

ASSESSING THE INFLUENCE OF HIGH POPULATION GROWTH RATE ON FOOD  
SECURITY IN NYAMWERU SUBCOUNTY RUBANDA DISTRICT

BY

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### **DECLARATION**

I Twinamasiko Derrick, declare that this is my original work and it has never been submitted to any Institution for any academic award.

**Signature**----- **Date: 17/08/2019**

**TWINAMASI KO DERRICK**

**RESEARCHER**

### **APPROVAL**

This research report titled "**assessing the influence high population growth rate on food security in Nyamweru Sub- County Rubanda district**" has been under my supervision and is now ready for submission with my approval

**Date 20/08/19**

**Signature** .....    .....

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**MR. KAGYENZA SAMUEL  
SUPERVISOR**

## **DEDICATION**

I dedicate this report work to my mother Mrs.Nakasawa Anet,My father.Rwanyarare Barnard, sister Mrs. Tubyashemererwa Olivia Brother Ndamwesiga Leacky and Mr Donesian lecturer at kabale university.

May the Almighty God reward them abundantly

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## ABSTRACT

This study assessed the influence of high population growth rate on food security in Nyamweru Sub- County Rubanda district. The objectives of the study were to examine the role of population growth rate towards food security, to examine challenges affecting population growth rate on food security and to find out ways of how high population growth rate promotes food insecurity in Nyamweru sub county Rubanda district. A cross sectional survey design was used. Self administered questionnaires and interviews were used in data collection and data was analyzed using excel, a computer software to generate descriptive statistics such as frequencies and percentages and data was presented in tables and text. From the study findings the role of population growth rate towards food security in Nyamweru sub county Rubanda district were promotes food production. encourages saving and investments, high population growth puts greater pressure on health and improves its quality, leads to rapid increase in school age population that calls for more investment in education, high population growth leads to efficiency of developing countries and their political system and high population puts pressure on urban physical infrastructures leading to development, the study results also on challenges affecting population growth rate on food security in Nyamweru sub county Rubanda district, were in adequate capital for investment, shortage of enough land. poor infrastructure development, climatic changes, over-utilization of land and political instability and the study results also on how high population growth rate promotes food security in Nyanweru sub county Rubanda district the findings were through development of drought-resistant crops, investment in rural infrastructure, irrigation, improved storage facilities and investment in sustainable technologies. The study recommends that family planning programmes should be designed to provide information, services and modern means of fertility control to those who are interested, the study recommended that the government should use several methods to control high population growth such as one or two children per family policy, girl child education through giving them scholarships and the researcher recommended that there should be sensitization of people through mass media about the dangers of high population so that people can reduce on early marriages.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 Introduction**

This chapter covers the background to the study, problem statement, objectives of the study. research questions, scope of the study and significance of the study.

#### **1.1 Background to the study**

According to the Food and Agricultural Organization of the United Nations (FAO), the global population is expected to increase by around 2.3 billion people between now and 2050. Although this is a slower rate of growth than the one seen over the past 40 years, it is still a 30 per cent increase in the number of people who will need feeding, FAO. (2010). At the same time, the amount of food that will need to be processed will rise by almost 70 per cent and 100 per cent in the developing world which will mean increased supply of several products to help cope with the demand, Food and Agriculture Organization (2003).

The F AO defines food security as: "When all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Nearly one billion people are undernourished. hungry, and living without adequate daily calories. The people most severely affected by food crises are those already living in poverty and the number of undernourished people in the world was projected to decline in 2010 as the global economy revived following the 2008 financial crisis. but 16 percent of the population in developing countries remains undernourished were seven countries account for two-thirds of the world's undernourished population: Bangladesh. China, the Democratic Republic of Congo, Ethiopia, India, Indonesia and Pakistan, Ehrlich, A. & Ehrlich.P. (2009).

Additionally, the impacts of climate change on temperature, precipitation, and agricultural productivity are likely to diminish food security in some places. Recent research suggests that climate change will have major negative impact on staple crops especially in Africa. where widespread hunger is greatest. Food security in Uganda is likely to worsen in the next 40 years as the population increases amidst the country's finite resources. The country's current population

that presently stands at 33 million people is exploding at a high rate and it is projected to reach **30** million by 2050, Butler. C. (2009).

Overall demand for food is affected by population growth, while economic development and rising incomes tend to shift diets toward meat and animal products that are more expensive and resource-intensive to produce. Meanwhile, food prices are driven by the prices of key agricultural commodities such as meat and grain, stocks of agricultural stores, energy prices, **crop** failures, demand for biofuels and agricultural trade policies, Baker, C. (2009).

Although prices for major agricultural commodities including vegetable oils, gram, dairy products and rice declined somewhat following peaks in 2008. they have risen quickly, compounding the challenges of chronic food insecurity. The food supply is also affected by high prices for energy, such as petroleum, which raise prices throughout the supply chain and, in turn. increase consumers' costs and this and this means that food production will have to increase by between 70 and 100 per cent, while land for agriculture will remain static, or even decrease as a result of land degradation and climate change, Boongarts J. (2006).

Soil fertility in Uganda indicates that soils within the smallholder farms are experiencing negative nutrient balances (Drake, 2015) which show a deterioration from a report published by USAID (2010) indicating Ugandan soils are not performing well including those of Nyamweru Sub-county Rubanda district.

## **1.2 Problem Statement**

The global population has been expanding rapidly for many years, standing at around 7.3 billion in 2016, due to a number of factors, such as advanced maternity and healthcare. Great pressure is being placed on arable land, water, energy and biological resources to provide an adequate supply of food while maintaining the integrity of our ecosystem. According to the World Bank and the United Nations, from 1 to 2 billion humans are now malnourished, indicating a combination of insufficient food, low incomes, and inadequate distribution of food. Tokar (2009). As an essential resource, the supply of food is a major concern across all countries, but as with any resource is dependent on growers, suppliers and distributors to bring it to market. However, the rise in population brings a number of challenges in many parts of Uganda including those of Nyamweru Sub-county in Rubanda district like the need for more food. Thus

this prompted the researcher to assess high population growth rate on food security in Nyamweru sub-county.

### **1.3 Objectives of the study**

#### **1.3.1 General Objective**

The general objective of the study was to assess high population growth rate on food security in Nyamweru Sub- County Rubanda district.

#### **1.3.2 Specific objectives**

1. To examine the role of population growth rate towards food security in Nyamweru sub county Rubanda district.
2. To examine challenges affecting population growth rate on food security in Nyamweru sub county Rubanda district.
3. To find out ways of how high population growth rate promotes food insecurity in Nyamweru sub county Rubanda district.

### **1.4 Research Questions**

1. How has population growth rate contributed to food security in Nyamweru sub county Rubanda district?
2. What are the challenges affecting population growth rate on food security in Nyamweru sub county Rubanda district?
3. How can high population growth rate promote food insecurity in Nyamweru sub county Rubanda district?

### **1.5 Scope of the study**

#### **1.5.1 Geographical scope**

Rubanda District is bordered by Kabale District to the east and north, Kanungu District to the north-west, Kisoro District to the west, and Rwanda to the south. The town of Rubanda is approximately 35 kilometres (22 mi), by road, west of Kabale, the largest city in the Kigezi subregion. This is approximately 173 kilometres (107 mi) by road, south-west of Mbarara, the largest city in the Western Region. Rubanda is about 422 kilometres (262 mi), by road, southwest of Kampala, the largest city and capital of Uganda. The town's geographical

coordinates are: 01 ° 11' 11.0"S, 29°50'36.0"E (Latitude:-1.186389; Longitude:29 .843333). The town sits at an elevation of 2,017 metres (6,617 f). above sea level

### **1.5.2 Time scope**

The study considered a period of eight months. That is from January 2019 to August 2019. This time was enough for the research to get valid information desired for the study.

### **1.6 Significances of the study**

The study findings were used by other researchers who were undertaking a similar study in form of literature review at various institutions of higher learning

The study helped to know how population growth rates had contributed to food security to people of Nymweru sub-county in Rubanda district.

The study also helped the government of Uganda, partners and researchers because they used the findings of this study as a basis of formulating programmes concerning food security.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

**This** chapter describes and relates what other scholars had noted down about the topic. The **researcher** got information from different and related sources or scholars, magazines, journals, **websites** that all point and relate to this study. These sources of information were believed to **contain** confidential data that helped the researcher.

#### 2.1 Role of Population Growth Rate towards Food Security

**Food** production depends on croplands and water supply, which are under strain as human populations increase. Pressure on limited land resources, driven in part by population growth, **can** mean expansion of cropland. This often involves destruction of vital forest resources or overexploitation of arable land. Globally, the world is becoming more urban. Although urban residents have access to a wider array of foods, without land to farm, their food security is dependent on their income and ability to purchase food products. Poor families in urban areas spend up to 60 percent of their budget on food, and low incomes combined with high prices can increase their risk of hunger and malnutrition, Ehrlich. G. (2009).

Population pressures in coastal areas are also affecting food security in countries where there is a high dependence on fisheries for protein and the Philippines, for example, recent research has shown that human pressures, including population growth, have adversely affected the productivity of municipal fisheries. These fisheries had previously provided up to 80 percent of dietary protein for inhabitants in rural coastal areas, and are now on the decline. At the same time, global fish consumption has been increasing, both in aggregate and per capita terms. According to fishery experts, consumption of fish has doubled since 1973, with the developing world accounting for nearly all of this growth. Globally, the rates of growth in fish capture and aquaculture have slowed, raising concerns about the future supply of fish for human consumption, World Bank. (2007).

Almost one in seven people around the world are chronically hungry, lacking enough food to be healthy and lead active lives. This is despite the fact that enough food exists for all of the world's

**people.** Agricultural policies, the prices of certain food commodities such as meat and grain and economic development hugely impact food security, but demographic trends also play a role. Increasing numbers of people often drive up demand for food, which typically results in additional use of arable land and water. This is especially true in the absence of adequate food production technology and integrated programs that simultaneously address community needs for food and reproductive health. The Food and Agriculture Organization (FAO) projects that by 2050, population and economic growth will result in a doubling of demand for food globally. Addressing the health needs of families in the developing world, including through increased access to family planning, can help slow rapid population growth, improve the health of families and enhance their food security.

**The** (2009) World Summit on Food Security noted that low income households, women, and farmers with small holdings can face unequal access to food supplies and markets. Women and children, particularly pregnant and breastfeeding women and infants, are often the most severely affected by a lack of food. Pregnant and breastfeeding women require 300 to 500 extra calories each day, requirements that are difficult to meet in situations of food insecurity. An estimated 17 million infants are born underweight each year, a risk factor that contributes to more than half of all newborn deaths.

When food is scarce, mothers often sacrifice food for their children and in some places male children receive a larger share of available food than their female siblings. Children are also particularly vulnerable because they are still developing, and childhood malnutrition has long implications in terms of productivity, premature death and disability. While women are the primary guarantors of food security for their children, their agricultural work is often unpaid, and laws and customs can limit their rights to land ownership or access to credit. FAO (2010).

## **2.2 Challenges affecting population growth rate on food security**

Magadoff and Tokar (2009) concluded that 12% of the global population approximately 360 million people suffer from hunger and live without secure access of food. Decreased food production in less developed countries, increases in the price of food, and growing production of bio-fuels are responsible for current rates of food scarcity. Global warming, crop diversity loss and urban sprawl also affect agriculture production. Kendall and Pimentel (1994) note that current per capita grain production seems to be decreasing worldwide. The situation is

**articularly** distressing in Africa, where grain production is down 12% since 1980. Africa only **oduces** 80% of what it consumes (Kendall and Pimentel, 1994:199).

or **most** countries, population growth rate is approximately 2-3% a year, which should translate **an** annual increase of 3-5% in agriculture production levels. (Kendall and Pimentel, 1994: .: : Kendall and Pimentel designed three models to predict crop levels by 2050. They **neluded** that if production continues at its current rate, per capita crop production will decline , **2050**. The possibility of tripling today's current crop production is unrealistic (Kendall and **Pimentel**, 1994).

**food** insecurity has the potential for worsening far beyond anyone's expectations. Have we **finally** reached Earth's carrying capacity? Scholars' opinions vary depending on their perspective. While Neo-Malthusian scholars such as Paul Elhrich(2009) believe that the only **way** to avoid this catastrophe is by restraining population growth, others such as Rusell Hopfenberg(2003) assert that we must curb food production to limit population growth.

Thomas Malthus ( 1806) was the first to address food scarcity as an issue and defended the hypothesis that growing global population will eventually eclipse the Earth's capacity to feed it. **The** power of population is indefinitely greater than the power in the earth to produce subsistence for man."(Malthus, 1806:13) Erhlich extended Malthus' theory on population growth **by** asserting that humans were going to fail in the battle against hunger. Despite his predictions. Erhlich recognized that the some societal shifts have occurred that indicated that at least some populations were slowing their growth. For instance, fertility rates in most developed nations have dropped to less than replacement levels and the Green Revolution had a larger impact than expected (Ehrlich, 2009). However, the absolute number of people without enough to eat in 2005 approximately 850 million was similar to the number reported in 1968 (Elhrich, 2009).

In 1798, Thomas Malthus wrote An Essay on the Principle of Population. In this work. he predicted that populations of nations would be restricted by the availability of food because nations would not be able to control birth rate. The essay has been intensely debated by evolutionary biologists. economists, and many others for the last two centuries. Repeated famines around the globe generally support Malthus' hypothesis.



Regardless, we find ourselves in a position today where the world is currently not able to feed all of its inhabitants. Currently, more than one billion people are estimated to lack sufficient food, and more than twice that number do not receive adequate nutrition. This situation will likely become a lot more dire in the future. In fact, predictions for population increase diverge significantly in the later parts of the century because some models assume mass mortality due to widespread famine. To make matters worse, climate change is predicted to cause major problems to crop yields, especially in parts of the world where the population is growing the fastest. These shortages will likely lead to mass migration of huge numbers of people, possibly entire nations. In 2011, drought struck the Horn of Africa, sparking widespread food shortages. An estimated 13 million people in Somalia, Ethiopia, and Kenya faced persistent hunger, which killed between 50,000 and 100,000 people half of whom were children under five.

According to UN Emergency Relief Coordinator, Valerie Amos, it was East Africa's "driest period in 60 years," and it left people "increasingly unable to cope." Amos states that preexisting problems in the region, including "insecurity and conflict, population growth, poverty, and over-utilization of land" only compounded the effects of the drought. The situation was especially dire in Somalia, where the UN declared famine. (The UN defines famine as malnutrition rates above 30 percent; at least 20 percent of households facing extreme food shortages; and a mortality rate over 2 people per 10,000 per day.) Nearly 10 million people in the Horn of Africa are still food insecure, following the drought.

Somali women have an average of 6.61 births over the course of their reproductive lives. One in 11 infants dies before his or her first birthday. One in seven dies before turning five. Despite high rates of infant and child mortality, Somalia has a population growth rate of 2.87 percent: at that rate their populations will double every 24 years, making food security that much farther out of reach.

Over the last decade, food prices worldwide have risen twice as fast as inflation. Political instability can incite full-blown food crises in food-insecure regions. In DRC, ongoing conflicts have caused the undernourished population to jump from 26 percent in 1990-1992 to 70 percent in 2011. One in four children there are malnourished.

The burden of high food prices falls disproportionately on the poor, who spend 60-80 percent of their incomes on food. Women, children, and the elderly fare the worst when food is scarce. According to Biraj Patnaik, food advisor to the Indian government, "women often, given the gender inequity in our society, ration their own food so they can feed the children and feed parents." This is a pattern that plays out across the developing world.

In industrialized countries, farmers have been able to increase crop production when necessary: for example, they raised cereal outputs by 10 percent in 2009 during the global food crisis. But a recent report by the OECD and FAO estimates that growth in agricultural productivity will slow to just 1.7 percent annually over the next decade. Failing harvests in the U.S., Ukraine, and other countries have eroded reserves to their lowest level since 1974. "We've not been producing as much as we are consuming. Supplies are now very tight across the world and reserves are at a very low level, leaving no room for unexpected events next year," says Abdolreza Abbassian, a senior economist at FAO.

A number of strategies have successfully raised food production in the developing world as well, most notably the Green Revolution in India, Mexico, and to some extent, the Philippines. But in 2008, a World Bank and FAO study found that large production increases made possible through science and technology during the last 30 years have actually not improved food security for the poorest people. The study spanned six years and included the testimonies of about 400 international agricultural experts.

### **2.3 How high population growth rate Promote Food insecurity**

Population growth has been the most discussed demographic dimension of the food crisis because of its very direct impact on the growth in food demand. The world population was 7 billion in 2012 and expected to 9.3 billion in 2050. Demand for food is projected to double by 2030 and 20 percent of that increase is attributed to population growth. Neither population growth nor food production is evenly distributed across the globe. For example, the total fertility rate (TFR), a measure of the average number of children a woman will have over her lifetime, in East Africa in 2007 was 5.5 compared to the world average of 2.7. Rural fertility is particularly high and stagnant in most countries, such as Uganda, Burundi, and Ethiopia, and when combined with lowering mortality, is resulting in rapid population growth. The current East African

population of approximately 300 million is projected to increase to 438 million by 2025 and to 650 million by 2050.

Worldwide, enough food is produced to feed everyone, yet this food and the technology to produce it does not always reach those in need. As a result of food deficits, nearly 1 000 million people do not get enough to eat and over 400 million are chronically malnourished. Every year 11 million children under the age of five die from hunger or hunger-related diseases (Lean, Hinrichsen and Markham, 1990).

Reports from the Food and Agricultural Organization of the United Nations, numerous other international organizations, and scientific research also confirm the existence of this serious food problem. For example, the per capita availability of world grains, which make up 80 per cent of the world's food, has been declining for the past 15 years (Kendall and Pimentel, 1994). Certainly with a quarter million people being added to the world population each day, the need for grains and all other food will reach unprecedented levels.

In recent decades there has been impressive growth in food production, which has been attributed to the development of improved, disease-resistant varieties of staple crops; the increased use of chemical fertilizers and pesticides; and the expansion of irrigated cropland. Nevertheless, per capita food production actually declined in 51 developing countries while rising in only 43 between 1979-1981 and 1986-1987. Among the African countries, 25 experienced a drop in per capita cereal production. In Latin America, production was also disappointing: 7 countries suffered a decline (UNFPA, 1990). In Asia, food production has managed to keep slightly ahead of population growth largely because of new breeds of Asian rice and the use of tremendous amounts of agricultural chemicals. However, in some areas losses from poor land management have erased the benefits which had been gained (Repetto *et al.*, 1989). Consequently, developing countries' food imports are rising dramatically to compensate for local deficits.

The food crisis equation has three main components. First, life-styles, incomes and social organization determine levels of consumption. Second, the technologies in use determine both the extent to which human activities damage or sustain the environment and the amount of waste associated with a given level of consumption. Poverty may prevent the adoption of new

appropriate technologies that could halt or slow down environmental degradation. These two factors determine the impact on individuals. Inequality enters as a third factor when, for example, most land is in large holdings and the poor are forced to live on smallholdings or in marginal areas. A fourth factor, population, acts as the multiplier that determines the total impact. Population is always part of the equation. For any given type of technology, level of consumption or waste and poverty or inequality, the more people there are, the greater the impact on the environment is and, in turn, the greater the impact on Food production capacity will be.

More than 99 per cent of the world's food supply comes from the land, while less than 1 per cent is from oceans and other aquatic habitats (Pimentel et al., 1994). The continued production of an adequate food supply is directly dependent on ample fertile land, fresh water, energy, plus the maintenance of biodiversity. As the human population grows, the requirements for these resources also grow. Even if these resources are never depleted, on a per capita basis they will decline significantly because they must be divided among more people.

Land fragmentation affects food production and is a direct result of rapid population growth in many poor countries. Often landholdings which are too small to provide a tolerable livelihood have been turned into part-time farms, with some household members (usually the women and children) staying at home to tend crops while others (often the men) migrate in search of wage employment. Alternatively, land is sold to wealthier landowners, making land distribution more uneven and adding to the creation of a large pool of landless labourers. In addition, rapid population growth can lead to inappropriate farming practices that impoverish and erode the soil: reduce vegetation; over-use and improperly use agrochemicals; and frustrate water resource management. The result of such practices is severe land degradation.

Fossil energy is another prime resource used for food production. Nearly 80 per cent of the world's fossil energy used each year is used by the developed countries, and part of it is expended in producing high animal protein diets. The intensive farming technologies of developed countries use massive amounts of fossil energy for fertilizers, pesticides, irrigation, and for machines as a substitute for human labor. In developing countries, fossil energy has been used primarily for fertilizers and irrigation to help maintain yields rather than to reduce human labor inputs (Giampietro and Pimentel, 1993).

Because fossil energy is a finite resource, its depletion accelerates as population needs for food and services escalate. The U.S. is already importing more than 50 per cent of its oil, and projections from the U.S. Department of Energy indicate that the country will exhaust all of its oil reserves within the next 15 to 20 years (Pimentel et al., 1994). Oil imports will then have to increase, worsening the U.S. trade imbalance. As supplies of fossil energy dwindle, the cost of fuel increases everywhere. The impact of this is already a serious problem for developing countries where the high price of imported fossil fuel makes it difficult, if not impossible, for poor farmers to power irrigation and provide for their other agricultural needs. Worldwide, per capita supplies of fossil energy show a significant decline.

Economic analyses often overlook the biological and physical constraints that exist in all food production systems. The assumption is that market mechanisms and international trade are effective insurances against future food shortages. A rich economy is expected to guarantee a food supply adequate to meet a country's demand despite existing local ecological constraints. In fact, the contrary is true. When global biological and physical limits to domestic food production are reached, food importation will no longer be a viable option for any country. At that point, food importation for the rich can only be sustained by starvation of the powerless poor.

A productive and sustainable agricultural system depends on maintaining the integrity of biodiversity. Often small in size, diverse species are natural enemies of pests, degrade wastes, form soil, fix nitrogen, pollinate crops, etc. For example, in New York State on one bright, sunny day in July, the wild and other bees pollinate an estimated 6,000,000 million blossoms of essential fruits and vegetables. Humans have no technology to substitute for many of the services provided by diverse species in our environment.

At present, fertile cropland is being lost at an alarming rate. For instance, nearly one-third of the world's cropland (1.5 billion hectares) has been abandoned during the past 40 years because erosion has made it unproductive (Pimentel et al., 1995). Solving erosion losses is a long-term problem: it takes 500 years to form 25 mm of soil under agricultural conditions.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

In this chapter, the following topics were discussed: research design, research procedure, target population, sampling, instrument development, and methods of data collection, data analysis, and anticipated challenges and how they were managed.

#### **3.1 Research design**

The researcher employed a descriptive cross sectional survey research design that helped in gathering information where little knowledge was known. A cross sectional study design across the respondents in Nyamweru sub-county Rubanda district was used to survey the study population. Both quantitative and qualitative data was collected and this enabled the researcher to draw valid and dependable conclusion and recommendation of the study.

#### **3.2 Study Area**

Rubanda District is bordered by Kabale District to the east and north, Kanungu District to the north-west, Kisoro District to the west, and Rwanda to the south. The town of Rubanda is approximately 35 kilometres (22 mi), by road, west of Kabale, the largest city in the Kigezi subregion. This is approximately 173 kilometres (107 mi), by road, south-west of Mbarara. the largest city in the Western Region.

##### **3.3.1 Location:**

South Western Uganda at 1°00's to 1°29's and longitude 29°45'E to 30° 15'E with an area of 1.864 km<sup>2</sup>, 402kms from Kampala, Wikipedia.

##### **3.3.2 Soils**

The soils are clay-loam, peat clay and Alluvium peat.

##### **3.3.3 Drainage**

Major rivers include Rushoma, Kiruruma, Rwabakazi, Nyakijuma, Murambo, Ishasha and Ruhuma. Lakes include Bunyonyi which is believed to be one of the deepest and most beautiful in Africa and small lakes of Kanyabaha and Ngorogoza. Major wetlands are associated with

Lake Bunyonyi in kashambya, Rwamacucu, Bukinda, Kamuganguzi, Rubaya, Bufundi, Ikumba and Muko sub counties.

#### **3.3.4 Relief**

Rubanda's relief lies between 1,200-3.000m above sea level. Mainly green interlocking and heavily cultivated hills with spectacular valleys. Hills include Maberebere 2,568m, Rwaburimbe 2,540m, Kabuzigye 2,473, Kashekye 2,395, Kabasengere 2.299, Kijunwa 2,237m, Mwendo 2,202, Kyangabo 2,173m, Kahanda 2.159m, Mashure 2.040 and Iremera 1,955 above sea level, Wikipedia.

#### **3.3.5 Climate**

Montane climate with bimodal rainfall pattern; March to May and September to November. Mean annual rainfall from 1000mm to 1480mm and average temperature of 17C to 10"C.

#### **3.3.6 Vegetation**

High tropical forests (Bwindi Impenetrable and Echuya), coniferous plantations (Cyprus and pines) in Mafuga, Kiirima and Muko forest reserves, Eucalyptus plantations and woodland.

### **3,4 Study Population**

The study considered a total of eighty (80) respondents that is local community members, members of Nyamweru sub-county staff and sub-county chief Nyamweru Sub-county.

### **3.5 Sample Size and Selection**

The study population was put into strata namely students, sub-county chief, Members of Staff Nyamweru Sub-county Rubanda district and local community. The study engaged a total of fort ( 40) respondents.

Simple random sampling was used to select the twenty nine (29) local community members and Purposive sampling was also used to select ten (10) members of Nyamweru sub-county staff and one (01) sub-county chief Nyamweru Sub-county. This sampling method was used to select respondents who were believed to be more informed and updated with the content of the study where the study was determined using simple Raosoft formula.

$$n = \frac{N}{1 + Ne}$$

$$n = \frac{80}{1 + 80 \times 0.1^2}$$

$$n = \frac{80}{2}$$

**n = 40 respondents**

n=Desired sample size N=Population size e=Error (10%)

### **3.6 Data Source**

The data for the study was gathered from both primary and secondary sources to enable easy comparability of secondary data available with responses from the primary data sources that were generated from the field in order to drive to meaningful interpretation of findings.

#### **3.6.1 Primary Data**

The primary data was gathered from the respondents that were selected for the study (staff members from the selected secondary schools, parents and students). The researcher used questionnaires and interview guide to gather data from respondents.

#### **3.6.2 Secondary Data**

The secondary data/information will be obtained through an extensive literature review on gender equality and education. Secondary data will be gathered from the information resources and reports, Newsletters, and books/publications from different Libraries in Rubanda district and from the websites.

### **3. 7 Data Collection Methods and their Instruments**

Data collection is the scrutiny, measurement and recording of information (Gary *et al*, 2007: 2). The qualitative techniques of data collection, that is, document review, interviewing and participant observation, was used to obtain the relevant data needed for the study. For the



purpose of this study, data refers to the facts, figures and other relevant materials, past and present, serving as bases for study and analysis. The following methods and tools were used for this research during data collection.

### **3.7.1 Interviewing**

Interviewing was used because it provided a clear picture of the stories of others. Interviews tend to be interactional where one is deeply and unavoidably implicated in creating the meanings that reside within the participants (Greeff, 2005: 287). To quote Greeff. Interviewing the participant involves description of the experience, but also involves a reflection on the description. An interview was therefore an attempt to understand an issue from the participant's point of view and to uncover their whole world before any scientific explanations could be attempted (Greeff. 2005: 287). An interview guide was a checklist to guide the researcher in the interview process so that uniformity and consistency was assured in the data. The tool was used to collect information from respondents and it involved meeting the respondents face to face. It was also used to generate variety of Ideas, detailed and in depth information from respondents.

### **3.7.2 Observation**

During the study, the researcher employed participant observation to assess inter-respondent relationships. The researcher actively participated during the study in order to become familiar with the respondents in order to observe the influence of high population growth rate on food security in Nyamweru Sub-county Rubanda district.

### **3.7.3 Questionnaire Method**

The researcher constructed an easy, clear, and straight-forward questionnaire for the comfort of respondents' understanding. interpretation and feedback. A structured questionnaire consisting of both open-ended and close-ended questions based on a set of questions in relation to the study objectives were administered in order to gather relevant in-depth information. This helped the researcher to use distant respondents and helped respondents to think more about the questions and gave well explained and clear answers.

## **3.8 Research Procedure**

The researcher requested for a letter of introduction from the Research Coordinator of Kabale University to conduct a study. A copy of this letter was presented to the respondents that were

approached during data collection. Questionnaires were distributed to the selected literate respondents; observation made, interviews held, check list field diaries were used and kept to record events that were very important during the interpretation and analysis of the results.

### **3.8 Data Analysis and Interpretation**

Data analysis is the process of organizing the data retrieved, in order to provide a clear meaning of the information (De Vos, 2005: 333). Gary *et al* (2007: 2) explain that data analysis is when a researcher organizes and arranges the data collected in order for others to gain significant meaning out of it.

Despite the fact that both qualitative and quantitative data was gathered during the study, this entailed classifying, comparing, weighing and combining empirical material from the questionnaires, observation and interview guides and field notes to extract the meaning for an understanding of the subject under study in a coherent explanation.

The data units were sorted according to the study objectives in order to produce coherent meaning. The data was then organized, entered into the computer and be analyzed using Microsoft Excel a computer-based statistical application program, where both inferential and descriptive analysis were carried out. The study results were later presented in form of tables, for easy interpretation. Conclusion and recommendation were further drawn in the same arrangement with the study objectives that accrued from the study findings.

### **3.9 Data quality control**

#### **3.9.1 Validity**

Five categories to judge the validity of qualitative and quantitative research namely: Descriptive validity, interpretive validity, theoretical validity, generalizability and evaluative validity were developed by Joseph & Maxwell (1992). Therefore, in order to collect valid data during the field. interviews of different categories of respondents were conducted. Individual interviews and focus group discussions were also conducted from the residents of Nyamweru Sub-county. Tile researcher carefully planned an interview guide and questions in different themes in advance for different categories of respondents in order to acquire data of various characteristics that were desired for the study.

### **3.9.2 Reliability**

The researcher pre-tested the researcher instruments particularly the questionnaire which were the most used instrument to a group of respondents that did not participate in the study.

### **3.9 Limitation of the study and how they were handled**

The researcher faced a challenge of limited time in the field since the semester was going on and the researcher worked very hard and also employed a good number of research assistants to ensure that the research process was finished in time.

The researcher further expected failure of respondents to reveal the truth of their information and even others to dodge answering some critical questions that could make the researcher miss very important information. However, the researcher made sure to use all the tricks possible to convince and entice respondents to provide relevant information in its fullness.

The researcher also expected to face the challenge of limited funds because of other responsibilities and other expenses as in school and on top of research which was much resource demanding. However, the researcher used all efforts and fundraised from well-wishers and optimally used his personal savings and adhered to the stated study budget so as to avoid unexpected expenses that would hamper the research process.

## CHAPTER FOUR

### ANALYSIS AND PRESENTATION OF THE FINDINGS

#### 4.0 Introduction

This chapter presents the findings and interpretations from the research study. The findings are based on the information collected from the respondents using the research instruments that were designed in the methodology section. Data was presented basing on the research objectives of the study.

#### 4.1 Demographic characteristics of respondents

A total of forty ( 40) respondents were selected for the study. The researcher considered the age, sex and marital status of respondents. This biographic data was very essential for the researcher and the study in order to describe the best respondents that were selected for the study as presented below.

##### 4.1.1 Age of the respondents

In a bid to record the bio data of respondents, the researcher considered the age of respondents and the results in Table 4. 1 .1 below,<sup>1</sup> were recorded:

**Table 4.1.1: Age of the respondents**

Age	Frequency	Percentage
>20	4	10
21-30	10	25
31-40	11	28
41-50	8	20
51<	7	17
Total	40	100

*Source: Primary Data 2019*

According to the results presented in table 4.1.1 above, 28% the highest numbers of the respondents had between 31-40 years of age while 10% the least numbers of respondents had >20 years and above. The rest of the respondents included 25% had 21-30years of age, 20% had

:-50years of age and 17% had 51<years of age. The researcher considered the age of respondents with the aim of getting data from respondents in relation to their understanding.

#### 4.1.2 Sex of the Respondents

**Table 1: Sex of respondents**

	Frequency	Percentage
Female	10	25
Male	30	75
<b>Total</b>	<b>40</b>	<b>100</b>

*Source: Field data, 2019*

From the study, data collected shows that most of the respondents were males represented by 75% of the total population whereas females were only 25% of the respondents. This shows that the females were not engaged in providing data in the study area as males were.

#### 4.1.3 Marital Status of the Respondents

The researcher considered the marital status of respondents and the results presented below in

Table 4.1.3 were recorded.

**Table 4.1.3: Marital status of the respondents**

Marital Status	Frequency	Percentage
Single	10	25
Married	20	50
Widowed	4	10
Separated	6	15
<b>Total</b>	<b>40</b>	<b>100</b>

*Source: Primary Data 2019*

As indicated in the study results presented in Table 4.1.3 above, 50% the highest numbers of the respondents were married while 4% the least number of respondents were widowed in this case meaning that they had lost their spouses through death. The rest of the respondents included

15% who were separated with their partners and 25% the remaining number of respondents living single lives.

### 4.3 Role of population growth rate towards food security in Nyamweru sub county

#### Rubanda district

**Table 4.3 Role of population growth rate towards food security in Nyamweru sub county**

#### Rubanda district

Role of population growth rate towards food security in Nyamweru sub county Rubanda district	Strongly agree		Agree		Not sure		Disagree		Strongly disagree	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Promotes food production	20	50	15	37	05	13	3	7	7	17
Encourages saving and investments	25	62	5	13	10	25	0	0	0	0
High population growth puts greater pressure on health and Improves its quality	15	37	5	13	20	50	0	0	0	0
Leads to rapid increase in school age population that calls for more investment in education	5	12	10	20	50	5	13	0	0	0
High population growth leads to efficiency of developing countries and their political system	8	20	15	30	10	25	9	22	0	0
High population puts pressure on urban physical infrastructures leading to development	25	62	10	25	0	0	0	0	0	0

**Source: Field Data 2019**

From the question to answer role of population growth rate towards food security in Nyamweru sub county Rubanda district, it was concluded that;

The study findings indicated that 50% of participants strongly agreed with promotes food production, 37% agreed as stated by Ehrlich. G. (2009) the world is becoming more urban. Although urban residents have access to a wider array of foods, without land to farm, their food security is dependent on their income and ability to purchase food products. This implies that 87% of the respondents were in agreement with the statement of promotes food production and

13% were not sure.

From the table 4.3 above, the study results revealed that 62% of the respondents strongly agreed with encourages saving and investments as agreed by Tokar (2009) who stated that a high rate of population growth has an adverse positive effect on improvement in food supplies and also intensifies the development of savings, foreign exchange, and human resources, 13 % agreed. This implies that 75% of the respondents were in agreement with the statement of encourages saving and investments and 25% were not sure.

The study findings from table 4.3 above revealed that 37% of the respondents strongly agreed that high population growth puts greater pressure on health and improves its quality, 13% agreed as in line with Malthus (1798) who stated that population increase is detrimental to a nation's economy due to growth. For example, overpopulation and population growth places a tremendous amount of pressure on resources, which result in a chain reaction as the nation grows. This means that majority of the respondents 50% were in agreement that high population growth puts greater pressure on health and improves its quality and 50% were not sure.

The study findings indicated that 12% of participants strongly agreed with the statement that it leads to rapid increase in school age population that calls for more investment in education, 25% agreed as stated by Friedberg and Hunt (1995) who argued that population growth and urbanization go together, and economic development is closely correlated with urbanization. Rich countries are urban countries. This implies that 37% of the respondents were in agreement with the statement that it leads to rapid increase in school age population that calls for more investment in education and the remaining 63% where 50% were not sure and 13% disagreed with the statement.

The study results revealed that 20% of the respondents strongly agreed that high population growth leads to efficiency of developing countries and their political system, 30% agreed as stated by Odhiambo, W. J and Hezron. T.. (2004), the complexity in relations and management

of the various positions of individual countries and the lack of agreement on choices and decisions to be taken, often force supranational institutions to suspend or postpone the search and implementation of solutions and initiatives, situations of this type create significant slowing in economic and social development with disastrous consequences for the population, especially the poorest one. This implies that 50% of the respondents were in agreement with the statement 'High population growth leads to efficiency of developing countries and their political system' and the other 50%, 13% were not sure, 22% disagreed and 15% strongly disagreed.

The study findings from table 4.3 above revealed that 62% of the respondents strongly agreed that high population puts pressure on urban physical infrastructures leading to development as stated by Carlsen, J., (2010) who argued that investment in rural infrastructure such as roads, irrigation, and storage facilities could support efforts towards increased agricultural productivity. These investments, if made, could also have serious environmental consequences. Thus, investment in sustainable technologies able to support increased agricultural intensity is also crucial for both meeting the demands of a growing population and adapting to environments increasingly affected by climate change. 25% agreed. This means that majority of the respondents 77% were in agreement that high population puts pressure on urban physical

infrastructures leading to development and the remaining 13% were not sure.



#### 4. Challenges affecting population growth rate on food security in Nyamweru sub count Rubanda district

Table 4.4: Challenges affecting population growth rate on food security in Nyamweru sub county Rubanda district

Challenges affecting population growth rate on food security in Nyamweru sub county Rubanda district	Strongly agree	Agree		Not sure		Disagree		Total
		Freq	%	Freq	%	Freq	%	
In adequate capital for investment	20	5	25	10	50	5	25	40
Shortage Of enough land	17	8	47	9	53	0	0	26
Poor infrastructure development	19	10	53	9	47	0	0	29
Climatic changes	8	27	75	7	18	0	0	34
Over-utilization of land	11	23	68	10	25	0	0	34
<b>Source: Field Data 2019</b>								
Political instability	13	50	77	8	23	0	0	21

The study findings indicated that 50% of participants strongly agreed with in adequate capital for investment, 15% agreed as stated by Coale and Hoover, (1958) who argued that in 1798. Thomas Malthus wrote An Essay on the Principle of Population. In this work, he predicted that populations of nations would be restricted by the availability of food because nations would not be able to control birth rate, 35% were not sure. This implies that 65% of the respondents were in agreement with in adequate capital for investment.

From the table 4.4 above, the study results revealed that 43% of the respondents strongly agreed with shortage of enough land as agreed by The (2009) World Summit on Food Security noted that low income households, women, and farmers with small holdings can face unequal access to food supplies and markets due to shortage of enough land for production. 7% agreed, and 50%

were not sure. This implies that 50% of the respondents were in agreement with the statement of shortage of enough land.

The study findings from table 4.4 above revealed that 43% of the respondents strongly agreed with poor infrastructure development. 15% agreed as also Cera lei and Meier. (1995) stated thlt the increase of the world population, the influx on the market of the consumption requirements of populations previously excluded, and the continuing existcuce of structural gaps in the global distribution of income pose the inevitable dilemma of finding a practical path to sustai11:1hle development which is due to poor infrastructure, 37% were not sure. This means that majorit:1 ,f the respondents 58% were in agreement with poor infrastructure development.

The study findings indicated that 20% of participants strongly agreed with climatic changes as agreed by Carlsen, J., (2010) who mentioned that investment in sustainable technologies able to support increased agricultural intensity will be crucial for both meeting the demands of a growing population and adapting to environments increasingly affected by climate change. 5% agreed, 63% were not sure and 12 disagreed. This implies that 25% of the respondents were in agreement with the statement of climatic changes.

From the table 4.4 above, the study results revealed that 27% of the respondents strongly agreed with over-utilization of land, 55% agreed as in line with Githinji, B.K., (2003) who stated that pre-existing problems in the region. including "insecurity ,me! conflict. popula(ion growm!1. poverty, and over-utilization of land" only compounded the effects of the drought, and 18% were not sure. This implies that 82% of the respondents were in agreement with the statement of overutilization of land.

The study findings from table 4.4 above revealed that 33% of the respondents strongly are-d with political instability, 42% agreed as in line with Gilhinji, !3.K .. (200J) who stated that political instability can incite full-blown food crises in food-insecure regions and the onirg conflicts have caused the undernourished population, 25% were not sure. Tbis means Lilc! majority of the respondents 75% were in agreement with political instability.

#### 4.5 How high population growth rate promotes food insecurity in Nyamweru sub county Rubanda district

Table 4.5: How high population growth rate promotes food insecurity in Nyamweru sub county Rubanda district

How high population growth rate promote food insecurity in Nyamweru sub county Rubanda district in the following ways	Strongly agree		Agree		Not sure		Disagree		Strongly disagree
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	
Leads to Land fragmentation	20	50	11	27	9	23	10	25	17
Leads to Land and water constraints	16	40	4	10	2	5	-	-	-
Leads to Rapid growth in food demand	30	75	10	25	-	-	-	-	-
waste associated with a given level of consumption	19	47	11	28	4	10	6	15	17
life-styles and social organization determined by levels of consumption	14	35	6	15	20	50	-	-	-

The findings indicated that 50% of participants strongly agreed that population growth leads to Land fragmentation, 27% agreed as in line with Githinji\_ B.IC (2003) who stated that increase production of food alone will not solve the world's food security problem. instead leads to Leads to land fragmentation that leads to agricultural output. 23% were not sure. This implies that 77% of the respondents were in agreement with the statement that population growth leads to land fragmentation.

From the table 4.5 above, the study results revealed that 40% of the respondents strongly agreed with the statement population growth leads to land and water constraints as Pimentel et al (2004) stated that human pressure exerted on the environment leads to leads to land and water constraints due to over utilization of the land, 10% agreed, and 8% were not sure, 25% disagreed

and 17% strongly disagreed. This implies that 50% of the respondents were in agreement that population growth puts a lot of pressure Land and water.

The study findings from table 4.5 above revealed that 75% of the respondents strongly agreed and 25% agreed with the statement that population growth leads to rapid growth in food demand as in line with Lean, Hinrichsen and Markham, (1990) who stated that population growth has been the most discussed demographic dimension of the food crisis because of its very direct impact on the growth in food demand. This means that all respondents 100% were in agreement that the more the population the high the food demands hence food insecurity.

The findings indicated that 47% of participants strongly agreed with waste associated with a given level of consumption, 28% agreed as stated by Kabura, E., (2005) who argued that the food crisis equation has three main components. First, life-styles, incomes and social organization determine levels of consumption, 10% were not sure. And 15% disagreed. This implies that 75% of the respondents were in agreement with the fact the as population grows. consumption increases so as wastes, these wastes have polluted both land and water which have reduced food production.

From the table 4.5 above, the study results revealed that 35% of the respondents strongly agreed with life-styles and social organization that determine levels of consumption, 15% agreed as in line with (Repettoet *al.*, 1989) who stated that the life-styles and social organization are determined by levels of consumption depending on the population of the area and 50% were not sure. This implies that 50% of the respondents were in agreement population growth affects people's lifestyles and social organisations which have a direct impact on consumption and production of food supplies.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter involves summary of the findings, conclusions and recommendations. The summary is based on the study objectives and the recommendations are based on the discussion of the findings and analysis as well as interpretations of findings.

#### **5.2 Summary of findings.**

The study considered a total number of 40 respondents from the study area, considering the age, sex and marital status of the respondents. The highest numbers of the respondents had 75% were males while the least numbers of respondent's females had 25%. With regard to the age of respondents the highest numbers of the respondents had between 31-40 and the least number of respondents had >20 years. On the marital status of the respondents the highest number of respondents was married while the least number of respondents were widowed.

From the study findings on role of population growth rate towards food security in Nyamweru sub county Rubanda district, the responses were got from promotes food production, encourages saving and investments, high population growth puts greater pressure on health and improves its quality, leads to rapid increase in school age population that calls for more investment in education, high population growth leads to efficiency of developing countries and their political system and high population puts pressure on urban physical infrastructures leading to development.

The study results also on challenges affecting population growth rate on food security in Nyamweru sub county Rubanda district, the responses were obtained from inadequate capital for investment, shortage of enough land, poor infrastructure development, climatic changes, overutilization of land and political instability.

The study results also on how high population growth rate promotes food insecurity, the findings were that population growth leads to land fragmentation, rapid growth in food demand, land and water constraints, increased waste associated with a given level of consumption and life-styles and social organization determined by levels of consumption.

## **5.2 Conclusion.**

The study findings on role of population growth rate towards food security in Nyamweru sub county Rubanda district, the highest number of respondents mentioned encourages saving and investments and the highest number of respondents mentioned that high population growth puts greater pressure on health and improves its quality.

The study results also on challenges affecting population growth rate on food security in Nyamweru sub county Rubanda district, the highest number of respondents mentioned shortage of enough land and the least number of respondents mentioned over-utilization of land and political instability.

The study results also on how high population growth rate promotes food insecurity in Nyamweru sub county Rubanda district. the highest number of respondents mentioned land and water constraints.

## **5.3 Recommendations of the study**

The study recommends that family planning programmes should be designed to provide information, services and modern means of fertility control to those who are interested.

The study recommended that the government should use several methods to control high population growth such as one or two children per family policy. girl child education through giving them scholarships.

The researcher recommended that there should be sensitization of people through mass media about the dangers of high population so that people can reduce on early marriages.

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## APPENDICES

### APPENDIX I: QUESTIONNAIRE Dear

Respondent,

I am Twinamasiko Derrick, an Under-Graduate student of Kabale University. I am undertaking research on "The influence of high population growth rate on food security in Nyamweru sub-county **Rubanda district**" as part of the requirements for the award of a Bachelors degree of science with education of Kabale University. The questions presented to you in this questionnaire are only intended to help me undertake my research and will not be used for any other purpose. Your answers given will be treated with utmost confidentiality.

Yours sincerely,

**Twinamasiko Derrick**

### SECTION A: BIO DATA OF RESPONDENTS

1. Age

- |          |          |       |                      |
|----------|----------|-------|----------------------|
| a. > 20  | g) 31-40 | i) 51 | <input type="text"/> |
| f) 21-30 | h) 41-50 |       |                      |

2. Sex

- |           |          |         |                      |
|-----------|----------|---------|----------------------|
| a) Female | <b>1</b> | b) Male | <input type="text"/> |
|-----------|----------|---------|----------------------|

3. Marital Status

- a) Single
- b) Married
- c) Separated
- d) Widows

**Section B: The Appropriateness on the role of population growth rate towards food security in Nyamweru sub county Rubancla district**

Please respond to the following statements on the scale provided and appropriately using S,, Strongly agree, A- Agree, N- Not sure, D- Disagree and SD- Strongly disagree the boxes that most closely fit your opinion

	A	N	D	SD
<b>Role of population growth rate towards food security in SA</b>				

**Nyamweru sub county Rubanda district**

Promotes food production

Encourages saving and investments

**1**-----

High population growth puts greater pressure on health and improves its quality

Leads to rapid increase in school age population that calls for more investment in education

### High population growth leads to efficiency of developing countries

and their political system

High population puts pressure on urban physical infrastructures leading to development

Section C: Challenges affecting population growth rate on food security in Nyamweru sub county Rubanda district

Tick appropriately using SA- Strongly agree, A- Agree, N- Not sure, D- Disagree and SD- Strongly disagree.

## Challenges affecting population growth rate on food security in SA A N i

**Nyamweru sub county Rubanda district**

In adequate capital for investment

!-----  
Shortage of enough land

### Poor infrastructure development

Climatic changes

Over-utilization of land

Political instability

**Section D: How high population growth rate promotes food security in Nyamweru sub county Rubanda district.**

How high population growth rate promotes food security in Nyamweru sub county Rubanda district	
Through development of drought-resistant crops	
Investment in rural infrastructure	
Irrigation	
Improved storage facilities	
Investment in sustainable technologies	
Labour provision in agriculture fields	

**Thank you**

## **APPENDIX II: Interview Guide**

1. What are the causes of high population growth?
2. How has population growth rate contributed to food security in Nyamweru sub count Rubanda district?
3. What are the challenges affecting population growth rate on food security in Nyamweru sub county Rubanda district?
4. How can high population growth rate promote food security in Nyamweru sub county Rubanda district?