

**FACTORS INFLUENCING YOUTH EMPLOYMENT THROUGH  
INVOLVEMENT IN THE MILK VALUE CHAIN: A CASE OF  
RONGAI/NAKURU SUB- COUNTIES, IN NAKURU COUNTY  
KENYA**

**BY**

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## DECLARATION

This research project is my original work and has not been presented for examination in any other university for the award of an academic certificate.

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## **DEDICATION**

This research work is dedicated to my dear children, Wanjiku and Kimani and to my beloved grandson Boo.

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## **ABBREVIATIONS AND ACRONYMS**

<b>AFC</b>	Agricultural Finance Corporation
<b>FAO</b>	Food and Agriculture Organization of United Nations
<b>G D P</b>	Gross domestic product.
<b>ILRI</b>	International Livestock Research Institute
<b>KARI</b>	Kenya Agricultural Research Institute
<b>KDB</b>	Kenya Dairy Board
<b>KDMP</b>	Kenya Dairy Master Plan
<b>MOLD</b>	Ministry of Livestock Development
<b>NGO</b>	Non-governmental organization
<b>SDP</b>	Smallholder Dairy (Research and Development) Project
<b>NLP</b>	National Livestock Policy
<b>CPEV</b>	Commission of Inquiry on post election violence
<b>KNBS</b>	Kenya National Bureau of statistics
<b>UNDP</b>	United Nations Development programme
<b>OECD</b>	Organization for Economic cooperation and Development
<b>HIV/AIDS</b>	Human Immune-deficiency Virus/Acquired immune-deficiency
<b>ICT</b>	Information and communication technology
<b>UHT</b>	Ultra Heat treatment
<b>KCC</b>	Kenya Co-operative Creameries
<b>IFAD</b>	International Fund for Agriculture Development
<b>KAGRIC</b>	Kenya Animal Genetics Resource and Information Center
<b>VVPCU</b>	Veterinary Vaccine Production Center

<b>JKUAT</b>	Jomo Kenyatta University of Science and Technology
<b>DTI</b>	Dairy Training Institute
<b>KEBS</b>	Kenya bureau of standard
<b>IFPRI</b>	International Food Policy Research Institute

## ABSTRACT

Youth unemployment is a widespread phenomenon in the world. The case is much worse in Kenya. Today, Kenya's youth unemployment rate stands at 67 percent, among the highest in the world. The purpose of this study was to examine the factors that influence youth employment through involvement in the milk value chain in Rongai/Nakuru sub-counties, in Nakuru County, Kenya. The study was based on the following objectives: i) To establish how demographic characteristics of the youths influence their involvement in the milk value chain in Rongai/Nakuru sub-counties: ii) To determine how marketing factors influence youth involvement in the milk value chain in Rongai/Nakuru sub-counties: iii) To establish how youth awareness on dairy activities influence their involvement in the milk value chain in Rongai/Nakuru sub-counties: iv) To establish how economic factors influence youth involvement in the milk value chain in Rongai/Nakuru sub-counties. A literature review on the world dairy industry, Kenya dairy sector, milk production in Kenya, Market structure, youth unemployment, Demographic characteristics, theoretical framework, conceptual framework and knowledge gap has been discussed in details. A qualitative survey was conducted by randomly selecting 247 youth actors in the milk value chain in Nakuru and Rongai sub-counties in Nakuru County. Data was collected using structured questionnaires and analyzed using Statistical Packages for social Scientists (SPSS). The findings are presented in tables and summaries will be inferred on the whole population. The results from the study indicate that majority of the youth involved in the milk value chain were married and had at least secondary school level of education, and 56.5% were between 26-35 years of age implying very active. They had low access to low interest funds limiting their capacity to invest. Due to the shortage of funds and skills 92% of the respondents were at the production and trading level of the chain. Very low value addition to milk produced or delivered to the market was done and this left the youth exposed to high risks of losses during the pick season. The training offered is mainly by the government agency which the respondents rated low in terms of quality therefore the youths are not updated to enable them handle the various challenges in the industry. Access to information for majority of the respondents was mainly through sharing with colleagues, which means it is not ascertained information and may mislead. The land ownership was mainly through inheritance and they did not have title deeds they could use to secure funds. The sizes of land are low with majority owning less than two acres of land, this limits their output and thus low profit margins per month which are less than KSH. 10,000 for majority of the respondents. The study recommends more research to be carried out on the factors influencing dissemination and access of information among the youth, factors hindering them to join economic groups and policies that need review in the sector.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the study

Young people bring energy, vitality and innovation into the work force. The past few years have provided graphic evidence of the twin need for agricultural growth. Global food prices have spiked. Since June 2010, higher food prices have pushed nearly 44 million people into poverty. Opportunities to create jobs and simultaneously lower food prices have been the subject of recent events. During the 2012 Farmers' forum event IFADs President emphasized the need to invest in the rural youth of today, the farmers of tomorrow. The UN's April 2012 annual review recognized rural employment as the key to reducing poverty and food insecurity. Efforts to enhance agricultural growth and those to create employment for young people are complementary. (IFPRI 2012 report)

Agriculture will likely continue to be the dormant sector of employment for most young people over the next few decades. Fortunately the high demand for Agricultural products regionally and globally creates good opportunities for the constantly growing pool of young people to apply their energies and talents on farming activities (2012 Global Food Policy Report from IFPRI).

Over the last five decades the global dairy sector has seen substantive changes with major intensification, scaling-up and efficiency of production driven by demand from a growing human population and disposal incomes. Such changes are not however reflected across the whole dairy sector and while some developing countries have seen a major expansion in small-scale milk production, small-scale dairying in other countries has largely stagnated.

Agriculture being the mainstay of the Kenyan economy and a key livelihood pillar for the majority, directly contributes 26 per cent to the annual GDP and another 25 per cent indirectly. The sector accounts for 65 per cent of Kenya's total exports and provides more than 70 per cent of informal employment in the rural areas. It comprises six subsectors, namely: Industrial crops, food crops, horticulture, livestock, fisheries and forestry. The growth of the national economy is highly correlated to growth and development of the agricultural sector. The agricultural sector, and in turn the national economy, recorded the most impressive growth in sub-Saharan Africa at

average rates of 6 per cent per annum for agriculture and 7 per cent for the national economy suggesting that increased and deliberate investment in agriculture will translate into growth of the national economy.(NLP 2008)

Youth unemployment is a widespread phenomenon in the world, and the case is much worse in Kenya. Today, Kenya's youth unemployment rate stands at 67 percent, among the highest in the world. (Youth Employment Marshall Plan, 2009). According to ILO, quoted in Schoof, (2006) three in five unemployed Kenyans are youth, aged between 18 and 35 years. This clearly indicates that unemployment in Kenya is a youth problem. (Youth Employment Marshall Plan.) Efforts by Kenya to achieve international targets within the framework of MDGs as well as the national policy objectives contained in the medium development plans and the vision 2030 need to rally the potential of youth as a very significant demographic group.

Kenya Agricultural Research Institute (KARI) together with Ministry of Livestock Development, the International Livestock Research Institute (ILRI), Food and Agriculture Organization of the United Nations (FAO) and Smallholder Dairy (Research and Development) Project (SDP) estimated the employment created by the dairy industry as follows; At the farm level, for every 1000 litres of milk produced daily, dairy activities generate an estimated 23 full-time jobs for the self-employed, 50 permanent full-time jobs for employees, and three full-time casual labour jobs, making a total of 77 direct farm jobs per 1 000 litres of daily milk production. This translates into a total of about 841 000 full-time jobs generated nationally by dairying at the farm level (Staal, Pratt and Jabbar, 2008).

Dairy has the potential to contribute more to national development goals, and a review of its development to date will shed light on and provide understanding of the sector's growth needs, helping to make informed decisions as small scale farmers in Kenya produce over 80% of milk. The informal milk market has in the past faced several challenges. This was because prior to policy change in 2004, informal vendors, including mobile milk traders and milk bar vendors, were not recognized under the old dairy policy. As a result, they were frequently harassed as powerful dairy market players sought to protect their interests and increase their market share. There were also concerns over the safety and quality of milk sold by the informal sector players.



According to 2012 annual report from the ministry of livestock development, only about 20% of youth in the two sub-counties are actively involved in agricultural activities, milk value chain activities included. Currently the annual milk production level in the two sub-counties is about 29 million litres this figure could significantly increase if more youths were to be involved in dairy activities. The 2012 Kenya dairy board annual report indicates that annual milk production of about 70 million litres can provide sustainable employment to about 150,000 youths .The two sub-counties have milk production potentials which can surpass this figure. This clearly shows that dairy activities in the two sub-counties can create significant employment opportunities for the youth in the area.

## **1.2 Statement of the problem**

Dairy farming remains a major source of income in rural households especially in Rongai and Nakuru sub-counties in Kenya. The 2012 Annual report from the Ministry of Livestock Development shows that youth involvement in milk value chain is limited in the two sub-counties.

According to the 2009 census, the national population stands at 38.8 million. The Youth, defined as young people of ages between 15-35 years are about 15 million which is approximately 40 percent of the national population (KNBS, 2010). The number of households in the two sub-counties is approximately 43,000 with the youth comprising about 60% of the total population translating to 150,000 youth. (Ministry of Gender and Social services, 2010 Annual report).

Kenya's economic growth provides for only 25 percent of the country's of employment needs leaving the majority 75 percent unemployed. Youth unemployment is one of the underlying causes behind the political upheaval across North Africa, a phenomenon which began in the middle of December 2010 (Melik, 2010). Post-election violence in Kenya 2007/2008 was exacerbated by unemployed youth (CIPEV, 2008).A lot of insecurity both in the urban and rural areas in Kenya is as a result of youth unemployment (Gichohi 2005). In the two sub-counties, about 90,000 youth are unemployed and are likely to engage in antisocial behavior including crime and drugs/substance abuse. Youth are energetic and vibrant but the majority of them shy away from dairy activities leaving the bulky of the work in the subsector to the elderly (Karanja2003). Annual report from the ministry livestock development 2012 shows that youth

involvement in the milk value chain is limited with an average age of 60 years for those involved at the production stage. The estimated annual milk production is 29 million litres against a potential of 70 million litres. The average daily production per cow is currently 10 litres. However with more labor force in the sub-sector there is a potential to double the average milk production per cow per day and increase annual milk production to more than 70 million liters in the area (MOLD 2012 annual reports). Increased milk production will translate into greater economic activities at every level of the milk value chain for example, milk production, milk bulking, milk transportation, milk processing and milk marketing. It's therefore evidently clear that the dairy sub-sector in this region has the potential not only to create employment for the youth but also contribute to food security in Nakuru and Rongai sub counties. The youth's limited involvement in milk value chain especially at production level is taken as a problem that requires some explanation since no concrete study concerning the issue seems to have been done in these two regions.

### **1.3 Purpose of the study**

The purpose of study was to examine the factors that influence the youth involvement in milk value chain in Rongai/Nakuru sub-counties in Nakuru County, Kenya.

### **1.4 Research objectives**

The study was guided by the four objectives as stated below:

- i). To establish how demographic characteristics of the youths influence their involvement in milk value chain in Rongai/Nakuru sub-counties.
- ii). To determine how marketing factors influence youth involvement in milk value chain in Rongai/Nakuru sub counties.
- iii). To establish how youth awareness on dairy activities influence their involvement in milk value chain in Rongai/Nakuru.
- iv). To establish how economic factors influence youth involvement in milk value chain in Rongai/Nakuru sub-counties.

## **1.5 Research Questions**

- i). How do demographic characteristics of youths influence their involvement in milk value chain in Rongai/Nakuru sub-counties?
- ii). To what extent do marketing factors influence youth involvement in milk value chain in Rongai/Nakuru sub-counties?
- iii). To what extent does youth awareness on dairy farming influence their involvement in milk value chain in Rongai/Nakuru sub-counties?
- iv). How do economic factors influence youth involvement in milk value chain in Rongai/Nakuru sub-counties?

## **1.6 Significance of the Study**

Dairy farming in Kenya is a dynamic enterprise with a mean animal milk production growth rate of 4.1%. It supports more than 600,000 smallholder dairy farmers (NLP2008). There exists a great potential to increase milk production with a subsequent increase in economic activities along the dairy value chain. Only 16% of the marketed milk is sold formally to processing plants. The remaining 84% is marketed informally to consumers as raw milk. The scenario described above shows great employment opportunities. Youth unemployment is a critical concern to the government and to the society at large. This study seeks to bring out what could be done so that some of the unemployed youth could take advantage of the existing employment opportunities in the dairy value chain. Although some substantial research has been done about dairy value chain in Kenya and youth in agriculture little seems to have been done directly targeting youth participation in the dairy value chain, especially in Rongai/Nakuru sub-counties. This study tries to bridge this gap by providing the much needed insight about the youth and their involvement in this important economic subsector- the dairy value chain in Nakuru /Rongai sub-counties, Nakuru County. The results of this study may be important for researchers to study other specific issues. The results may also be used by policy makers who may want to empower more youths in order to take up dairy activities as a means of addressing youth unemployment. This study is primarily concerned with youth unemployment as a phenomenon which has become a national social crisis, which makes the study very important and worth carrying out.

## **1.7 Delimitation of the Study**

The study was conducted in two sub counties; Nakuru Sub County and Rongai Sub County within Nakuru County. The research boundaries were the administrative Divisions of the two sub-counties. Structured questionnaires and key informant interviews were used to collect data. According to Cooper and Emory (2008), the questionnaire is conveniently used because it is cheaper and quicker to administer. It is also convenient for the respondents as they could fill them during their free time. On the other hand interviews were carried out by a guided schedule and in group of respondents saving on time and resources for the study.

The target population was confined to the youth actors in the dairy sub-sector and small and medium scale dairy processors. Sampling was done using snow balling method as the youth in the dairy subsector are not normally distributed as shown in the pilot survey conducted earlier. All other factors that may influence youth involvement in milk value chain were held constant and only marketing factors, demographic characteristics of the youth, economic factors and awareness of youth on dairy activities will be studied.

## **1.8 Limitations of the Study**

Many people are generally suspicious by nature. Due to mistrust and suspicion some potential respondents may refuse to be engaged in interviews or in responding to questionnaires. This may hamper the data collection exercise. This challenge was dealt with by taking larger samples for the study.

Dishonesty while responding to personal details is common. This may affect the quality of our data. To consider this challenge there was need to properly equip the enumerators and interviewers with appropriate skills in administering the research tools which they used for data collection. Considering that not all the individuals in the target sample responded or cooperate with the enumerators, this then means that coming up with the most effective samples size for the study poses a challenge. This problem was countered by longer sample size and using skilled enumerators who assisted respondents to fill the questionnaire.

## **1.9 Assumptions of the Study**

In conducting this study an assumption was made that the sample taken was representative of the whole population and that the responses provided the necessary data for a conclusive and informed outcome.

Another important assumption is that the respondents were true, honest and transparent in their responses. Other assumptions are that the research instruments used had high degrees of reliability and that the data collected give greater degree of validity.

## **1.10 Definition of significant terms**

**Institutions** –Institutions for the purpose of this study refer to state or private organizations which are in one way or the other, connected with the dairy subsector, by providing services such as:- extension services(by government departments and NGOs); financial services (banks and other financial cooperation for example AFC); Regulatory and licensing services (Kenya dairy Board); standardization of dairy products (Kenya Bureau of standards) and law enforcement and taxation (county council authorities)

**Dairy subsector**-this refers to one of the major components of the livestock industry, whose performance has significant impact on employment and poverty levels. It deals with all issues which are connected to the production, processing and marketing of milk and milk products.

**Youth**- For the purpose of this study youth refers to a person (male or female) who is aged between 18-35 years

**Youth awareness**-This refers to the level at which the youth know that economic activities in the dairy value chain offer gainful employment opportunities for them.

**Youth Demographic characteristics**-This refers to certain social factors within the youth population which may influence the kind of decisions that they make e.g age, marital status and gender.

**Youth Involvement**- this refers to youth actively taking part in economic activities within the dairy value chain i.e dairy livestock farming, milk bulking, milk transportation, milk processing, and marketing of milk and milk products.

**Milk value chain-**For the purpose of this study milk value chain also referred to as dairy value chain means all economic activities which take place in production, bulking, transportation, processing and marketing of milk and milk products.

**Milk marketing factors-**these refers to marketing related opportunities which may influence the youth to take up the selling of milk and milk products as a viable economic enterprise. These include: market availability (demand for milk); distance to the milk market (how far the milk has to be transported from point of production to where it is demanded); milk sale volumes (amount of milk available for sale).

**Socio-economic factors-** Production and financial factors which may influence the involvement of the youth in the dairy value chain. These include access to land by the youth, access to financial services by the youth, occupation of the youth and the profitability of the dairy business.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter contains a literature review on the world dairy industry, Kenya dairy sector, milk production in Kenya, Market structure, youth unemployment, Demographic characteristics, theoretical framework, conceptual framework and knowledge gap.

#### 2.2 The World Dairy Industry

Dairy has been part of agriculture for thousands of years. From FAO statistics, the world dairy production approaches 6 billion tones of milk per annum, out of which 10%-12% is traded internationally (Karanja, 2003). The growth in the world milk production has been around 2%. International trade in dairy products is however heavily distorted by protection mechanisms of the major consuming nations in North America and Europe.

#### 2.3 Dairy industry in Kenya

The livestock sub-sector accounts for about 10% of entire GDP and about 42% of the agricultural GDP. It also supplies domestic requirements of meat, milk and dairy products, and other livestock products while accounting for about 30% of the total marketed agricultural products. The sub-sector earns the country substantial foreign exchange through export of live animals, hides, and skin dairy products and some processed pork product. It is also employs about 50% of the country's agricultural sector labor force. Over 60% of all livestock in Kenya is found in the Arid and Semi Arid Lands (ASAL), where it employs about 90% of the local population. The subsector contributes substantial earnings to households through sales of livestock products and provides raw material for agro-industries. (NLP 2008)

The dairy subsector is a major contributor to the growth of the national economy and creation of employment. The dairy subsector's main role in Kenya's economy is its contribution to the livelihoods of the many people engaged throughout the value chain and to the nutritional well-being of many rural communities. The dairy industry is the single largest agricultural subsector in Kenya, larger even than tea (Muriuki *et al.*, 2004). It contributes 14 percent of agricultural

GDP and 3.5 percent of total GDP (Government of Kenya, 2008). The industry has grown tremendously since its liberalization in 1992. Liberalization led to a rapid growth of the informal milk trade that mainly consists of small scale operators dealing in marketing of raw milk. At that time, there was an emergence of new institutional arrangements in milk collection, processing and marketing, which included hawkers, brokers' self-help groups, neighbors and business establishments like hotels (Karanja, 2003).

The dairy cattle farming in Kenya is a dynamic enterprise with a mean animal milk production growth rate of 4.1% and accounting for about 3.5% of the GDP. Smallholders dairy production account for over 70 % of the total milk production and support more than 600,000 smallholder dairy farmers .The total milk production in 2005 was about 3.2 billion litres ,but there is potential for even higher production in subsequent years .The country is broadly self-sufficient in milk and milk products ,with annual consumption of about 1.92 billions litres ,Milk consumption is partly dependent upon the level of household incomes and ,therefore, Kenya growing economy will affect the overall effective demand for milk .Of the total dairy cattle milk production ,about 55%is marketed through traders, cooperatives ,hotels and shops .An estimated 84% of the total milk production sold in the raw form, while 16% is processed. (NLP 2008)

In the two sub counties of Rongai and Nakuru under study, the estimated annual milk production in the two sub-counties is 26 million litres from a herd of 30,000 cattle. The average daily production per cow is about 10 litres from the approximately 10,000 mature cows. (MOLD 2010, 2012 annual reports)

#### **2.4 Demographic factors and youth involvement in milk value chain**

The success of an individual in a given venture is influenced by the person's demographic factors, say age, marital status, and gender and education level. According to the 2009 census results, the national population stands at 38.8 million and it is estimated to have ballooned to over forty (40) million. The Youth, defined as young people of ages between 15-35 years are about 15 million which is 40 percent of the population (KNBS, 2010).



### **2.4.1 Youth unemployment**

Kenya's economic growth provides for only 25 percent of employment leaving the majority 75 percent unemployed. While youth unemployment is a widespread phenomenon in the world, the case is much worse in Kenya. Today, Kenya's youth unemployment rate stands at 67 percent, among the highest in the world. (Youth Employment Marshall Plan, 2009). According to ILO, quoted in Schoof, (2006) three in five unemployed Kenyans are youth, aged between 15 and 35 years. This clearly indicates that unemployment in Kenya is a youth problem. (Youth Employment Marshall Plan, 2009). The situation is exacerbated by the shrinking economy amidst political instability and pervasive income inequality (WYR, 2007).

One of the key forces driving major conflicts in Kenya is youth unemployment. Significantly, youth are engaged in the informal sector, which is largely unregulated and workers are subjected to low earnings and long working hours, without any formal contract. Suffering under a slow-growing economy, youth, whether well-educated or uneducated, have increasingly turned to crime and violence, serving as handymen to the ruling elite. Youth unemployment studies are not new, but there is urgent need to address the current global youth unemployment crisis, more so the Kenyan one. According to the Organization for Economic Co-operation and Development (OECD), (2010) youth unemployment has been rising dramatically and the trend is set to continue in 2011, resulting in disillusionment and despair among the youth which renders them vulnerable to criminal activities and violence. Given this situation, it is paramount that governments work very hard to reverse the current situation. Fundamentally, the problem requires properly planned, well-structured, and broad-based programmes. Youth unemployment is a special problem, one that differs in its causes, magnitude and implications from the general unemployment problem (Marshall, 1978).

Kenya's constitution defines youth as all individuals in the republic who are between 18 and 35 years. Currently, 78.31% of Kenyans are below 34 years old. It is estimated that 64% of unemployed persons in Kenya are youth. 1.5% of the unemployed youth have formal education beyond secondary school level and the remaining over 92% have no vocational or professional skills training and the majority are found in rural Kenya [UNDP: 1999 Kenya Human

Development Report]. Due to inadequate employment and livelihood opportunities in rural areas the tendency is that they migrate to urban centers to look for such opportunities.

Youth unemployment was one of the underlying causes behind the political upheaval across North Africa, which began in the middle of December 2010 (Melik, 2010) and in Kenya's 2007/2008 post election violence (CIPEV, 2008).

It is envisaged that Kenya will experience a demographic shift/transition due to changing patterns in fertility, mortality and population growth as well as socioeconomic factors. As the 0-14 age group matures into teenage-hood and young adulthood, and as many women continue to give birth later, space their children more or give birth to fewer children, the bulge will shift to the 15-34 year olds meaning that Kenya will transition from a 'child-rich' phase/child bulge to a 'young adult' / youth bulge population [Njonjo, K.S, 2010]. Youth statistics currently show the following facts: Over two and half million youth in Kenya are out of work. The most frequent explanations of the causes of youth unemployment in Kenya include slow or declining economic growth, rapid population growth, and poor dissemination of labour market information, skills mismatch, structural reforms, and high costs of labour.

#### **2.4.2 The youth and agriculture**

There are more youth in absolute and relative terms than ever before in Kenya, signaling a major demographic shift in the labour force. A young workforce has the potential to accelerate productivity growth and spur better governance. However, without adequate opportunity to contribute productively, youth can turn to risky behavior, with possible implications for the incidence of crime, drug use, and HIV/AIDS. Rural youth are a particularly vulnerable group in Kenya.(IFAD 2010)

According to a study (farmers' forum youth session 2012) by FAO and IFAD in Kenya, youth who have tried to join agriculture have faced various challenges; the school curricula have generally tended to alienate the youth from careers in agriculture, and as a result the negative effects of the youth study-to-work transition have been more extensive in the agricultural sector than in any other sector. Agriculture as undertaking of last resort: Majority of the youth consider agricultural work to be for 'those who have not gone to school'. Moreover, many youths who

grew up in the villages have an experience of the long hours that go into traditional agriculture without a commensurate return. They may therefore believe their future lies with a different career that is financially more rewarding and can be found in the urban area. There is need to demonstrate the changing face of agriculture, the increasing demand for non-traditional commodities, new and emerging local and international markets, and the possibility to introduce technological and management innovations in the sector; access to productive land is an impediment for both the youth and women in agriculture. Traditional systems bestow land ownership to family heads, invariably the senior male of a household. Land is a fundamental resource to agriculture, and unless business models that allow alternative ways of using land are developed, youth's growth in this sector will continue to be inhibited. (FAO 2012)

Through these challenges opportunities are born: abundant human resources; primary, secondary and post-secondary education has expanded and produces thousands of graduates each year. This resource can be used to change the face of agriculture if young people, from primary to university level, are to be attracted to agriculture as a career. The human resource can be used in training and research to develop new and relevant technologies, and to create and expand agribusinesses (Njonjo 2010).

## **2.5 Economic factors and youth involvement in milk value chain**

Researchers from various disciplines agree about the importance of small business to economic growth and personal wealth (e.g. Autio, 2005). The small business sector as a major source of employment and income is argued to be even more important to the economies in developing countries. In Africa, about 25 percent of the people employed outside traditional agriculture depend on this sector for their livelihood; improving the conditions for small business is thus seen as a solution to unemployment and poverty alleviation (Mead & Liedholm, 1998). Self-employment and micro and small enterprise creation are routes that young people can actively explore to forge their futures. Enterprises are the places where the jobs are (Haftendorn & Salzano, 2003).

In an effort to follow up on these development successes and build up synergies, the Government of Kenya (2007) launched Vision 2030-A 22 year national economic blueprint that would guide Kenya into a globally competitive middle income State by the year 2030. It aims at making

Kenya a newly industrialized “middle income nation providing a high quality of life for all its citizens by the year 2030.” Kenya Vision 2030 will be implemented in 5-year Medium Term Plans phases starting with the 2008 - 2012. It is based on an economic, social and political pillar (Ministry of Planning and National Development, 2007). One of the key initiatives planned for the first phase of the economic pillar with reference to Small and Micro Enterprises is the establishment of producer business groups; which will be based in rural areas and will feed different urban centers. The Government of Kenya also initiated the Youth Enterprise Fund in 2007, a KES 2 billion (USD 25 million) initiative aiming at the provision of start-up capital to small enterprises whose owners are below 30 years of age. A similar fund has been set up, through the Kenya Women Finance Trust and the Women Enterprise Fund, to extend such support to would-be female entrepreneurs. These funds are managed through microfinance institutions (MFI) and continue to receive government support.

Prospective youth entrepreneurs in the dairy sector should be able to access this relatively cheap fund either as individuals or as groups for their startup businesses in the milk value chain. Access to bank credit by farmers is still a major challenge despite the fact that Kenya has a relatively well-developed banking system. Risks associated with agribusiness coupled with complicated land laws and tenure systems that limit the use of land as collateral make financing agriculture unattractive to the formal banking industry.

Existing, new and expanding markets: Rapid urbanization in Kenya and integration into regional and international markets and already existing markets provide an opportunity to gear agriculture into an accelerated commercial direction. Funds should be availed to poor rural households in the developing world who work in both agriculture and rural nonfarm activities (Sanchez et al. 2005; IFAD 2012). Given the pronounced seasonality of agricultural calendars, many farm households engage in part-time and seasonal nonfarm activities during the slack agricultural season (Haggblade, Hazell and Reardon 2007) and investment into this sector would provide more opportunity and make them more committed. Typically, both the farm and nonfarm enterprises operated by poor households involve simple, labor-intensive technologies using limited capital and few purchased inputs. As a result, productivity, incomes and returns to family labor remain low (Lanjouw 2007).

## **2.6 Marketing factors and youth involvement in milk value chain**

There are about 30 licensed milk processors, two of which process more than 60 percent of the total processed milk. The largest four processors combined process more than 80 percent of the total. Other licensed milk traders include producers, mini dairies, cottage industries and cooling plants, whose number has been increasing and is now over 1 500. Processors handle more than 80percent of the total milk and dairy products marketed through the licensed (formal) market channel (MOLD 2008).Other actors in dairy marketing include farmers' organizations such as cooperative societies and farmers' groups. Cooperatives and farmers' groups handle only about 40 percent of marketed milk production and about 20 percent of total milk (Muriuki, 2003).The existence of informal trade results from a combination of the formal system's failure or inefficiency, consumer habits/preferences, and price differences between raw and processed milk(Muriuki, 2003).

### **2.6.1 Marketing structure and milk production.**

Marketing is defined as the set of human activities directed at facilitating and consummating exchanges. All business activities facilitating the exchange are included in marketing (Philip kotler, 2003).Marketing involves all activities involved in the production, flow of goods and services from point of production to consumers. Marketing includes all activities of exchange conducted by producers and middlemen in commerce for the purpose of satisfying consumer demand.

The Kenyan dairy industry has grown tremendously since its liberalization in 1992. Liberalization led to a rapid growth of the informal milk trade that mainly consists of small scale operators dealing in marketing of raw milk. At that time, there was an emergence of new institutional arrangements in milk collection, processing and marketing, which included hawkers, brokers, self-help groups, neighbors and business establishments like hotels (Karanja, 2003).

The informal markets controls an estimated 70 percent of the total milk marketed in Kenya (KDB, 2009; Government of Kenya, 2006). Until the 1990s, the Kenya Creameries Corporation (KCC) processed all the milk in Kenya, but its monopoly slowly decreased between 1993 and 1996 (Olok-Asobasi and Sserunjogi, 2001). Many private processors have joined the dairy

business since 1992, and have increased greatly since 1999. According to the industry statistics by the Kenya Dairy Board, in 2010, there were an estimated 27 processors, 64 mini dairies, 78 cottage and 1138 milk bars though Kenyans appear to prefer raw milk. Estimates from various studies indicate that about 85 percent of marketed milk is sold raw.

Recently, the Kenya Dairy Board and others in the formal milk trade have claimed that the proportion of processed milk has increased to more than 20 percent. The region's policymakers have long favored the sale of processed and packaged milk products, arguing that the growth and development of the region's dairy trade depends on the existence of a strong formal sector. However, informal milk markets, which trade mostly in unprocessed or 'raw' milk, dominate the dairy sector in eastern and central Africa (KDB 2012).

In Kenya, one of the biggest per capita milk- producing and -drinking countries in the world, 86 per cent of all milk marketed is sold informally; in Rwanda, Tanzania and Uganda, the proportion is 90 per cent or more. The livelihoods of millions of people in this region depend on these informal milk markets, which are a prime, and often sole, source of regular income for small-scale dairy producers, of jobs for unskilled youth and of better nutrition in poor households (IFAD2006).

Despite these and many other benefits generated by the informal milk trade, government and other officials in the region have, in the past, consistently raised concerns about the risks unpasteurized milk presents to public health and safety, largely because the raw milk business has been unregulated, with no controls over the quality of the unprocessed milk sold (FAO 2010).

The huge informal milk markets, however, were obviously not going to go away, and indeed were growing in size. The question then arose of how they could be helped to evolve into the formal economy while still meeting the needs of poor consumers who cannot afford to buy higher priced commercial milk products. This issue is being tackled in a series of national and regional reforms of dairy policy and legislation. (ILRI, 2006)

After the liberalization of the milk industry, there were concerns over food safety and quality of milk sold by the informal sector players. The dairy policy at the time focused on promoting value

addition and increasing the market share of pasteurization milk while attempting to address potential public health risks of consuming raw milk. However, since 2004, there has been a major change in policy and practice towards the informal milk market (Leksmono, et al., 2006).

The dairy policy now clearly acknowledges the role of small scale milk vendors (SSMVs) and contains specific measures to support them. These include: development of low-cost appropriate technologies, training on safe milk handling, provision of incentives for improved milk collection and handling systems, and establishment of supportive certification system. While the Dairy Policy is still in progress, awaiting approval by parliament, there has been a proactive engagement by the Kenya Dairy Board in training and certification of SSMVs, in order to safeguard public health and assure quality of the raw milk (Leksmono, et al., 2006).

A FAO study on post-harvest milk losses in Kenya noted that they are highest at the farm level. Losses at the farm level are a result of spillage, lack of market and rejection at market. Rejection at market is a result of poor handling and the time taken to reach markets mostly due to poor infrastructure. By infrastructure here we refer to a variety of hardware investments that are often beyond the capacity of a single small holder farmer, often needed public sector investments, or a package of incentives for the private sector to provide. They include rural roads, electricity, cold storage facilities and processing technologies. The absence of these types of infrastructure services reduces the farmers' ability to increase production, reduce risks and compete effectively in the market (Muriuki, 2003).

Rejections are higher during the wet season, when production is high and roads are impassable. In some areas, it is possible to market only the morning milk, which creates a major constraint to increasing production as producer households are forced to consume the afternoon/evening milk themselves, and in some period's part of it is wasted. Increasing competition may be reducing the forced consumption and throwing away of milk. Losses at the farm level can be more than 6 percent of total production, which means that at current production levels, national annual losses may reach 60 million kg (Muriuki, 2003).

There is little value addition being done on Kenya's agricultural products including dairy products; little on-farm and off-farm processing of agricultural produce is done nor is there much effort made to improve the quality and shelf life of produce. This translates to low prices, fewer

job opportunities and eventually low incomes for actors in milk value chain and loss of a substantial part of their income to intermediaries and processors. The situation is more hopeless when dealing with perishable produce such as milk and horticultural products. Vision 2030 has identified value addition as key to driving economic growth (GOK 2011).

Marketing of agricultural produce and products within the country is carried out by the private sector either as formal marketing companies or as brokers. Generally, marketing chains for the different commodities are long, not transparent and consist of many players making them inefficient, slow and unresponsive to needs of the producer and the growing market. There have been attempts to develop marketing information systems but the use of this is stifled by inability of small holders to develop joint marketing that can circumvent brokerage (Gichohi 2005).

Low absorption of modern technology hampers agricultural development. Although Kenya has a well-developed agricultural research system, use of modern science and technology in agricultural production is still limited. Inadequate research–extension–farmer linkages to facilitate demand-driven research and increased use of improved technologies continue to constrain efforts to increase agricultural productivity (Karanja 2003).

Despite the high potential of ICTs in improving small-scale agriculture in Africa, there are low usage patterns and anecdotal adoption. Cell phone is ubiquitous in rural areas. Their usage in the sector is incidental and generic as they are not necessarily customized for any specific sectoral need. Web based resources could offer a wide range of customized applications to the youth and women in the sector. However, use is constrained by high costs of available technologies, inadequate infrastructure and ICT skills, poor and expensive connectivity, language barriers, low bandwidth, inadequate and inadequate customization to the needs of small holder farmers (De Janvry and Sadoulet 2009).

Historically, efforts to raise rural incomes have focused primarily on improving agricultural productivity. Indeed, most empirical evidence suggests that agriculture-led growth offers an unusually powerful vehicle for broad-based poverty reduction (Thirtle Lin and Piesse, 2003; Christiansen, Demery and Kuhl, 2010; Diao et al. 2012). Nonetheless, the nonfarm dimensions of rural development – particularly in agricultural marketing and agro-processing often prove critical to successful agricultural growth (Abbott 1986). Without well-functioning agricultural



markets, productivity gains on the farm lead to temporary production surges and price collapses. Improved market access proves necessary for maintaining production incentives, permitting household specialization and enabling movement to high-value products and to value-added activities. As a result, sustained agricultural growth typically occurs where productivity-enhancing agricultural technology and favorable market incentives converge (Haggblade and Hazell 2010). Value chains provide a valuable visual framework for understanding the structural connective tissue linking small farmers with input suppliers, processors, traders and final consumers.

### **2.6.2 Competition in the milk value chain**

The Kenyan dairy market is unstable and faces many challenges, and is shaky due to a few challenges; there are no production contracts at producer level, save for linkages to cooperatives and self-help groups milk collecting centers and informal buyers dominate the marketing channels (Muriuki 2003).

The dairy value chain scored better than average relative to the other value chains reviewed with respect to market competition. Producers received 63% of the processor purchase price which compared favorably with other commodities. Dairy was awarded six percent of the ten percent available for this rater. Considering the number of wholesalers, the dairy value chain was considered highly competitive comprising of both formal and informal channels. The informal channel dominates milk marketing by handling over 70% of milk sales. Recently, the KCC monopoly was abolished to encourage competition. With over 50 licensed milk processors with inbuilt processing capacity of more than 3 million litres per day; more than 8 mini-dairies; 55 dairy cottage industries; and 110 milk bars and other 1,300 licensed milk dealers. This clearly indicates healthy wholesale competition.

Both private and cooperative bulkers operate. Private bulkers are very profitable and are thus steering the trend of the wholesale market. There are no price controls on milk marketing. The authors awarded the full two percent available for this rater. Diversification of value addition for the dairy value chain was excellent and sophisticated at both cottage and industrialized levels based on the literature reviewed. Pasteurized and flavored milk, Ultra Heat Temperature (UHT) milk (FSD Kenya 2009.)

### **2.6.3 Transportation in milk value chain**

Milk is generally taken from the farms to collection centers using seamless aluminum cans. Although some people use plastics they are not recommended for hygiene purposes. Some organized dairy groups take their milk directly to processing plants in trucks. Others take their milk to chilling centers from where the milk is collected in refrigerated milk tankers by the large milk processors. Majority of the marketed milk (over 80%), is however, transported to milk bars and other selling points by small mobile traders using various means of transportation (Karaja 2003).

### **2.7 Awareness in market oriented dairy enterprise(MODE) and youth involvement**

Management professionals posit that different management skills and practices on the same type of enterprise and the same production systems will have different financial success (Ford and Shonkwiler, 1994).

Financial management is considered to deal mainly with how farms acquire finances and how those finances are managed (Gloy et al., 2003). They determine the capital structure of the farm and guide in making the decision of whether to borrow or use own equity. Other works dwell on determining the relationships between profitability and leverage, while others only consider leasing and book keeping practices (Gloy et al., 2002). Most of the findings sometimes had mixed results on the use of debt and how it relates to profitability. Some empirical works have been able to find no significant relationship, others found mixed results. When the coefficient was statistically significant the sign generally tended to be negative (Gloy et al., 2002). This showed a negative relationship between debt use and profitability. Therefore the use of debt in agribusiness may depend on other factors that surround the management of the business. Financial records are known to provide information on the performance of a business. They keep track of how the business is performing in terms of liquidity, profitability, and efficiency in use of assets and capital (Gary and Jenny, 1998). Additionally they help the farmer to track down the performance of the farm in respect of the different aspects. These may include investment in assets versus profitability (Asset turnover ratio), cost of operations, and the margins that the farmers get (western dairy management conference, 1999). Other important financial measures that farmers need to have are the liquidity measures, profitability measures, financial efficiency

and repayment capacity. This may pose a challenge in our local smallholder sector because the farmers do not keep adequate records. An enterprise is deemed to be financially successful if it generates profits and improves its real net worth position. Additionally maintaining a healthy cash flow is considered as a financial success factor too (Kaase et al., 2003). Therefore using profitability as a measure to efficiency performance of the dairy sector actor is practical and acceptable. The cash flow is an important factor in any business agribusiness included, this is because the cash flow status determines if the business is able to meet its daily obligations (Carroll et al., 2006). It indicates if the business has the cash to pay its day today dues and thus a business with good cash flow cannot lack money to buy equipment, services.

### **2.7.1 Policy and youth involvement in milk value chain**

The dairy policy at the time focused on promoting value addition and sale of pasteurized milk in an attempt to address the potential health risks posed by consumption of raw milk. However, since 2004, there has been a major change in policy and practice towards the informal milk market (Leksmono, et al., 2006). The dairy policy now clearly acknowledges the role of small scale milk vendors and contains specific measures to support them. These include: development of low-cost appropriate technologies, training on safe milk handling, provision of incentives for improved milk collection and handling systems, and establishment of supportive certification system.

Regarding the regulatory framework, Vision 2030 recognizes that the agriculture sector (including dairy) has been operating under outdated colonial legislation dating back to the 1930s, which is impeding growth in the sector; the government has promised to reform this legislation and other areas that need updating.

### **2.7.2 Institutional Arrangements and youth involvement in milk value chain**

There are many institutions whose mandates impact directly or indirectly on the operations in the dairy sub sector. These institutions include the following; *Livestock production department* whose responsibility is the development and promotion of animal production, marketing and the general livestock extension services. *Veterinary department* whose mandate is to ensure maximum livestock productivity through control of diseases, disease vector and pest. (GOK 2011)

*Kenya animal genetics resource and information center(KAGRIC)*Its mandate includes recruitment and rearing of bulls for semen production; production and distribution of superior quality disease free semen; supplying AI equipments to customers and provision of specialized services to customers such as on-farm semen collection. They also train students and farmers on semen production and handling.(IFAD 2006)

*Kenya dairy board (KDB)* It is mandated to regulate and develop the dairy industry. It promotes consumption of milk and creates an enabling environment for increased private sector participation in milk production, processing and marketing (KDB 2012).

*Kenya agricultural research institute (KARI)* among other things KARI is mandated to do research on livestock breeding and fodder crops.

*Veterinary vaccine production center (VVPC)* It is mandated to coordinate and undertake production of all veterinary vaccines in the country; market and distribute veterinary vaccines locally and outside the country and to undertake research in new veterinary vaccines production and to ensure suitability and effectiveness of veterinary vaccines.

*Training institutions* -These include public Universities and colleges such as Egerton University, Nairobi University, JKUAT, Animal Health and Industry Training Institutes (AHITI) and the Dairy Training Institute (DTI). These institutions train students as well as farmers on dairy technology and artificial inseminations. DTI also promotes consumption of a wide variety of processed dairy products to the rural community (IFAD 2005).

## **2.8 Theoretical framework**

This study will be based on participatory approach theory as a strategy to project intervention. The participatory model, first espoused by Paulo Freire in the 1960s (1997), stresses that stakeholders should become involved in the development process, determining the outcome rather than it being designed by an external agency. Participation is viewed as a means to empower, engage and enable beneficiaries and communities by handing over to the grassroots, the means to set the agenda and find the solutions. Human behavior is seen as a result of the interplay of diverse forces that create a set of circumstances through the dynamic interaction of man and his environment (Albrecht et al. 1987; Hoffmann, 2005; Ndah, 2008). According to the psychological Field

theory of Kurt LEWIN, the interaction of situational forces with the perceived environment can be described as a field of forces, a system in tension or a psychological field. Human behavior can be described as follows: A person in his subjectively perceived environment feels something is worth striving for like adoption of Agricultural best practices. They then mobilize their personal powers to achieve this goal of adoption of the best agricultural practices. When something negative or undesirable occurs like a case of low production or poor quality, the person activates his personal powers in the same way to avoid the negative situation. Ways of reaching targets and avoiding negative situations can be blocked or impeded by barriers or inhibiting forces like lack of awareness, risk or uncertainty about outcome, insufficient capital, cultural practices, lack of opportunities for scaling up creativity and innovation in the marketing levels.

According to James Midgley et al, Youth involvement, Social Development and the State (1986), involvement not only humanizes bureaucracy, but it strengthens the capacities of individuals and communities to mobilize and help themselves. To be effective, involvement must be direct and give ultimate control to local communities so that they can themselves decide their own affairs. Community participation advocates argue that real and direct participation in social development is needed for both instrumental and developmental reasons.

Youth involvement serves immediate instrumental goals such as the identification of felt needs as well as the mobilization of local resources. It also promotes broader social development ideals: by participating fully in decision making for social development, ordinary people experience fulfillment which contributes to a heightened sense of community and strengthening of community bonds.

James states that the notion of community is important in the criticisms which have been made of the State social development. It is argued that representation through conventional procedures is invariably sectional so that the interests and aspirations of the whole community are seldom taken into account in the formulation and implementation of policies. Although the poor are the majority, they are least influential and seldom able to express their views. The real problem is the lack of opportunities for their direct involvement. (James 1986, P 19).

## **2.9 The conceptual framework**

The Conceptual framework is an illustration of the relationships between the variables identified for the study. It shows the relationship between the independent and the dependent variables. For this particular study, the youth involvement in milk value chain in Nakuru/Rongai sub-counties is the dependent variable while the independent variables are the factors that in one way or the other influence the involvement of youth in milk value chain. These factors are; milk marketing factors(milk market availability, distance to market and milk sales volumes); Demographic characteristics of the youth (marital status, gender and age); financial/economic factors(access to land by the youth, access to financial services by the youth and profitability in the milk business) and awareness of youth on milk value chain activities (youth access to relevant trainings and information, youth experience in dairy activities and youth collaboration and linkages with relevant stakeholders) These factors, either in isolation or in various combinations will cause or influence youth involvement in milk value chain activities in these two regions under study. The moderating variable for this study will be the government and private sector intervention through extension and financial services to the dairy sub sector. The intervening variable will be Government policies, regulations and infrastructure which impact on dairy value chain activities.

**Independent Variables**

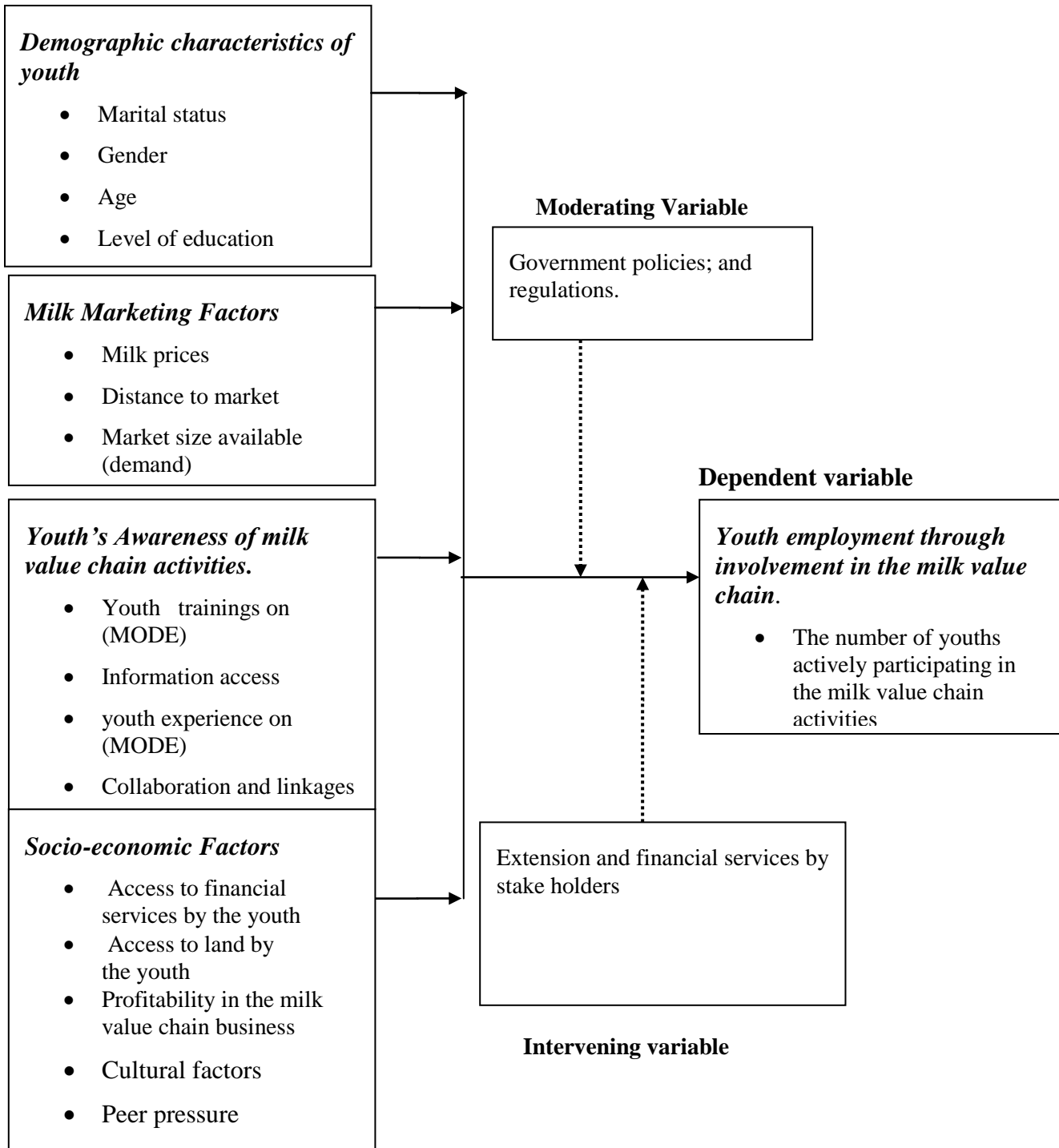


Figure 1 conceptual framework.

## **2.10 Summary of the literature review**

The literature review has provided a wealth of information on demographic characteristics of the youth, economic factors affecting their involvement in the dairy value chain, marketing and awareness of the youth in the milk value chain and youth empowerment strategies. However, the literature reviewed seems not to show that any exhaustive work has been done relating to factors which influence the youth involvement in the milk value chain, particularly in Nakuru /Rongai sub counties, Nakuru county. The study aims at partly contributing to the body of knowledge in this respect.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter looks at the research methodology that was employed so as to meet the objectives of the study. The section is on research design used, sampling design and procedures, target population, data collection instrument and procedures, data analysis and presentations as well as reliability of research instruments.

This chapter present detailed idea about how the research was conducted. This includes research approach, research strategy, sample selection methods, data collection methods and data analysis methods. At the end of the methodology part validity and reliability issues will be discussed to follow the quality standards of the research.

#### **3.2 Research design.**

The research used a descriptive survey method. (Cohen & Manion 1994); (Coolican 1994); (Mouly 1993) and (Wiersma 1998) describe survey research as a method that enables one to gather data from a relatively large number of cases at a particular time. It consists of asking people information concerning them, and adopts the use of a structured questionnaire, with answers open or closed.

Semi structured questionnaires were the instruments used in the study. The questionnaires are ‘researcher administered questionnaires’ which were administered by the researcher or the research assistant. The questionnaires in this study are designed to provide the information being sought. This research method is easy to administer. The method can easily be used to gather information from a larger sample size, thereby improving the reliability and validity of the research data.

#### **3.3 Target population.**

The target population for the study consists of the youths who are involved in the milk value chain within Nakuru/Rongai sub counties with the aim of gaining insight as to the number of

youths involved in the milk value chain; the number of youth enterprises within the milk value chain and the number of collaborators they interact with in their day- to- day activities within Nakuru/Rongai sub-counties. The estimated population of the youths involved in the milk value chain in the two sub-counties is 3000. A part from this 10 key informant from ministry of agriculture and livestock development and 5 from Kenya dairy board were included to bring to a total of 3015 as the target population.

### **3.4 Sample size and sampling techniques**

The technique used was purposive, and stratified random sampling in the selection of the study sample. A purposive sampling procedure involves the hand-picking of subjects on the basis of certain specific characteristics. This sampling procedure best fit the key informant respondents to ensure representation among youths in the two sub-counties. Stratification of the target population was done where each sub-county was treated as a stratum and random sampling done to collect data. The sample size was calculated using the Krejcie and Morgan table shown in the appendix iv where a sample  $S=246$  was found as appropriate when the estimated target group was estimated population  $N=3015$ . Ten key respondents from ministry of agriculture and livestock and five from Kenya dairy board will be sampled to bring the total sampled population to 261.

### **3.5 Data collection Instruments**

According to M. Mugenda and G. Mugenda (2003) data refers to all the information a researcher gathers for his or her study. In this study data was collected by the use of questionnaires and interview schedules. A written questionnaire is a data collection tool in which written questions are presented that are to be answered by the respondents in written form. These written Questionnaires were administered to respondents via hand-delivery and collected later. Questionnaires, incorporating both open-ended and closed-ended questions items were used to gather the necessary data to conduct this study.

According to Cooper and Emory (2008), the questionnaire is conveniently used because it is cheaper and quicker to administer. It is above researcher's effect and variability, and is highly convenient for the respondents as they could fill them during free times. An interview is a data

collection technique that involves oral questioning of the respondents, either individually or as a group (Chaleunvong, 2009). While the structured questionnaires were administered to the youths, its preferred that in-depth interviews using semi structured questionnaires were administered to the ministry officials, and officials from the Kenya dairy board. This is because the latter is deemed to have more knowledge and experience in milk value chain issues. Responses to the questions posed during the interview were recorded as well as crossed from a checklist. According to (Creswell, 2003) data collection procedure in qualitative research involves four basic methods Observations, Interviews, documents and audio-visual materials.

### **3.6 Validity and Reliability**

This section discusses the validity and reliability of the instruments that were used. Validity refers to the extent to which an instrument measures what it is supposed to measure (Razavier & Ary 1972). Reliability is the extent to which a measuring device is consistent in measuring whatever it measures (Razavier & Ary 1972).

#### **3.6.1 Validity of the instruments**

Validity is the accuracy and meaningfulness of inferences which are based on the research results. It is the degree to which results obtained from the analysis of the data actually represents the phenomenon under study. To ensure validity of the questionnaires a pilot study was carried out with three randomly selected actors in the dairy sector. This pilot study was carried out before the actual data collection. It is through this pilot study that the time taken to answer questions was measured and considered as the areas in the questionnaire which needed to be refined were attended to.

Data was collected in the shortest period of time possible to ensure that no major events or services in the roads sector are brought forth as to affect the view of part of the interviewees. The questionnaires were given to research experts like my research project supervisor to verify that the questionnaires are measuring the right thing.

### **3.6.2 Reliability of the instruments**

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. A reliability co-efficient of 0.8 and above is accepted because a reliability co-efficient of 0.8 and more implies that there is a high degree of reliability of the data. This study took the test –retest reliability approach as a measure of consistency. Reliability was tested using the Cronbacks alpha co-efficient that was calculated from the questioners from a pilot study which was conducted in the region. This was done in order to test the survey tool before the study. A reliability co-efficient was computed and a co-efficient of 0.87 was obtained.

### **3.7 Data Analysis Techniques**

Data analysis refers to examining what has been collected in a survey and making deductions and inferences (Kombo K. D. & Tromp D.L.A. 2000). In this study, the following data analysis process was applied; first, checking the questionnaires to ensure that the questionnaires are completely filled and they are consistent and clear, Secondly, the data was coded to ensure that it is quantitatively analyzable, thirdly, data was keyed into a computer; and finally analyzed with a help of the Statistical Package for Social Sciences (SPSS). Both quantitative and qualitative statistical techniques were used to analyze the data. The qualitative data was analyzed using descriptive analysis. Quantitative data was analyzed using descriptions like mean, standard deviation and correlation coefficients. The data is presented in form of tables and percentages.

### **3.8 Ethical considerations**

Research ethics is an integral ingredient in any credible research and this particular one is no exception. The steps and processes of this research were recorded with sufficient detail to make it possible to replicate the research in other parts of the world.

Interview were conducted after proper request and explanation by the research assistants to the interviewees, enabling respondents to give their inputs freely without any form of coercion while their views are presented in the report with anonymity. Data is represented with highest form of integrity to prevent researcher biases that may wrongfully tarnish or praise the government or any other institution. Finally the results are carefully prepared, and scrutinized to avoid misrepresentation of results.

### **3.9 Summary**

This chapter gives an insight of how the research was; the sample size was arrived at; the sampling method used; the data collection tools; the measure of various variables and the analysis done. The procedures laid down in this chapter were adhered to strictly guide the research so as to make it easy to replicate the study in other regions.

**OPERATIONAL DEFINITION OF VARIABLES**

<b>OBJECTIVE</b>	<b>TYPE OF VARIABLE</b>	<b>INDICATOR</b>	<b>MEASURE</b>	<b>MEASURING SCALE</b>	<b>TYPE OF ANALYSIS TOOL</b>
To assess how demographic characteristics impact on youth participation in the dairy value chain in Rongai/Nakuru Sub-Counties	<b>Dependent Variable</b> Youth employment through involvement in the dairy value chain  <b>Independent Variable</b> Demographic characteristics	<ul style="list-style-type: none"> <li>• Marital status</li> <li>• Gender</li> <li>• Age</li> <li>• Education level</li> </ul>	Type Type Number Grade	Nominal Nominal Ratio Ratio	Mean Mean Mean Mean
To determine how marketing factors influence youth enrolment in the dairy value chain in Rongai/nakuru sub-counties	<b>Independent marketing factors</b>	<ul style="list-style-type: none"> <li>• Milk price</li> <li>• Distance to market</li> <li>• Market size available (Demand)</li> </ul>	Price per litre of milk Number of kilometers covered Amount of milk	Ratio Ratio Ratio	Mean Mean Mean
To establish how youth awareness on dairy activities influenced their involvement in the dairy value chain in Rongai/Nakuru Sub-counties	<b>Independent youth awareness</b>	<ul style="list-style-type: none"> <li>• Youth trainings (MODE)</li> <li>• Information access</li> <li>• Youth experience</li> <li>• Collaboration and linkages</li> </ul>	Number of youths trained No. of information sources No. of years No. of collaborations	Ratio Ratio Ratio	Mean Mean Mean
To Establish how socio-economic factors influence youth involvement in the dairy value chain in Rongai/Nakuru Sub-counties	<b>Independent Socio-economic factors</b>	<ul style="list-style-type: none"> <li>• Access to financial services by youths</li> <li>• Access to land</li> <li>• Profitability in the milk business</li> <li>• Cultural factors</li> <li>• Peer pressure</li> </ul>	Number of youth using financial services Land size Monthly profit margins Type of group association	Ratio Ratio Ratio	Mean Mean Mean

**CHAPTER FOUR**  
**DATA ANALYSIS, PRESENTATION, INTERPRETATION, AND DISCUSSION**  
**OF FINDINGS**

**4.1 Introduction**

This chapter presents and discusses findings of the study which have been discussed under thematic areas and subsections in line with the objectives of the study. Much of data in this study is quantitative and therefore quantitative methods of analysis are used where by descriptive statistics have been used to analyze the quantitative data. Specifically, frequencies distribution tables are used to summarize and present data in relation to the study objectives.

**4.2 Questionnaire Response rate**

Questionnaires were administered to the various youths involved in the dairy industry within Rongai/ Nakuru sub counties. The study targeted 3015 respondents as computed in chapter three of the study. 246 questionnaires were distributed randomly by the field data collecting clerks, who also assisted the respondents in filling up the questionnaires and this ensured a 100 percent response rate.

Fifteen key informers were also interviewed and they include extension officers, ward livestock officers, dairy officer Nakuru West, milk recording station Nakuru, deputy veterinary officer Nakuru East, livestock officer Mosop ward and DVO Nakuru west. They also responded to the interviewers and their information was used in the discussions, conclusions and recommendations.

This section briefly cross-examines the findings of this study in light of its previously stated objectives. These objectives were to examine how demographic characteristic of youth influences their involvement in dairy value chain, to determine how marketing factors influence youth involvement in milk value chain, to establish how youth's levels of awareness influences their participation on dairy value chain and to establish how economic factors influence the youth participation in milk value chain in Rongai/Nakuru sub-counties.

### **4.3 Relationship between demographic characteristics of respondents and milk value chain performance**

The demographic characteristics of the respondents are presented in this section of the study. These are social factors that potentially influence activities in the milk value chain and they include gender, age, marital status, experience in dairy enterprise, education level, and training in their area of operation along the value chain.

#### **4.3.1 Marital status of the respondents**

**Table 4.1 Marital status**

Marital status	Frequency	Percentage
Married	163	66.3
Single	83	33.7
Total	246	100.0

In the study, the respondents were asked to state their marital status. Of the participants who responded to the question according to Table 4.1 below, 66.3% were married while 33.7 % were single. The marital status could contribute to the level of participation along the milk value chain in that increased financial need of a married couple may lead more married youths to seek employment in the milk value chain.

#### **4.3.2 Gender of the respondents**

**Table 4.2: Gender of the respondents**

Gender	Frequency	Percent
Male	167	67.9
Female	79	32.1
Total	246	100.0



A personal attribute of the respondent's analysis in the study was their gender. During the data collection exercise, youths were asked to state their gender. The table 4.2 shows that 167 respondents equivalent to 67.9% were male while 79 were female representing 32.1% of the sample population.

This shows that there are more male than female involved in the dairy chain. This could be explained by the fact that men are socialized to be the family bread winners and are more likely to seek employment from outside the home. Women on the other hand have socialized to take care of household activities and are hence more likely to remain at home to do domestic shores.

#### 4.3.3 Respondents level of education

**Table 4.3: Level of education**

level of education	Frequency	Percent
primary level and below	60	24.4
secondary level	128	52.0
post secondary level	58	23.6
Total	246	100.0

From Table 4.2 above, 52% of the respondents had secondary level of education, 24.4 % primary level of education and 23.6% had post secondary qualifications

The result from the Table 4.3 clearly shows that a good percentage (75.6 %) of the respondents have reasonable levels of education which is secondary school and above only 24.4% of the respondents have primary school education. Good education levels are likely to improve adoption of new technologies in the dairy sector by the respondents involved in the daily value chain if relevant capacity building is done. Education generally increases a person's awareness of his/her environment and ability to acquire and process information about his/her environment and to detect changes in it. Education also increases one's scope of thinking and ability to innovate.

#### 4.3.4 Age of the respondents

**Table 4.4: Age of the respondents**

Age of the respondents	Frequency	Percent
Below 18 years	2	0.8
Between 18 and 25 years	61	24.8
Between 26 and 35 years	139	56.5
Between 36 and 45 years	37	15.0
Between 46 and 50 years	5	2.0
Above 50 years	2	0.8
Total	246	100.0

The results of the findings presented in Table 4.4 shows that 139 respondents (56.5%) were between 26 and 35 years, 61 respondents (24.8%) were between 18 and 25 years, 37 respondents (15%) were between 36 and 45 years and 5 (2%) were between 46 and 59 and only 2 (0.8%) were below 18 years and above 50 years of age.

According to the government of Kenya 2012, the average age of the farmers is 60 years. The research has established that the majority of the respondents were during the most active part of their life. This calls for the key stakeholders to provide incentives and also low interest loans to the youth. This would result in better results as the majorities are innovative because age can impede innovativeness

The findings are in line with the comment made by the sub county head of livestock who was also one of the key informants in the study and who stated that, *“The average age of the youths involved in the various levels of the milk value chain is between 25-35 years”*.

The demographic characteristics under study included marital status, gender, age and education level. From the findings 66.3% of the respondents were married while 33.7% were single. This is a possible indication that increased financial needs of a family life may be driving more youths to seek employment. The findings also indicate that 67.9% of the respondents are males with 32.1% being females. This might be attributed to gender role in the society where males are

socialized to be the bread winners and are likely to seek for employment so that they can fend for their families. Females on the other hand are socially constructed to do house hold chores at home. The level of education is reasonable as over 70% of the respondents have attained secondary education and above. This means that the youth in the dairy value chain can easily be trained on technical matters in order to increase their capacity to handle issues in the sector. Most of the youths involved in the dairy value chain fall in the age bracket of 26 – 35 years. This is an age bracket when most youths in the rural setting are married and hence the need to look for gainful employment.

#### **4.4 Influence of milk marketing factors on youth involvement in the milk value chain**

Milk marketing is defined as the performance of all business activities that are involved in the flow of milk and services from the point of initial production until they are in the hands of the final consumer. To have a recap of the milk value chain the respondents were asked to respond on issues regarding the price of milk, type of milk product and distance to the nearest milk market.

##### **4.4.1 The Level of the milk value chain at which the respondents operate.**

**Table 4.5: Level of milk value chain**

Level of milk value chain	Frequency	Percent
Production	101	41.1
Bulking	4	1.6
Storage	4	1.6
Transporting and trading	125	50.8
Processing	12	4.9
Total	246	100.0

It is interesting to note that most of the respondents (about 90%) operate at the production and transportation levels of the milk value chain. This fact has been supported by Misio ward livestock officer who says that *“few youths are involved in milk processing activities and that they are mainly involved in milk trading where they use motor cycles as their mode of transportation”*.

#### 4.4.2 Selling price in Kenya shillings per liter of milk

The milk pricing and marketing has been liberalized for a long period of time in Kenya. The decision by dairy farmers and milk traders to market the milk through a particular outlet is a function of production cost, transport cost, selling price and promptness of payment among other factors.

**Table 4.6: Milk price per liter in Kenya shillings**

Price/liter in KSH	Frequency	Percent
20 to 30 Kenya shillings	24	10.1
31 to 40 Kenya shillings	70	28.5
41 to 50 Kenya shillings	63	25.2
above 50 Kenya shillings	89	36.2
Total	246	100.0

In Table 4.6 above 89 respondents ( 36.2%) sell their milk at a price above 50Kshs per litre, 70 of the respondents(28.5%) sell their milk at between 31 and 40 Kshs per litre, 63 (25.2%) sell at 41 to 50Kshs per litre while 24 of them (10.1%) sell at between 20 and 30 Kshs per litre. This can be attributed to the milk marketing scheme where farmers who sell to the consumers directly fetch higher prices than those who sell to middlemen. Milk prices just like prices of any other commodity are subject to the marketing forces of demand and supply. Milk prices go down with increased milk supply in the market during the rainy seasons. Low milk production during dry seasons leads to reduced milk supply in the market. With low supply the demand will be high hence prices of milk during this time (dry season) will also be high.

#### 4.4.3 Milk marketing channel

**Table 4.7: The type of milking channel**

market channel	Frequency	Percent
Neighbor, local shop and middle men	197	80.1
Processors	13	5.3
Dairy cooperative	36	14.6
Total	246	100.0

The choice of market channel for milk in Kenya is highly dependent on the price the farmer can fetch and the confidence of being paid for the produce. The majority of the respondents (80.1%) sell their milk to their neighbors, the local shops and to middlemen. Some respondents (14.6%) sell milk to the milk cooperative societies while 5.3% sell their milk to processors.

Some processors collect milk directly from the bulking point where the farmers and milk traders deliver their milk. However, the processors tend to drastically reduce milk prices during the wet seasons when milk supply in the market is high. As such the majority of the small scale milk producers prefer not to deal with large scale milk processors.

#### 4.4.4 Form of milk sold to the client

**Table 4.8: Form of milk sold to the client**

Type of milk	Frequency	Percent
Raw milk	223	90.7
Fermented milk	21	8.5
Chilled milk	2	0.8
Total	246	100.0

The findings indicated that 90.7% of the farmers sell their milk raw, 8.5% sell fermented milk and 0.8% chilled milk. This could be an indication of lack of equipment necessary for value

addition. It may also be as a result of lack of knowledge and awareness of the economic gains that is realized by adding value to their milk produce.

From the Table 4.8 above it is clear that very few farmers are adding value to their produce. This mainly allows the buyers to take advantage of the farmers during a glut because they cannot preserve their produce.

#### 4.4.5 Distance to the nearest milk market

**Table 4.9: Distance to the nearest market**

Distance to the market	Frequency	Percent
less than 1 kilometer	110	44.7
1 - 2 kilometers	30	12.2
2.1 - 3 kilometers	9	3.7
3.1 - 5 kilometers	13	5.3
above 5 kilometers	84	34.1
Total	246	100.0

Table 4.9 above shows that 44.7% of the respondents have a market outlet within less than one kilometer. However, there is a sizable number comprising 34.1% of the respondents whose market outlets are more than 5 kilometers away. The other respondents have market outlets as follows: between 1 to 2 kilometers at 12.2%, 2.1 to 3 kilometres at 3.7% and 3.1 to 5 kilometres at 5.3% respectively. The respondents who market their milk within a walking distance of less than 1 kilometre are 44.7%. In total 65.9% of the respondents sell their milk within walking distances of 5 kilometres and below. Transport cost may hinder some of the youth from marketing milk in urban area beyond the walking distance but where milk might be fetching higher prices. Milk that is sold in markets beyond 5 kilometres is probably targeting large urban areas where demand for milk is high with subsequent high prices which offset a transportation cost.

#### 4.4.6 Milk sales per day

**Table 4.10: liters of milk**

liters of milk sold per day in liters <sup>7</sup>	Frequency	Percent
less than 5 liters	22	8.9
5 – 10 liters	56	22.8
10 - 15 liters	28	11.4
15 - 20 liters	26	10.6
above 20 liters	114	46.3
Total	246	100.0

It is evident that 46.3 % of the respondents sell more than 20 liters of milk per day, 22.8 % sell between 5 and 10 liters, 11.6 % sell between 10 and 15 liters, 10.6 % sell between 15 and 20 Liters and 8.9 percent sell less than 5 liters per day. From Table 4.10 above it can be concluded that majority of the respondents are selling more than 20 liters in day. This is an indication that the majority of the respondents would be getting reasonable income if their scale of operation will be increased.

The findings of this study pointed out that about 90% of the youth in the milk value chain were dealing with raw milk. 80.1% of the respondents affirmed to selling their dairy produce to either their neighbors and/or local shops. The study concurs with the trend in the Kenya dairy industry which since liberalization in 1992 led to rapid growth of the informal milk trade that mainly consist of small scale operators dealing in marketing of raw milk. A study by Karanja, 2003 indicates that during this period there was an emergence of new institutional arrangements in milk collection, processing and marketing, which included hawkers, brokers, neighbors and business establishments like hotels. With 19.9% of the respondents selling milk to the cooperative societies and dairy processors the research findings are in agreement with the Kenya Dairy Board report (KDB 2012) which said that the proportion of processed milk has increase to about 20%. The findings also indicate that most of the milk (65.9%) is sold within walking distances (to the neighbors and the local shopping centres). Only about 34% of the milk is marketed beyond 5 kilometres away. This probably is the milk which ends up being marketed in

large urban centres, where it might be fetching better prices. Lack of means of transportation could be the reason why most of the milk is marketed within the walking distance where it could probably be fetching less returns. Value addition was being done by only 9.3% of the respondents who deal in fermented milk at 8.5% and chilled milk at 0.8% of the respondents. Other processed milk products like yoghurt were not mentioned.

#### 4.5 Youth awareness and milk value chain activities

Timely access to relevant information, which is properly interpreted and implemented is of paramount importance to the success of any given business at the right time, proper interpretation and implementation is of paramount importance to success of any given business. To ascertain this the respondents were requested to shade light on the institution offering training, their source of information, years of experience in the dairy value chain, the network they operate within and the quality of technical support they get from the government livestock officers. The results are clearly outlined in the statistical Tables Above

##### 4.5.1 Agents offering training on market oriented enterprise

**Table 4.11: Agents offering trainings**

Training agent	Frequency	Percent
NGO	41	16.7
GOK	79	32.1
private sector	29	11.8
None	97	39.4
Total	246	100.0

A summary of the agents offering trainings to the youth involved in the dairy value chain is illustrated in Table 4.11, where 39% of the respondents indicated that no one offers them training, 32% receives the training from government agents, 16.7 % from non governmental organizations while the rest (11.8%) are trained by the private sector with vested interest in quality raw materials for their enterprises. A large number of respondents in (39.4%) indicated that they receive no training at all. Capacity building of those involved in the dairy trade is of



paramount important as this would ensure increased productivity, profitability and sustainability of the dairy activities. The sector players need to be trained on appropriate production technologies and basic processing techniques that would enable them reduce their cost of production while benefiting from the extra income that accrues from value addition. Proper net working of the stake holders will not only improve awareness of the policy trends in the sector but will also improve marketing information for the players.

#### 4.5.2 Sources of information

**Table 4.12: Sources of information**

Source of information	Frequency	Percent
From other youth and friends	89	36.2
Leaders and youth representatives in the dairy federations	50	20.3
Media( radio, TV and newspapers)	34	13.8
Workshops, seminars, and meetings	54	22.0
Internet services	4	1.6
All the above	15	6.1
<b>Total</b>	<b>246</b>	<b>100.0</b>

Table 4.12 illustrate respondents source of dairy information. The results indicate that 36.2% of the respondents get information from friends and fellow youths, 22% from workshops and meetings, 20.3% from leaders and youth representatives, 13.8% from the media, 6.1 % from all the options provided for in the questionnaire and only 1.6% from the internet services. It's clear from the findings that the accessibility of the relevant source of information is wanting. Information gathered from friends may not always be true and may need clarification before being relied upon. This may call for more information centers across the region under study.

### 4.5.3 Rating of services offered by Kenya dairy board officers

**Table 4.13: Rating of services offered by Kenya dairy board officers**

services offered by Kenya dairy board officers	Frequency	Percent
Poor	62	25.2
Fair	115	46.7
Good	63	25.6
Very satisfactory	6	2.4
Total	243	98.8

Respondents were also asked to rate services they got from Kenya Dairy Board officers on dairy value chain using a four scale rating from 1(poor) through to 4(very satisfactory). From the interview of the key informant the majority of them agree that the youth are uninformed.

The Kenya Dairy Boards mandate is to promote and regulate dairy activities including licensing of milk traders and enforcement of hygiene standards while handling milk and milk products. The results on table 4.13 indicate that the majority of the respondents (71.9%) are not satisfied with the services offered by the Kenya Dairy Board office. There is therefore a need to strengthen KDB office so that the operations in the Dairy value chain are streamlined and orderly. Improved services by the KDB would also ensure improved quality of milk and milk products handled by those operating in the Dairy Value chain.

#### 4.5.4 Number of youth networking

**Table 4.14: Number of youth networking**

Number of youths the respondents network with	Frequency	Percent
None	5	2.0
One	40	16.3
Two	43	17.5
Three	34	13.8
More than three	124	50.4
Total	246	100.0

Respondents were asked to indicate the number people with whom they networked on dairy related issues. The results show that 50.4% of them networked with more than three people; 17.5% networked with more than 2 people, 16.3% networked with 1 person, 13.8% networked with 3 and 5% did not network at all.

The results from table 4.14 show significant levels of interaction among the youth in the dairy value chain. However, the previous findings indicate that a large percentage of the respondents (about 40%) do not get any relevant training on issues concerning the dairy value chain. This may mean that their networking and interactions are not based on relevant issues which may empower them to increase the capacity and welfare.

#### 4.5.5 Years of experience in the milk value chain

**Table 4.15: Years of experience in the value chain**

Year of experience	Frequency	Percent
1 - 5 years	124	50.4
5 - 10 years	85	34.6
10- 15 years	22	8.9
above 15 years	15	6.1
Total	246	100.0

Table 4.15 below indicates that 50.4% of the respondents had between 1-5 years experience in the dairy value chain, 34.6% had between 5-10 years of experience, 8.9 had between 10-15 years of experience and only 6.1% had over 15 years of experience.

The emphasis on experience in any undertaking cannot be overstated. This is more so in the dairy sector where the supply and the price of milk fluctuate with the weather and the season, not to mention the perishability of the milk and milk products. Apart from education level and capacity building through trainings experience in the business is of great importance for sustainability of the activities in the dairy value chain.

Though a significant number of the youth in the milk value chain had not received any form of training, 32.2 percent were getting training services from the government agents, 16 % from the NGOs and 11.8 % from the private sector extension providers. Although the government is the main livestock extension provider in the area 72.9% of the respondents rated the extension services offered by the government as below satisfactory. Only 2.4% of the respondents were satisfied with the government extension services.

Most youths involved in the milk value chain (62.6%) source dairy related information from their fellow youths and their leaders. A lot of information on agricultural activities is being disseminated through the media these days. However, only 13% of the respondents access dairy information from the media. This might be due to lack of awareness. Relevant trainings and awareness creation through organized demonstrations and workshops would improve the technical capacity of the youths in their dairy operations. This would in turn improve productivity both at primary production and value addition levels. Capacity building would also empower the youth to access market information and financial assistance.

#### **4.6 Influence of socio- economic factors and youth employment through involvement in the milk value chain**

The Government of Kenya initiated the Youth Enterprise Fund in 2007, a Ksh 2 billion (USD 25 million) initiative aiming at the provision of start-up capital to small enterprises whose owners are below 30 years of age. A similar fund has been set up, through the Kenya Women Finance Trust and the Women Enterprise Fund, to extend such support to would-be female entrepreneurs.

These funds are managed through microfinance institutions (MFI) and continue to receive government support.

Prospective youth entrepreneurs in the dairy sector should be able to access this relatively cheap fund either as individuals or as groups for their startup businesses in the milk value chain. Access to bank credit by farmers is still a major challenge despite the fact that Kenya has a relatively well-developed banking system. Risks associated with agribusiness coupled with complicated land laws and tenure systems that limit the use of land as collateral make financing of agricultural activities unattractive to the formal banking industry.

To find out if the youth have access to cheap and reliable funds the respondents were requested to address issues such as their source of finance, land ownership, size of land, employment status, profit margins in their dairy business and type of groups they have joined.

#### 4.6.1 Sources of financial services

**Table 4.16: Sources of financial services**

Sources of finance	Frequency	Percent
Micro finance institutions	30	12.2
SACCOS	13	5.3
Table banking	38	15.4
Relatives and friends	13	5.3
Personal savings	141	57.3
None of the above	11	4.5
Total	245	99.6

The availability of funds to the youth at low interest rates can be one of the major contributing factors to establishment of profitable businesses. From the findings illustrated in Table 4.16, 57.3% of the respondents use their personal savings, 15.4 use table banking, 12.2% use micro finance institutions, 5.3% Saccos and friends borrowing, and 4.5 % did not indicate their source of finances. From the findings, the youths involved in the milk value chain do not make use of the youth development fund or cheaper sources borrowing to expand or establish their enterprises. This may derail the growth in the sector and hinder investments in the value

addition, which requires higher capital investment. One of the key informants stated that conditions and requirements of most financial institutions are prohibitive for the youths who might want to access funds to invest in their activities.

#### 4.6.2 Land ownership

**Table 4.17: land ownership**

land ownership	Frequency	Percent
Yes	147	59.8
No	99	40.2
Total	246	100.0

Land is one of the major inputs in dairy production. 59.8% of the respondents indicated they own some land while 40.2 % did not.

The percentage of those without land is high and this is a cause of alarm for the sustainability of the sector. One of the key informants supports this by stating that “*accessibility to finances is limited due to the nature of land ownership since most of it is owned by parents*”.

#### 4.6.3 Type of land ownership

**Table 4.18: Type of land ownership**

Type of land ownership	Frequency	Percent
Inherited	189	76.8
Purchased	57	23.2
Total	246	100.0

The type of land ownership has an influence on its utilization in terms of planning and also being used as collateral for borrowing money from lending institutions. Table 4.18 above indicates that 76.8% of the respondents are having inherited land, which is held in joint ownership with

other family members and which therefore may not be freely used by the youth to further their personal development agendas as they have no title deeds for it. Only 23.2% of the respondents have acquired land through purchasing and they are most likely to have the legal documents.

#### 4.6.4 The size of land owned by the respondents

**Table 4.19: Size of the farm owned by respondents in acres**

Area of land	Frequency	Percent
less than 1	56	22.8
1 - 2 acres	89	36.2
3 - 4 acres	79	32.1
Above 5 acres	22	8.9
Total	246	100.0

As shown in Table 4.19 above 22.8% of the respondents had less than 1 acre of land, 36.2% had between 1-2 acres, 32.1% between 3-4 while, only 8.9 % had land above 5 acres. Considering that most households in the area practice mixed farming. Land allocated to dairy activities will be further reduced due to competition between crop and livestock enterprises.

Looking at Tables 4.17 on land ownership; 4.18 on types of land ownership and table 4.19 on size of land owned by the respondents, It is fair to conclude that very few youths (13.8%) have their own land on which they can practice dairy production. 40.2% of the youth have no access to land, whereas 46% of the youths have access to inherited land which they hold in joint ownership with family members. It is important to note that the few youths who have access to land have it in very small parcels – less than 3 acres. This may not be enough for commercial dairy production considering that these people practice mixed farming, so there will be competition between crops and livestock farming. The youths may therefore have to go through a lot of capacity building so that they engage in intensive system of dairy production. This scenario further indicates that the vibrant energy associated with the youth is being missed out at the production level which is critical within the dairy value chain.

#### 4.6.5 Employment status of the respondents

**Table 4.20: Status of employment**

Status of employment	Frequency	Percent
Unemployed	188	76.4
Casual employment	32	13.0
Contract	7	2.8
Monthly employment	23	9.8
Total	246	100.0

The level of unemployment in the region under study is high (76.4%) and this implies they mainly depend on agriculture based activities for their household income. Casual employment stood at 13%, those under contract type of employment at 2.8%, while 9.8% were on a monthly basis. Table 4.20 indicates that 76.4% of the respondents do not have any other form of employment and are fully engaged in dairy activities. Less than 13% of the respondents have part time jobs elsewhere. This shows that the dairy value chain has the potential to give employment to the many jobless youths in the area.

#### 4.6.6. Monthly profit margins

**Table 4.21: Monthly profit margin**

Monthly profit margin	Frequency	Percent
Less than Ksh10000	148	60.2
10000 to Ksh15000	61	24.7
15000 – Ksh 20000	27	11.0
Above Ksh 20000	10	4.1
Total	246	100.0



The respondents were required to say the profit they made from their dairy enterprise. This might point to the potential profitability of dairy activities if the conditions within which they operate are optimal. It might also give us an insight about their ability to invest their own money in the dairy enterprise.

Results on monthly profit margins show that a large number of the respondents (60%) get low incomes of less than Kshs10,000 per month only 15 % of the respondents get incomes of Kshs15,000 and above. This may be an indication of low investments in the sector players.

The adoption of modern production methods and streamlined operations in the dairy sector could help improve the profit margins and make the dairy value chain offer gainful employment opportunities for the youths.

#### 4.6.7 Types of groups association

**Table 4.22: Type of group association**

Type of group	Frequency	Percent
Social welfare	79	32.1
Economic investment	48	19.5
None	119	48.4
Total	246	100.0

Groups have been identified as a way of channeling funds to the youth by the government and the NGOs. According to the findings, 48.4 % of the respondents did not associate with any group. 32.1% were members of social groups and 19.5% had joined economic investment groups. The findings on Table 4.22 show that the majority of the youths involved in the dairy value chain have not formed economic investment groups. This means that the majority of the respondents has no reasonable financial access and cannot therefore make any meaningful investment in their dairy activities.

The study established that the youth in Rongai/Nakuru Sub County have no access to the low rated interest funds and use mainly their savings to set up enterprises in the dairy sector. Land

being an important primary factor of production in dairy farming is also of limited access to the youth with only 59% owning a maximum of two acres of land. Intensive dairy production systems should be practiced by the youths if they are to realize profits. The youths need to be organized into groups and taken through capacity building on financial management so that they can benefit from the low interest rate funds which are being offered through various government financial initiatives to improve the welfare of the youth. Access to bank credit by the youth is still a major challenge despite the fact that Kenya has a relatively well-developed banking system. The youths in the area do not have the legal documents for land ownership and thus cannot use the land to secure funds.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS OF FINDINGS**

#### **5.1 Introduction**

This research study sought to establish the factors influencing youth employment through involvement in the milk value chain in Rongai/Nakuru sub-counties. This chapter therefore contains a summary of the findings, discusses these findings and furnishes conclusions based on the objectives of the research study. The chapter also contains some recommendations for consideration based on the study findings. The end section deliberates on the contributions of the study to the general body of knowledge.

#### **5.2 Summary of the Findings**

The first objective of the study was to identify how demographic characteristic of the youths influence their involvement in milk value chain in Rongai/Nakuru sub-counties. From the findings 67.9% of the youth involved in the milk value chain are male as opposed to 33.7 % who are females. This result agrees with Wambugu (2010) who found out that males are more involved in dairying farming. A larger portion of the respondents also affirmed to being married at 66.3% implying they had responsibilities to support their families. The level of education is satisfactory with majority (75.6%) having secondary level of education and above. However, the challenge is that very few had technical skills. This may call for the relevant extension providers to organize for technical trainings and short courses which will enable the youth acquire the necessary skills.

Majority of the youth involved in the dairy value chain were between 26 and 35 years of age.

This has its merits and demerits in that the years of experience is low and therefore they may face difficulties in making decisions when new challenges arise. However if they are trained and appropriate extension services offered the sector has a big potential given that the youth are at their most energetic stage of their life.

The second objective of the study was to identify how marketing factors of milk influence youth employment through involvement in the dairy value chain in Rongai/Nakuru sub counties. The study found out that 36.2 % of the youth sold their milk at a price above Kshs.50 per liter. This could be attributed to high number of outlets in the shops and hotels, 53.7% sold at between 31 and 50 Kshs per liter owing to approximate distance from the market. The remaining respondents who are 10.1 % sold their milk between 20- 30 Kenya shillings per liter; the difference comes in due to the various channels of outlet being used by the youth. Above 50% of the youth were involved in transport and trading, 41% on production, 4.9% on processing and only 1.6% each on bulking and storage. The distance from the nearest market is small with 62.2% of the respondents indicating they are within less than 5 kilometers to the market. This can allow the youth to transport their produce at a less cost and maximize their returns per liter of milk. Value addition is critical in maximizing profit and reducing wastage during glut, the findings however indicate that 90.7% of the youth sell their milk being Raw and this agrees with Muriuki, 2003 study that absence of value addition infrastructures reduces the ability to reduce risk and compete effectively in the market.

The third objective of the study was to establish how youth awareness on dairy activities influences their participation in the milk value chain in Rongai/Nakuru sub counties. The study found out that (59.9%) of the youth did get some form of training from the NGO, the Government and the private extension agents. The alarming number of the respondents (39.4%) did not get any of trainings at all. This group may have been receiving some dairy related information through networking with their colleagues who are already involved in the dairy value chain. The youth quest for extensive information on dairy farming was also highlighted by their expansive peer-to-peer networks as a majority of them were cited as having networked with more than three peers on dairy value chain matters. On the other hand,(56.5%) of the youth in the milk value chain sourced most of their dairy related information from their friends and youth leaders. Very few of them sourced dairy information from the media and the internet with only 6.1% of them accessing dairy information from all the sources. As would be pointed out later, an increased awareness level in dairy value chain by the youth directly affects the output levels in milk production as well as maximization of profits.

The fourth and last objective of the study was to establish how economic factors influence youth employment through involvement in the dairy value chain in Rongai/Nakuru sub-counties. The research found out that 76.4% of the youth in this area are unemployed which is a reflection of Kenya's economic status which currently can only provide employment opportunities for about 25 percent of the unemployed annually. This leaves the majority (75%) of the youth unemployed. The small business sector remains a major source of employment. The youth need sources of capital to venture into business. From the study 57.3% of the respondents use their personal savings to invest in their dairy activities. Considering that youth unemployment rate in the area is very high (at 76.4%) it would then not be possible for them to save substantial amounts necessary for meaningful investments in their businesses. This might explain why the majority of the respondents (60.2%) have low incomes of less than Kshs.10,000 per month.

Of the 59.8% respondents who have access to land 76.8% of them have access to ancestral land which they hold in joint ownership with other family members, while 23.2% have individual ownership of the land which they have access to. If the whole population is considered then the indication is that only 13.8% of the respondents have access to land which is under their control, 40.2% have no access to land while 46% have access to land that which is not under their control. These findings show that the vibrant energy associated with the youth is not being fully utilized at the production level of the dairy value chain. This, coupled with the fact that even those with access to land (about 60%) have less than 2 acres which they also use for crop production. This scenario might explain the low milk production levels reported by the department of livestock production(MOLD 2012 annual report) The government of Kenya has established youth fund kits but they are channeled through various registered youth groups yet from the study 80.5% of the youth in this region had not joined any economic investment groups.

#### **5.4 Conclusions of the study**

Whereas major strides have been made, there is still a lot of room for improvement as far as the dairy sector goes. The concept of dairy farming, and commercialized agriculture as a whole, is yet to be fully sold to the youthful populace in Kenya. The levels of Government support in terms of trainings and other capacity building exercises, provision of extension services and raising awareness levels in dairy farming as far as sources of funds, marketing, management and other best practices was deemed to be wanting.

The demographic characteristics of the respondents in light of their age, education levels and marital status provided important insight about the extent to which the youth participate in the dairy value chain and what is probably motivating their participation in the dairy value chain. High unemployment rate among the youths and increased financial needs of the young married couples seem to be some of the major factors influencing the youth to seek employment in the dairy value chain. Sources of low interest capital are still not accessible to the youth who have ventured into the dairy value chain. This is limiting them in investing in value addition activities which are capital demanding. This still leaves the youth vulnerable to risks especially during the glut period, they incur losses that could be easily avoided by processing and bulking to get more shelf life and better sales in the long run.

#### **5.5 Recommendations of the study**

Having looked at the theoretical framework, the conceptual framework, alongside the literature review, the study findings and the conclusions made, a series of recommendations are pointed out:-

1. That the national Government of Kenya and the County Government of Nakuru, through the relevant Ministry and State Departments should create awareness among the youth on the potential of adopting modern technology in the entire milk chain. This will reduce losses and maximize profits and make the dairy sector a reliable source of income among the youth.
3. The NGO's participating in milk value chain and the government stakeholders in the sector should also train the youth to acquire relevant skills that would enable them handle the produce

per standards. A training need assessment should be carried out in the region and training manuals developed to equip the youth with relevant skills.

4. There is need to adopt information and communication technologies in extension services. The respondents indicated that trainings by Government were of fair to poor quality and more information could be gathered through use of technology given the youth have basic level of education

5. The relevant extension providers should organize youths who are involved in the dairy value chain into economic groups so that they can easily access capacity building through trainings, access financial assistance from the funding institutions and also access market information for their products. There is also a need to establish low cost market information systems from where the youths, once empowered, can easily source for market information using simple technologies like mobile phones. The relevant extension providers should put more emphasis on value addition on raw milk so that the youths operating in the dairy value chain can catch in on extra income associated with value addition.

6. According to report from the department of livestock production the average milk production per cow per day in the area is 10 litres with a potential to double the figure. There is hence the need for relevant authorities to sensitize the general farming community to allow more youths to access land for dairy production purposes, so that their vibrant energy can also be utilized at milk production level. This will increase milk volumes which in turn will not only employ more youths but also increase their scales of operation.

### **5.6 Suggestions for Further Research**

Out of this research, the following areas were found to have deficiencies of information and further research on these areas might be of value.

1. Determine the policy interventions required in revitalizing, sustaining and making competitive the dairy cooperative sector in Nakuru /Rongai sub-county, within a liberalized regional and global market economy.

2. An assessment of factors hindering the dissemination and access of information among the youth in Rongai/Nakuru sub-county could shed more light on the measures to be taken. Modern

agriculture need to be backed up with updated information and technology to remain competitive and gain more per unit area of production.

3. An analysis of the factors hindering youth from joining or forming economic groups that could allow them access funds at low interest provided by the government. This could enable appropriate measures to be put in place and also guide the youth on the procedures and requirements by the Kit administrators.



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**APPENDIX I: Letter of transmittal of data collection instruments**

Letter of transmittal of data collection instruments

**ROSALINE A.MUHOMA**

**P.O BOX 44**

**NAKURU**

**TEL: 0736-248587**

**TO WHOM IT MAY CONCERN**

Dear Sir/Madam

**RE; FACTORS INFLUENCING YOUTH INVOLVEMENT IN MILK VALUE CHAIN  
CASE OF RONGAI / NAKURU SUB-COUNTY IN NAKURU COUNTY,KENYA**

I am a postgraduate student in the University of Nairobi, pursuing a Masters degree in Project Planning and Management. Am conducting a research on Factors influencing youth involvement in milk value chain; case of Rongai / Nakuru sub-county.

You have been selected to help in this study and I am humbly requesting you to allow me to interview you. The information being sought is meant for research purposes only and will not be used against in anyway. The researcher will ensure that the feedback reaches all those who will participate in the research study.

The findings will greatly inform all stakeholders in the milk value chain and will tremendously contribute to the revival and sustainability of Dairy sector in the country. Your responses will be treated with confidentiality. No names of individuals or farms will be needed.

Thank you in advance.

Yours sincerely,

**ROSELINE AKOTH MUHOMA**

**L50/84416/2012**

## APPENDIX II: Youth and milk value chain Questionnaire

### Introduction

This questionnaire is on Factors influencing youth involvement in milk value chain; case of Rongai / Nakuru sub-county. The exercise is in line with research study requirement in partial fulfillment of a Master of Arts in Project planning and management degree at the University of Nairobi. The data collected will be used for said purpose only. The identity will be held with strictest confidentiality. Below are some questions to assist in comparing the milk production in the two sub-counties mentioned above. The questionnaire contains four sections.

Kindly respond to all questions in the four sections by ticking in the space provided or by explaining your opinion briefly on the space provided

### SECTION A: Influences of demographic characteristic of youth on their involvement in the milk value chain.

1. Gender of the youth

Male ( )                      female ( )

2. What is your marital status?

Married ( )              Single ( )

3. What is your education level?

Primary level and below ( ) secondary ( ) post secondary ( )

4. Indicate your age category

Below 18yrs ( ) 18-25yrs ( ) 26-35yrs ( ) 36-45yrs ( ) 46-50yrs ( ) above 50yrs ( )

**SECTION B: Influences of Milk marketing factors and youth involvement in the milk value chain**

1. At what level of the milk value chain do you operate?

Production ( ) Bulking ( ) storage ( ) Transporting and trading ( )

Processing ( )

2. Indicate the selling price of a litre of milk in your area of operation

20-30 ksh ( ) 30-40ksh ( ) 40-50ksh ( ) Above 50ksh ( )

3. Which milk marketing channels /options do you use to market your milk?

Sales to: neighbor ( ) Local shops/hotels ( ) Middlemen ( ) processors ( )

Dairy cooperative ( )



4. Which form of milk do you sell to your clients?

Raw milk ( ) fermented milk ( ) chilled milk ( )

5. How far is the nearest market where you sell your milk?

Less than 1km ( ) 1km-2km ( ) 2km-3km ( ) 3km-5km ( ) above 5km ( )

6. What is your average sale of milk per day?

Below 5litres ( ) 5liter-10litre ( ) 10liters-15litres ( ) 15litres-20litres ( )

Above 20litres ( )

7. In your opinion what do you think of the status of the road network from the farms to the markets in the past three years?

Deteriorated greatly	Deteriorated a little	Hasn't changed	Improved a little	Improved greatly
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**SECTION C: Influences of youth's awareness on the milk value chain activities.**

1. Who offers training on market oriented dairy enterprise in this region?

NGO ( ) GOK ( ) private sector ( ) none ( )

2. What is the source of the dairy information in your area of operation? Tick appropriately.

- From other youths and friends in same business ( )
- Leaders and youth representatives in the dairy federations ( )
- Media (Radio, T.V, Newspaper etc) ( )
- Workshops, Seminars, and meetings ( )
- Internet services ( )
- All of the above. ( )

3. How can you rate services offered by Kenya dairy board officers on the milk value chain enhancement in Nakuru County?

- Poor ( ) fair ( ) good ( ) very satisfactory ( )

4. How many youths in the dairy business do you network with?

- none ( ) one ( ) two ( ) three ( ) more than three ( )

5. How long have you been operating in the milk value chain?

- 1-5yrs ( ) 5-10yrs ( ) 10-15yrs ( ) over 15yrs ( )

**SECTION D: Influences of socio-economic factors and youth involvement in the milk value chain.**

1. From where do you get financial services when you need funds to support your dairy operations?

- Micro finance institutions ( ) SACCOS ( ) Table banking ( )

- Relatives and friends ( ) personal savings ( ) none of the above ( )

2. Do you own land Yes ( ) no ( )

If yes, is it inherited or purchased? Inherited ( ) Purchased ( )

If no, why?

3. If yes in Q 18. above indicate size..... Acres

4. what is your employment status

Un-employed ( ) casual employment ( ) contract ( ) monthly employment ( )

5. How popular are dairy activities among the youths in your area of operation.

Popular ( ) Un popular ( )

Explain .....

6. Indicate monthly profit margin of your operation in milk value chain.

Below ksh10 000 ( ) Kshs 10,000-15,000 ( ) Kshs 15000-20000 ( )

above Kshs 20000 ( )

7. What was your starting capital for your business in milk value chain.....

8. Do you belong to any self help group?

If yes, which benefits do you get from it? Social welfare ( ) Economic investment ( )

If no, explain why

9. Any other comments;

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

**Thank You**



4. Has the government done enough in creating a favorable environment for the dairy farmers in terms of policy and infrastructure
  
5. Do you think that the youths operating in the milk value chain in the region under study are well informed about the required government standards and regulations
  
6. From your observation what is the average age of the youths involved in the various levels of the milk value chain?
  
7. What is your comments about land and financial accessibility by the youths who are participating in the dairy value chain activities in the two mentioned areas?
  
8. Who are the major stakeholders in the milk value chain in these two regions? How do they assist the young actors in the chain to address issues of youth employment and food security in our nation?



APPENDIX IV: Sampling table

Krejcie and Morgan sampling table

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

**(Krejcie R. V et al. 1970).**

**Where: “N” is population size, S” is sample size.**