	<b>Frequency</b>	<b>Minimum</b>	<b>Maximum</b>
Average income before engaging in vegetable production activities	51	50,000	300,000
Average income after engaging in vegetable production activities	51	2,000,000	20,000,000

Source: Field data 2012

#### **4.11 The effect of vegetable production on food security**

Apart from the increase in income recorded by vegetable producers (farmers), the respondents were also requested to indicate the effect of vegetable production on food security. Special focus was on the contribution of income accrued from vegetable production on household accessibility, availability and ability to acquire different types of food nutrients from various sources. The responses are summarized in Table 4.2 and Table 4.3 below. The results in Table 4.2 reveal that, the majority of vegetable grower (farmers) (70.5 % and 76.4 %) reported that food availability and accessibility respectively, at household level were improved significantly after involving in production of vegetables compared to the period before engaging in production of vegetables.

Most of the respondents argued that after earning money from vegetable they are now able to purchase any kind of food they like and enough for home purpose. Before engaging in vegetable production most of the respondents involved in producing cereal crops and legumes crops such as maize, wheat beans and other. These products consume

more time to get harvest. A long time passes while waiting products, and meanwhile these small scale farmers do not have cash to buy enough food for family security.

**Table 4.2 The effect of vegetable production on food security**

Variables	Vegetables grower responses	
	Frequency	Percentage
Food availability		
Increased	36	70.5
Remain the same	15	29.4
Food accessibility		
Increased	39	76.4
Remain the same	12	23.6

Source: Field data 2012

Further descriptive analysis was carried out to verify the contribution of income from vegetable production to ability of households to get different types of food nutrients.

Table 4.3 shows that, vegetable producers were able to access nutrients more frequently after being engaged in production of vegetables compared to the period before engaging in vegetable production. These findings suggest that vegetable production has significant positive contribution toward reducing non-poverty income in terms of improving food security.

**Table 4.3 The effect of vegetable production on food nutrition (%)**

Food nutrients	Before engaged in vegetable production			After engaged in vegetable production		
	Frequently consumed	Infrequently consumed	Not consumed	Frequently Consumed	Infrequently consumed	Not Consumed
Protein food	38.2 (21)	27.3 (15)	34.5 (19)	56.4 (31)	29.1 (16)	14.5 (08)
Vitamins food	49.1 (27)	36.4 (20)	14.5 (08)	61.8 (34)	38.2 (21)	Nil
Minerals food	63.6 (35)	18.2 (10)	18.2 (10)	74.5 (41)	25.5 (14)	Nil
Carbohydrate food	78.2 (43)	16.4 (09)	05.5 (03)	90.9 (50)	09.1 (05)	Nil
Fat food	50.9 (28)	29.1 (16)	20.0 (11)	63.6 (35)	27.3 (15)	09.1(05)

*Figures in brackets represent number of respondents*

Source: Field Data, 2013

#### **4.12 The effect of vegetable production on households' accessibility to education services**

The concern here was to examine the contribution of income accrued from vegetable production on household ability to pay school fees and other related facilities like stationeries, books and uniforms. The findings presented in table 4.4 below, reveal that, vegetable farmers have ability to pay school fees and other related facilities like stationeries, books and uniforms increased significantly after being involved in vegetable production compared to the period before engaging in vegetable production. These findings suggest that, vegetable production has significant positive contribution towards reducing non poverty income in terms of increasing accessibility of smallholder farmers to education service

**Table 4.4 The effect of vegetable production on education service (%)**

Variable	Before Engaging in Vegetable Production	After Engaging in Vegetable Production
<b>Ability to pay school fees:</b>		
Increase significantly	54.5(28)	63.6(35)
Not changed	38.2(19)	36.4 (16)
Decreased	07.3(04)	Nil
Sub- total	100(51)	100(51)
<b>Ability to buy school facilities</b>		
Increase significantly	52.9(27)	68.6(35)
Not changed	47.05 (24)	31.4(16)
Decreased	Nil	Nil
Sub- total	100 (51)	100(51)

*Figures in brackets represent number of respondents*

Source: Survey Data, 2012

#### **4.13 The effect of vegetable production on households' accessibility of health services**

Apart from education service, vegetable producers were asked to indicate the effect of vegetable production on health services. The aim of this was to find out if these farmers after engaging in vegetable production are better able to access health services. Special attention was given to finding out the effect of income accrued from vegetable production on household ability to meet consultation and medical services costs.

The results in the Table 4.5 below shows that, the ability of vegetable producers to meet both consultation and medical services costs increased significantly after being involved in vegetable production compared to the period before engaging in vegetable production. This finding implies that, vegetable production has significance contribution toward reducing non- income poverty in terms of increasing accessibility of farmers to health services.

**Table 4.5 The effect of vegetable production on health service (%)**

Variable	Before Engaging in Vegetable Production	After Engaging in Vegetable Production
Ability to meet consultation fees:		
Increase significantly	52.9(27)	63.6(32)
Not changed	45.0(23)	36.4 (18)
Decreased	1.9(01)	01
<b>Sub- total</b>	<b>100(51)</b>	<b>100(51)</b>
Ability to buy medical facilities like drugs:		
Increase significantly	56.8(29)	68.6(35)
Not changed	41.2 (21)	29.5(15)
Decreased	1.9(01)	1.9(01)
<b>Sub- total</b>	<b>100 (51)</b>	<b>100(51)</b>

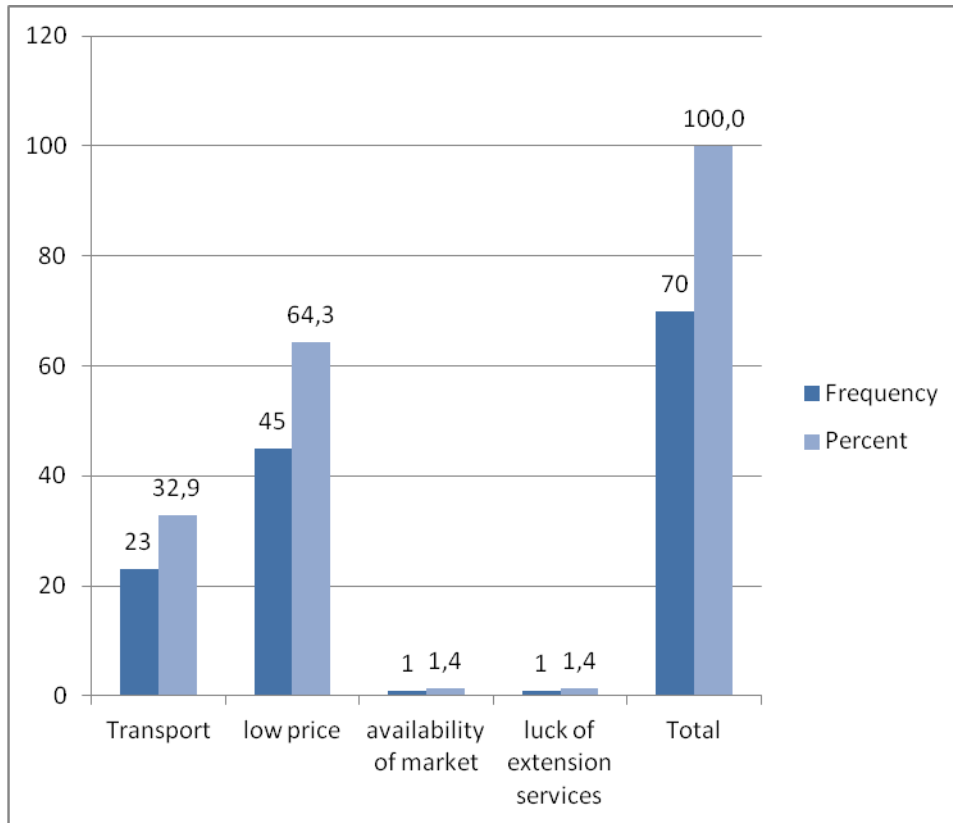
*Figures in brackets represent number of respondents*

Source: Field Data, 2012

#### **4.14 Challenges encountered during vegetable production**

The producers were asked what challenges they encountered in production, and their answers are summarised in Figure 4.15 below.

**Figure 4.15 Challenges encountered during vegetable production**



Source: Field data 2013

The result findings indicate firstly that 45 (63.3%) of the respondents said that they face the challenge of low price. Vegetables are produced in great quantity but the problem is low price, especially the price of onions tends to fluctuate over time. Secondly the study revealed that 23 (32.9%) of the respondents argued that transport is another challenge. There is difficult in transporting agricultural products. This is because in rural area most of the rural infrastructures are poor, hence transportation is difficult. Traders who buy vegetables tend to buy it at low price to compensate the cost of hiring trucks for transportation of goods. Also 1 (1.4%) of the respondents indicate that there are challenges of lack of market and lack of extension officers.

#### **4.15 Challenges encountered during vegetable production**

The study went further to find out challenges that vegetable grower face. When extension officers were asked they all agreed that market is one of the major problems in

the study area. They said if there were to be a constant market producers could produce enough products to meet the demand. Instead, most of the vegetable grower produces only what they believe it is possible to sell.

Furthermore the study revealed that all the respondents interviewed said that lack of capital was another challenge as most rural people lack capital for investing in vegetable production. They said that producing vegetables, especially onions, needs seeds, and fertilizer to be used. But these small scale farmers do not have access to capital hence they fail to achieve maximum production.

The study also revealed that lack of horticultural skills among the vegetable growers is responsible for the low quantity of vegetables produced. Extension officers argued that the number of extension officers at the village level is not adequate for the vegetable growers in the given village or district. This makes it difficult for the farmers to get consultation from these experts.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND POLICY IMPLICATION**

#### **5.1 Introduction**

This chapter is organised as follows: summary, conclusion, policy implication.

#### **5.2 Summary**

This study was conducted with the intention to find out the contribution of vegetable production and household income. It was conducted in Ludewa District, Njombe Region.

The study had the following specific objectives. First, to identify the types of vegetables produced in the study area. Second, to determine the trend in vegetable production. Third to compare income from agricultural activities (i.e. farming) in vegetable production and that from non vegetable farmers. Fourth to find out how vegetable production contributes to reduce non-income poverty in the study area.

Data collection was guided by the following main research question: Does vegetable production contribute to the household income generation in Ludewa District? Five specific research questions were used to collect data: What are the types of vegetables produced in the study area? What is the trend and quantity of vegetable production in the study area? What is the income of the vegetable producers and non-vegetable producers? What are the effects of vegetable production to household income in Ludewa District?

The target population of the study was vegetable growers and none vegetable growers in Ludewa District. Also for the purpose of getting more information village Extension Officers, District Extension Officers were included. The study used cross sectional research design.

The study used simple random sampling and purposive sampling to get a sample size. These sampling procedures were used to select seventy respondents. The sample was

divided as follows: fifty one for vegetable producer, ten people with non- vegetable producers, seven Village Extension Officers, one District Extension Officer.

This study was mainly qualitative although quantitative data were also collected. Quantitative data were collected through questionnaire while qualitative data were collected through in-depth interviews. Quantitative data were analysed through Statistics Package for Social Sciences (SPSS) program involving tables and figures while in-depth interviews data were analysed qualitatively.

Household income generation was based on dimensions which were: vegetable production as the means of economic push hence reduce income and non income poverty. Regarding income generation, the findings showed that more than half said the maximum amount received from vegetable production was Tzs 20,000,000 and less than a quarter said the minimum was Tzs 2,000,000.

More than half of the respondents participated in vegetable production while less than a quarter were farming other agricultural crops. One third of the respondents participated in both vegetable production and farming other crops, Findings also revealed that eighty percent of the respondents prefer to grow onions, since its returns are high when compared to other types of vegetables.

Regarding advance of the livelihood of those who participate in vegetable production, findings showed that the majority of respondents who participate in vegetable production their livelihoods have improved. Findings reveal that food accessibility and availability respectively, at household level, were improved significantly after being involved in production of vegetables compared to the period before engaging in production of vegetables. Vegetable farmers have ability to pay school fees and other related facilities like stationeries, books and uniforms increased significantly after being involved in vegetable production.

The findings also showed the conditions and challenges facing vegetable grower included poor infrastructure which makes it difficult to transport products from the farm to the market. Some respondents argued that unreliable market for the vegetables also hinders production of enough vegetables. Farmers produce only the amount which can be bought by the consumers around the study area. Study also revealed that lack of agricultural skills among people who produce vegetables also hinder high quality production.

### **5.3 Conclusion**

Based on the findings, it can generally be concluded that, horticulture has potential role to play towards reducing poverty among rural dwellers in Njombe region and Ludewa in particular. This is proven by the raise in household income among the vegetable producers.

On the side of non-income poverty there is increase in quantity of vegetable production, increase in food security, where vegetable producers have ability to purchase enough food of different variety and save for the whole period of the year. Also vegetable producers have improvement of accessibility and affordability of health and education services

To make the horticulture activities sustainable, it is recommended that, relevant authorities including the Ludewa District Council make deliberate efforts in improving access to land, by legally allocating specific areas for horticulture in the District, improving rural extension services, and reducing price of agricultural inputs.

### **5.4 Policy implications**

The findings shows that majority of people in the study area are shifting from producing cereal crops to vegetable production. The policy implication for this situation is that Government should ensure that education about horticulture is provided to the people to make them aware about practicing profitable agriculture that will help to improve their income and hence reduce rural poverty.

The findings revealed that two third of the vegetable growers in the study area are men. Policy implication for this situation is that, the government should ensure that women are encouraged to engage in vegetable production especially so that they can be able to improve their income. By so doing women will be helped since they are the bigger number of people in rural area; women will have power to stand on their own and contribute to improving household income.

The findings have shown that despite of the increase in vegetable trend there are some obstacles in infrastructure and capital for small farmers. The policy implication on this situation is that Government should improve rural transportation by improving roads to be accessible throughout the year. This will help vegetable producers to transport their products easily and with profit. Government should also provide capital for the small vegetable producer for example in forms of loans, so as to support those who do not have capital for vegetable production.

### **5.5 Areas for further research**

The findings have raised theoretical and methodological questions that need further investigation. To this end, the following areas for further research are recommended:

- (i) The study dealt with contribution of vegetable production and household income. There is a need to focus specifically on onion production.
- (ii) The study covered a small area namely Ludewa District. There is a need of similar studies elsewhere in Tanzania.

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## APPENDIXES

### Appendix I: Questionnaire Respondents

I'm Faraja Mlelwa, a student at Mzumbe University pursuing a Masters Degree in Development Policy. To fulfil the requirements of this degree, I'm undertaking a dissertation entitled **VEGETABLE PRODUCTION AND HOUSEHOLD POVERTY REDUCTION IN LUDEWA DISTRICT**. I kindly request you to fill this questionnaire that will enable me accomplish the objectives of the study. All information you provide shall be treated with ultimate confidentiality

#### Section A; Background information

1. Name of the respondent..... (Optional)

2. Sex.....

i) Male

ii) Female

3. What is your education level?

1. None

2. Primary

3. Secondary

4. Higher learning institution

5. Other training

4. What is your marital status?

1. Married

2. Single

3. Divorce

4. Widowed

6. What is your occupation?

1. Farming

2. Employed

3. Business

7. How many are you in your household?

a) 0- 2

b) 3- 4

c) 5- 7

d) More than seven

**B. Types of vegetable produced**

8. What is the favorable vegetables do you prefer to cultivate?

a).....

b).....

c).....

d).....

9. Where do you market your vegetables?

1. From house to house

2. Market

3. From the farm

4. I match with vegetables

10. What are the market barriers for your products?

11. What is the situation for production of this year compared to recent years?

1. Good

2. Bad

3. Satisfactory

4. Worse

**C. The trend of Vegetable production**

12. What type of vegetable that you mostly grow?

a) .....

b) .....

c) .....

13. Does the season have an influence on vegetable production?

a) Yes

b) No

If Yes, (specify, which months of the year and why)

.....  
.....  
.....  
.....

14. Among the varieties of vegetables that is grown by the house hold what type of vegetables are on high demand in the market?

- a) .....
- b).....
- c).....

15. How do you respond to meet the demands of the highly preferred vegetables by the market?

- a).....
- b).....
- c).....

16. What are the factors that hinder vegetable production?

- a).....
- b).....
- c).....

**D. Income from other agricultural produce**

17. Do you have other income generating activities apart from vegetable production?

.....  
.....

18. Among those activities, which one do you spend most of your time in performing it?.....

.....

19. Which one of the income generating activity earns you a reasonable return?.....

.....

20. How much do you earn from vegetable production per annual?.....
21. How much do you earn from other activities per annual?.....
22. Do you think there is any effect of vegetable production on food security?.....  
.....
23. What is the differences before growing vegetable and after on the accessibility of education services.....  
.....
24. When you compare before producing vegetable and after producing is there any changes on accessibility of health services?

**Thank you very much for your cooperation**

**Appendix II: Interview guide**

1. What types of vegetable are growing your area?

.....  
.....  
.....

2. What is the trend of vegetable production in recent years

.....  
.....  
.....

3. Where did the vegetable producer get market

.....  
.....  
.....

4. Which type of the vegetable produced have high demand in the market

.....  
.....  
.....

5. Which income activities in your area earn more income

.....  
.....  
.....

6. What are the income from other activities

.....  
.....  
.....

7. What ere the effects of vegetable production on household income

.....  
.....  
.....

8. What is the effects of vegetable production on food security

.....  
.....  
.....

9. Is there any effect of vegetable production on food nutrition?

Yes

No

10. If the answer in question 9 is Yes, what are the effects of vegetable production before and after producing vegetable

.....  
.....

11. What are effects of vegetable production on accessing education service

.....  
.....

12. What are effects of vegetable production on accessing health services

.....  
.....  
.....

13. What are the challenges these small farmers face when producing vegetable production

.....  
.....

**Thank you very much for your cooperation.**