

**THE ROLE OF INTERNATIONAL TRADE IN ACHIEVING FOOD SECURITY IN  
SUB SAHARAN AFRICA  
(A CASE STUDY OF KENYA)**

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## DECLARATION

This research project is my original work and has not been presented for a degree at any other university or college whatsoever,

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This research project has been submitted for examination with my approval as the University Supervisor.

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## **DEDICATION**

This research is dedicated to all my beloved family members, and friends for their deep inspiration, unconditional support, encouragement and understanding all through the research period.

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## **ABBREVIATIONS AND ACRONYMS**

AGOA	African Growth and Opportunity Act
AI	Artificial Insemination
AIDS	Acquired Immuno Deficiency Syndrome
ALDEU	African Land Development Unit
ANOVA	Analysis of Variance
ASAL	Arid and Semi-Arid Lands
BMI	Business Monitor International
CAADP	Comprehensive Africa Agricultural Development Program
CIDR	Cereal Import Dependency Ratio
COMESA	Common Market for Eastern and Southern Africa
CSPR	Cereal Self Provision Ratio
DRC	Democratic Republic of Congo
EAC	East Africa Community
EPZ	Export Processing Zone
EU	European Union
FAO	Food and Agricultural Organization
FAOSTAT	Food and Agricultural Organization Statistical Database
FIVIMS	Food Information and Vulnerability Mapping Systems
FOB	Free on Board
FPI	Food Production Index
GDP	Gross Domestic Product
GM	Genetically Modified
GoK	Government of Kenya
HCDA	Horticultural Development Authority
HIV	Human Immuno Deficiency Virus
IFAD	International Fund for Agricultural Development
KCC	Kenya Cooperative Creameries
Kg	Kilogram
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNBS	Kenya National Bureau Statistics
KTDA	Kenya Tea Development Authority

LDCs	Least Developed Country's
LIFDC	Low Income Food Deficit Countries
MCA	Multi-Criteria Analysis
MoA	Ministry of Agriculture
NCPB	National Cooperation Produce Board
NGO	Non-Governmental Organization
NIB	National Produce Board
NRAs	Nominal Rate of Assistance
OUA	Organization of Africa Unity
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
PSI	Pre Shipment Inspection
RTA	Regional Trade Agencies
SACU	South Africa Customs Union
SADC	South Africa Development Community
SAPRIN	Structural Adjustment Participatory Review International Network
SPSS	Statistical Package for Social Science
SRG	Strategic Grain Reserve
SSA	Sub-Saharan Africa
UK	United Kingdom
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
USA	United States of America
USDA	United States Department for Agriculture
US\$	United States Dollar Currency
USIU	United States International University
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization
WRI	World Resource Institute
WTO	World Trade Organization

## **ABSTRACT**

A vibrant agricultural sector is very critical for alleviating SSA's current food security crisis, and for laying the foundations of sustained future economic growth. In recent years, nonetheless, agriculture has performed poorly in many African countries including Kenya. Efforts for its recovery, often through structural adjustment lending, have suffered from inadequate information about country and regional specific factors, and from an emphasis on macroeconomic policies without complementary interventions at the sector level as well as limited or no international trade interactions.

This research project describes the patterns of agricultural growth in Kenya in relation to other SSA states like Rwanda, Angola and evaluates price and non-price aspects of three sets of factors: initial endowments and subsequent exogenous developments, general economic influences, and sectoral issues and policies. It suggests that government action at the sectoral and subsector levels in such critical areas as land policy, smallholders' access to inputs, and agricultural research needs to be combined with trade and macroeconomic reforms to achieve sustained and broad based agricultural growth.

On the other hand, countries at early stages of development in Africa rely tremendously on agricultural growth for food, employment, foreign exchange reserves and lowering government budget deficit. The analysis indicates that agricultural prices and production have generally declined. The performance of the agricultural sector in the 1990s was depressing, with annual growth in agricultural GDP averaging 2% compared with 4% in the 1980s. Agricultural export growth after the reforms has shown varied trends due to market access restrictions for Kenyan exports. Market access for imports into the Kenyan market has been enhanced since the reforms, occasioning tremendous import growth.

However, the capacity to import food has plummeted, occasioning the country into more food insecure issues. The balance of trade between Kenya and the rest of the world has deteriorated against Kenya. The study supports that after the reforms the country moved from broad self-sufficiency in production of most food staples to a net importer. However, execution of liberalized policies is supposed to be harmonized and coordinated to circumvent adverse effects on the sector to shield Kenya against food insecurity cases.

Finally, progress toward a food secure nation can be achieved by implementing effective government policies that support small-scale farmers with key tools and seeds, while intensifying irrigation and supporting environmentally sustainable production methods to tackle the endemic problems of land e.g. fertility or soil erosion in the country.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1.0 Introduction**

Food security is a complex issue. There are production (the supply side) as well as consumption (the demand side) aspects of the debate on food security. However, there is need for more research to be done in this area looking at the issue from consumers' perspective, and the role of trade in resolving this issue. In this study, the researcher explores the aspects of production related to food, as well as the role of international trade. Besides methodological issues on how to approach the issue in the debate on food security, there are proponents who argue that liberalisation of trade in agriculture will ensure global food security by balancing the demand and the supply of food items across the globe.

The study reviews the interface between international trade, trade liberalisation with other related concepts and food security in a balanced manner, with the aim of testing whether there exists a tangible relationship between international trade and food security and invoke trends in international trade that have compounded food security. The researcher also appreciates that there is lack of clear conceptual demarcation between three related concepts: food shortage, food problem, and food security.

In this study the researcher intends to draw from other previous research work the view that food security is to be analysed from production as well as consumption aspects of the issue, and by taking into account all of its facets, economic, social as well as political. In this study the researcher strives to make an in-depth study of food security and international trade and to

investigate why those who share a vision of food security need to re-examine the role of multilateral/international trade.

### **1.1.2 Background information**

Like other African countries, Kenya is faced with poverty and hunger. It has been estimated that 53.2 percent of the population or 14.3 million people are living below the poverty line. About 34.8 percent of people living in the urban areas and 52.9 percent of those living in the rural areas are poor. It has also been estimated that 7.6 percent of those living in urban areas and 34.8 percent in rural areas are live in extreme poverty meaning that they cannot meet their food needs. Many problems have been identified as causes of poverty in Kenya including, inadequate access to land, lack of education, declining levels of school attendance, prevalence of sickness, vulnerability of women and the poor performance in the agricultural sector cited as being the heart of the problem.

Agriculture accounts for 25 percent of total GDP, 70 percent of the labour force, 60 percent of export earnings, 45 percent of government revenue and 75 percent of raw materials for the industrial sector. Kenya's agricultural production still remains poor even with the relatively liberalized agricultural sector hence there hasn't been major improvement in food security. The yields have not improved, there is a reliance on emergency food supplies and commercial food imports accounts for a large portion of the countries domestic food supply making Kenya to remain food-insecure.

Although the sector has a high potential in contributing to economic growth of the country, its full potential has not been realised due to poor infrastructure, limited access to credit, underinvestment in agriculture, disengagement of the government from support to agriculture, and the high costs of firm input.



There has been very little investment made by the government in the bid to enhance and promote important ingredients for the development of this sector namely, agricultural research and extension in institutions that shape the governance of this sector and rural services and infrastructure. Despite that Kenya has the capacity to produce enough food to meet its needs, the decreasing level of support to the sector has increased the dependency on food imports and food aid and an increased dependency on commercial food imports. Furthermore projections of food demand and production indicate that Kenya will continue to experience serious food deficits unless more efforts are made to address the food security situation either through increased food aid or financial aid. It is noted that the degree of household accessibility to available food supplies is highly related to the income levels, disposable assets, or other financial resources at hand.

Food insecurity remains a consumption issue that closely relates to poverty and food prices (Anderson et al., 2001; Ronge 2002; Hertel et al. 1999). Any initiative that raises real incomes of poor people could be regarded as food-security initiatives. There is need to think of this issue at either a macro level of faster economic growth in low-income households, or at the micro level of raising the real incomes or asset values of the lowest households income earners. However, both perspectives present a way of examining the impacts of Kenya's trade-related policies and those of the rest of the world.

A number of African countries e.g. Rwanda, Malawi and even Zambia have shown their willingness and capacity to improve their nutrition status via pro-poor economic growth strategies. An early indication of success in some countries motivates other countries to continue with their institutions capacity development and policies reform.

### **1.1.3 Statement of the research**

It is apparent that different researchers have in the past, conducted studies on food security and trade. Despite such efforts, very few of these studies delve much into investigating the link between the international trade and food security in Sub Saharan Africa. There is a lack of a clear understanding of the factors or the relationship between international trade and food security. Using such a basis therefore, the current proposal focuses on providing a systematic structure within which to assess the linkages between international trade (whether unilateral, plurilateral or multilateral) and food security in Sub Saharan Africa. It develops an argument from the problems that arise from both ends of food security and trade reforms.

### **1.1.4 Research Objectives**

The main objective of the current research is to investigate and develop a clear understanding on how international trade can enhance food security in Sub-Saharan Africa using Kenya as case study.

This study will be guided by three other objectives which include:

- I. To examine the recent, present and future food security trends in Sub Saharan Africa as well as the international trade trends in Sub Saharan Africa
- II. To analyse the linkages between international trade and food security in Sub Saharan Africa as well as the scale and structure of agricultural trade and implications on food security in Sub Saharan Africa, a case of Kenya.
- III. To explore and propose the policy implications and framework regarding; roles of different stakeholders, safe policies related to trade and food security

### **1.1.5 Research Questions**

The study is guided by the following five research questions:

- What are the recent, present and expected food security trends in the Sub-Saharan Africa
- What are the trends in international trade in the Sub-Saharan Africa
- To what extent are international trade and food security in Sub Saharan Africa related
- What is the structure and scale of agricultural trade and how does it affect food security in SSA
- What are the policy directions that can be done and by whom should they be done in the areas of international trade and food security?

### **1.1.6 Hypotheses**

**H<sub>1</sub>: Global food sufficiency ensures food security at national and individual levels:** This argument assumes that all countries have the capacity to procure their food needs internationally.

**H<sub>2</sub>: Trade liberalization and policy reforms have helped elevate challenges facing the agricultural sector in Kenya.** The study verifies whether from a conventional economic viewpoint, this hypothesis is justifiable.

**H<sub>3</sub>: Government interventions in Kenya have helped to lower food insecurity in the Country**

The study examines whether or not increased governmental support is a clear way to sustain agricultural growth and food security objectives. The study also evaluates if there is need for integral national policy making of bringing all private, research, government and other stakeholders collectively to ensure food security.

### **1.1.7 Justification of the study**

The results of the study will contribute to knowledge and be used for reference by scholars and stakeholders interested in understanding food security and international trade in Sub-Saharan Africa. The information that will be generated from the study will also help in future implementation of trade policies aimed at providing solutions to availability, access and adequacy of food in SSA. The findings and recommendation of the study could therefore be useful to the Ministries of Trade and Regional Development and other international government agencies working in areas of international trade and food security.

## **1.2.0 LITERATURE REVIEW**

### **1.2.1 Introduction.**

The shaping of international disciplines in terms of market accessibility, non-foreign or local support, subsidies on exports and other related factors for agricultural goods and services through the global trade forum i.e. the World Trade Organization (WTO) has high consequences on food security initiatives especially in developing countries. Nyangito, H., Nzuma J, Ommeh H & Mbithi, M (2004) on 'Impact of Agricultural Trade and Related Policy Reforms on Food Security in Kenya', asserts that the SSA region specifically Kenya has a higher potential for being food secure but this has not been the case since achieving food secure status in 1970s and 1980s. They further argue that only 16 percent of Kenya's arable land with irrigation potential has been utilized. Nyangito, Nzuma, Ommeh and Mbithi(2004) on 'Food Security in Kenya' points this food insecurity status to low profitability levels, high farm operating costs, as well as the liberalization effects that have resulted to low government funding. The estimation as per KNBS data on 'Economic Survey for Kenya' (2003) indicates that SSA is among regions with the highest concentration of poor people coupled with slow economic growth than any other

global region. Additionally, KNBS findings in their 'Leading Economic Indicators'(2008) publication reveal that nearly 73 percent of Kenyan earns below US\$ 450 per month and out of this income, 50 percent goes towards of food expenditure.

Finally, the consideration of spatial distribution within countries experiencing high poverty levels and notable incidences of food insecurity trends from FAO (2003) on 'The State of Food Insecurity in the World', this includes drawing on evidence from vulnerability assessment and mapping supported by the Food Information and Vulnerability Mapping Systems (FIVIMS), the FAO and the World Food Programme (WFP) interagency initiative.

### **1.2.2 Definitions and Indicators of Food Security**

Kym Anderson in the Stanford Journal of 2013 on 'Improving Food Security in SSA' points out that the chronic decrease in levels of support to agriculture within SSA region is strongly correlated to increasing dependence on food imports and donor foods giving a strong indication of rising food insecurity issues which needs urgent action. Nyangito (2004) on role of 'Agricultural policy on food security in Kenya' stresses that Kenya heavily depends on cereals for most of its calories intake. Nyangito (2004) further indicates that Kenya's per capita supply of main staple has been on decline since the early 1980s. According to the Ministry of Agriculture (2002) on 'Agricultural Sector Review', the cereals supply reduced from 140.9Kg per annum in 1979-1981 to nearly 115.7Kg per annum between 1992 and 1994. Nyangito and Okello (1998) in the occasional paper No.04, 'Kenya's Agricultural Policy and Sector Performance' portrays that this shift in productions and demands provides a good indicator for food security levels in the country. Indeed, this may point out that the SSA countries including Kenya might be at risk of food deficits unless greater efforts are made to address the food security situation as indicated by FAO (2006) on 'The State of The Food Security in the World.'

Since 70 percent of the US\$1 a day poor in Sub-Saharan Africa in 2002 were rural, according to

Ravallion et al.(2007), a significant proportion of households that are net buyers of food may still be made worse off by policies that lower rural wages via lowering the domestic price of farm outputs. Anderson (2013) on ‘Improving Food Security in SSA’ points out that many of the poorest urban people were ‘pushed’ to the city because prices of farm products and/or rural wages were too low for them to be able to remain profitably engaged in their rural homeland. In the nonexistence of policies that depressed the domestic price of food, fewer would have migrated to join the urban poor in the hope of a better income, and more households would have been net sellers of food.

### **1.2.2.1 The Main Food Security Indicators**

FAO (2001 & 2003) on “The State of Food insecurity in the World” argues that cereals are major food indicators due to the increase in weight in the overall food basket in the global market specifically SSA and also the challenges of aggregating over food commodities in calculations of total food supply and of food imports. According to FAO (1999) in their chapter for ‘Impact of Uruguay Round on Agricultural Markets and Food Security’, the main food security indicators are:

- Cereal production in the three main importing countries (China, India and United States) are leading economies in terms of labour supply, they are able to produce cereals at lower production costs than LDCs hence high production levels.
- Cereal production of Low Income Food Deficit Countries (LIFDC), through imports may compensate for low cereal production. Price fluctuations are other limiting factors of production in LIFDC except for China and India, and this raises issues of food insecurity especially within SSA region.

### **1.2.2.2 Definitions of Food Security according to FAO and World Bank**

During the World Food Summit of 1974 by the World Bank, the initial focus for food security was on the volume and stability of food supplies. Hence food security was defined as the “availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices”

Then in 1986 the World Bank published a chapter entitled “Poverty and Hunger” that focused on the temporal dynamics of food insecurity. This chapter introduced the now widely accepted distinction between chronic food insecurity and transitory food insecurity. According to World Bank (1986) report on “poverty and Hunger”, chronic food insecurity is “a continuously inadequate diet caused by the inability to acquire food while transitory food insecurity is the temporary decline in a household’s access to enough food.”

Finally, according to the Food and Agriculture Organization FAO (2003) in the journal “State of World Food Security”, food security is defined as “the condition in which all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” FAO (2003) asserts that this is the widely accepted definition for food security as it touches on the main four food security dimensions i.e. accessibility, availability, stability and nutritional value.

### **1.2.2.3 Other Definitions**

According to Davis, S. and M. Lipton, 1985, in the 'A new start: Preconditions for a food strategy in Zaire', food security is defined as the “stabilization of access to calories by a population.” This definition appears limited as it has no specifics to what kind of calories and that which is the minimum nutrient requirement if it so existed.

Zipperer, S., (1987) in his book *Food Security and Agricultural Policy and Hunger*, argues that food security is “always having enough to eat and that people reach food security by having land and resources to grow food or as well as having employment which pays enough to buy food.” This brings in a picture of having to promote trade to increase revenue to access foodstuffs that one may not be able to produce.

Diab, M., (1990) in the WFP draft entitled ‘Guidelines for Food Security Assessment,’ assess food security “as a physical and economic access to food at all times by individuals and households in a nation for an active and healthy life”. It also paints the need to have income to buy food or ability to access subsistence farm produce locally.

### **1.2.3 Food Production Trends**

In Kenya, according to the KNBS (2010) on “Leading Economic Indicators” the contribution of the agricultural sector to the national GDP stood at 32.8percent in 1980s. This declined to nearly 25.9percent in 2000s as opposed to the manufacturing sector which stagnated at about 13percent during the same period. However, the services sector moved up from about 30percent to about 70percent between 1980s and 2000s. In the journal for Centre on Food Security of January 2013, Kym Anderson, the George Gollin Professor of Economics, argues that “Food security is a fundamental consumption issue that can be enhanced by increasing spending power of society’s most vulnerable group as supported by compelling trade policy that will boost trade revenues”. Pardey, P.G, J.M. Alston and C. Chan-Kang (2012), in their international article on Agricultural production in past centuries at University of Minnesota, asserts that “low agricultural productivity growth in SSA region can be explained on their part low decade spending on agricultural R&D which has only been 0.5percent of agricultural GDP”. In fact they argue “that it was less than 1percent in rest of the world and 0.75 percent in SSA between 1960s and 1970s.”



#### **1.2.4 Kenya's Agricultural Trade Performance Trends**

In the past 20 years, Nyangito (2004) on "Agricultural food policy" shows that Kenya's export has been dominated by agricultural commodities while imports were mainly capital and manufactured goods. Also the share of agriculture in terms of export earnings for similar period averaged 55percent with major revenues coming from Tea, Coffee, pyrethrum, and horticultural products. It's noted that coffee was the main cash crop for Kenya until 1988 when tea took the lead. Mwega (2000) on 'the Political Economy of Economic Growth in Africa' shows that during the 1990s, the performance of traditional exports apart from tea and crude vegetable materials averaged a low of 7.4percent compared with the non-traditional exports which grew at 20.1percent.

Mwega (2000) on "aid effectiveness in Africa" further asserts that, under the Lome Agreement such as the EU states, performance of non-traditional exports is attributed to removal of restrictive trade polices by importing nations. FAO(2003) on "state of World food insecurity" argues that LDCs may not import food grains, even though available at competitive prices, due to their limited foreign exchange reserves, poor supply chain network, political instabilities, import quotas and other trade restrictive measures. Likewise, LDCs repeatedly have a tight fiscal budget. This worsens in cases where the international food prices are uncertain.

On the other hand, as shown by Nyangito(2006) on 'Impact of trade liberalization, food import levels for most products in Kenya were quite low during the 1987 and 1991 marketing years on account of equal measure of domestic food production and consumption levels. Nyangito 2004, notes that since 1992, food imports have been quite high due to low domestic productions and that most food imports are from EU, USA and Australia as they appear highly subsidized which poses a risk to local production of the agricultural products leading to price fluctuations in the local market. Nyangito(2006) on 'Impact of trade liberalization" argues it is however important

to note that cheap imports may increase food accessibility at a lower cost but excessive imports derails growth of agricultural exports reducing revenues to ease food purchases and hence food security.

### **1.2.5 Measuring Food Security Levels**

Nyangito and Kariuki (2001), argue that a number of countries still use indicators such as Status Quo gap and nutrition gap to measure the extent of their food security levels. They further explain that “Status Quo gap measures the discrepancy involving projected food supplies-calculated by adding domestic production to commercial imports less non-food uses and a base period of 1995-97 per capita consumption”. On the other hand, countries use nutrition gap indicator to measures the difference between anticipated food supplies and the amount of food necessary to support minimum per capita nutritional standards. According to Kariuki (2001), the Status Quo indicator gives the criteria to evaluate the safety net programs while the Nutrition gap indicator shows a comparison of relative well-being. They further asserts that in some regions, the size of food gaps is quite small relative to commercial imports, meaning that if imports grew at a slightly higher rate the projected gaps could close in Africa, Latin America and the Caribbean. In contrast, Nyangito (2004) shows that the ratio of the nutrition gap to commercial imports is about 20 percent in Asia that is approximately 12 times that of SSA.

### **1.2.6 Challenges with Food Security and Trade**

According to FAO 2003 on “State of World food insecurity” the following can be stipulated as major food security and trade end challenges.

Food security side

- *Multi-tier analysis issue*: it is imperative to note that food security could apply to an individual level but implementation of policy only occurs at state level. This presents the

need to evaluate impact of policy implementation process both at household level and at national level.

- *Issue of multi-faceted analysis:* there arises the call for looking into the impact of a trade policy on any individual food security condition through various perspectives of domestic, social, economic and institutional structures as they have different outcomes.

Trade end issues

- Need for multi-sectorial analysis for agricultural and non-agricultural sector trade policies to show the inter-correlation. Recent Military policy to attack Somaliland by Kenya government led to low supply of some agricultural produce in the EAC region.
- The very essence of multi-country analysis may lack yet it shows the effect of how one policy change in a country affects another country. For example, the KNBS Leading Economic Indicator (2012) shows that in 2011, trade quota of maize in Tanzania led to maize inflation in Kenya.

### **1.2.7 The Markets and Food Security: Regional Food Security Perspective-EAC and COMESA**

According to the EAC Food Secretariat (2010), the region experiences food shortages despite greater potential and capacity to produce enough and surplus food. This attributes to individual national plans instead of regional food plans. In most cases, policy makers indicate that this remains a major cause for production distortions and lower investments. These in the long run has brought about perpetual food shortages and hence food insecurity not only in the EAC region but also the COMESA region. National food security concerns tend to restrict food movement to deficit areas through restrictive policies. EAC Food Secretariat (2010) recommends that as a way of responding to such limitations, there is need to implement on a balanced regional policy but

only through bilateral trade ties. Similarly, Nyariki (2007) maintains that using bilateral trade ties together with a balanced regional policy is the only sure way of getting to enhance food security.

### **1.2.8 Contemporary Debate on Trade Policy and Food Security.**

Ikiara & Ronge 2002; Hertel et al. (1999), points out that the recent past debates among policy makers and other professions, have besieged the issue of the process of agricultural market and trade liberalization undertaken by and committed to several developing nations. They further assert that such debate extends towards consideration of the visible imbalance between both the levels of agricultural protectionism in developed countries as opposed to developing countries. This brings out clearly the need to consider this trade imbalance when analysing the trade reforms effects of unilateral and bilateral ties on Agriculture. FAO (2003) on “State of World food insecurity” shows high level of agricultural protectionism practised by OECD than developing states. It further indicates the presence of substantial reform in the agricultural policy of many developing countries over the past few decades.

While this is critically important, there is need for alot of emphasis on development and evolution of institutional arrangements so to bring out major constraints to and expansion of food crop productivity to ehance food security. Also the Trade policy review document for EAC partner states dated July 2008 is another critical debate which examines and evaluates trade and related polices at regular intervals. It was last held in November 2012. According to the World Bank (2013) on chapter of ‘Food Security debate in Geneva’ brings out poor infrastructure, non-tarriff barriers and high energy costs coupled with unified bureaucracy as major impedimnets to the regional trade. According to Kimani (USIU,2013), a shift from identifying and discussing barriers to implementing regulatory consultative reforms and lowering trade restricitve measures would help the EAC and COMESA member states eliminate if not reduce food insecurity issues.

### **1.2.9 Role of government in food security**

Data from article entitled World Bank (2010) on ‘Economic reforms in Eastern Africa’ argues that Income gains from government trade policies supporting production via competitive advantage in the markets concerned is likely to be higher than non-specialized production. They further assert that the role of government in ensuring that trade supports food security at national and individual level is counterproductive. FAO (2001) shows that government supporting relevant trade reforms such as minimizing trade tariff and non-tariff can realize barriers, refraining from export and import bans; efficient production and consumption. According to KNBS Economic Survey (2018), this is attributed to avoidance of wrong price signals and production decisions at almost all costs. In fact, by giving correct export subsidies, the governments will move towards strengthening the rules for multilateral trading system such as those on export restrictions to support hunger stricken areas. Implementation of complementary trade policies such as those targeting social protection programmes can help in households at risks when food prices go up. In addition to that, they asserts that reforming biofuel mandates, lowering environmental impact, harmonizing food safety standards, supporting agriculture through increased supply of foodstuffs, increasing productivity of smallholder farms and regulating prices are also critical roles by government to ensure food security in the country.

### **1.2.10 Food Policies and Food security**

Nyangito (2004) asserts that some food policies such as quantitative restrictions or subsidy or tax targeting exports and imports may limit level of national economic welfare for a number of countries. He states that they loose much anticipated gains from open trade such as product specialization and exchange. In addition, Anderson (2010) shows comparative advantage can enable developing states to fully utilize economies of scale, diversify their products, improve domestic market competitiveness and produce quality goods and services. Although poorest

households may not benefit directly in the country, Nyangito and Ikaria (2002) indicate that the gain in national income may provide more understanding on how the government can assist farmers through an indirect way such as provision of farm inputs at low costs.

According to Anderson et al. (2010), a momentous proportion of households that are net buyers of food still experience food insecurity on the back of policies that contributes to the lower rural wages via reduction of the local price of farm outputs. FAO (2003) on “State of Food Security in the World” points out that many of the urban poor people stumble upon stronger pull to the city as food prices seems to lower. They further show that low profitability index witnessed in farming activities in rural areas has been the major reason for rural-to-urban migration of major households. Nyangito (2004) on ‘Agricultural Food Policy’ argues that food trade policies of other nations can easily affect a least developed state as it may alter the prices of food at that country’s border. In 2004, an empirical survey on ‘Food Security Status’ by World Bank indicated that the net effect of global trade policy distortions was a drop on international food prices, concluding that adopting policies could influence poor economies in various ways.

### **1.2.11 Trade and food security**

According to the World Bank (2013) Policy Research Working Paper 6437 Washington D.C, it states that trade relations are very essential in enabling a developing or an emerged economy achieves or moves towards food security status. They show that trade allows agricultural products to move across borders of countries with surplus to nations with deficit. The policy research paper for World Bank (2013) further shows that this in turn generates revenue to states and increases revenue to farmers and other stakeholders involved. Nyangito (2004) argues that by ensuring physical availability of food and regulating of prices at national and individual household levels, trade help countries diversify food production and at same time-share out price changes. As shown by FAO (2003) article on ‘Impact of Trade Liberation,’ about 15 percent of

the world's calories come from international trading of food supplies, but for countries reliant on imported supplies, this share can be a lifeline.

In fact, FAO (2003) on "State of Food Security in the World" points out Net Food-exporting countries primarily include North America, South America, Australia, Eastern Europe and the post - Soviet states. While net Food-importing countries are mainly in Central America, Western Europe, Asia, the Middle East and Africa.

Finger (2002) posits that it would become unimportant for a country to grow all types of food but the necessary thing would be to acquire more foods through different policies. For instance, Finger (2002), and other professionals such as Kariuki (2001) recommends that policy makers need to put in place mechanisms that allows a country to engage in international trade in order to earn income through exports.

### **1.2.12 Trade liberalization and food security**

FAO (2003) in a policy document "Trade liberalization and food security" asserts that LDCs are faced with a number of constraints that prompts them to consider food security issues when formulating domestic policies. A purely market oriented approach i.e. trade liberalization may worsen household incomes thus eroding the very essence of human capital as food security. They define trade liberalization as "a change in relative price of both goods and services while considering the factors experienced in that economy". African governments have had to open up their markets consistently with the hope of benefiting its people. The recent study by Anderson (2009) indicates that such efforts have remained futile due to minimal returns from global trade liberalization of Sub-Saharan Africa. Using Rodrick (2001) paper, it becomes apparent that countries may reduce on their barriers as they get towards richness and a farther effort to protect their domestic trade. SAPRIN (2001) shares similar view by arguing that trade liberalizations reduces net exports. Consequently, SAPRIN indicates reduction in net exports could negatively

affect productive capacity and limit consumers' purchasing powers. According to the discussion paper by KNBS and KIPPRA, the discussion indicates that these happened due to introduction of domestic policies and trade constraints together with changes in global market prices. Furthermore, SAPRIN (2001) adds an increase in price for industrial crops during the post liberalization era of 1990s led to fluctuations. More specifically, this occurred due to stiff competition arising from international market.

### **1.2.13 Food Security through Trade**

While relating to trade matters, Panagariya (2002); Konandreas (2006) argue that countries can achieve food security through food self-sufficiency or food self-reliance means. Whereas food self-sufficiency seeks to minimize a country's over-dependence on food imports, Konandreas specifies that food self-reliance on the other hand support the use of international markets to increase food available in domestic markets. He further indicates that adopting food self-sufficiency principle does not necessarily mean doing away with international trade. While U.S and E.U have shifted attention to government direct payment from price support, Asian continues on the other hand have adopted on policies that protects their farmers through price supports.

In fact, Anderson (2009) shows that among high-income nations, there was an increase in the Nominal Rate of Assistance (NRAs) to farmers. These values rose steadily over the post-World War II period through until 1980s, apart from effects of high global prices witnessed in 1973-74. However, WTO (2011) reveals that this value has since continued to decline as compared to LDCs.

Kym Anderson (1989) on "Food insecurity in SSA" asserts that there is effectiveness in the rate at which national state policies raise gross returns to farmers above what they would be without state interventions (NRAs). He says they include countries such as Australia, China and U.S.



among other developed countries. While on the other hand, countries such as those in EAC countries including Kenya have remained far back in their food security initiatives. In response, Anderson (2009) recommends that such countries could increase on their NRAs to farmers through competitive advantages. This requires that they leverage household incomes and improve national food security. Nyangito (2004) on ‘Impact of Agricultural Policy on maize production in Kenya’ shows that the national-level food production index (FPI) for Kenya has been going up at a slow pace given 1989 as base year. He further argues that, ratio of cereal imports to total local production (CIDR) and total amount of cereals available for monthly consumption from local market (CSPR) has been dropping indicating a conflict in domestic food supply to enhance food security.

Krueger et al.(1998,1991) shows that incentives to farmers (NRAs) in developing countries such as SSA have dropped specifically for non-tradable agricultural sectors as compared to tradable agricultural sector since 1980s as opposed to countries in Asia or EU and U.S.

#### **1.2.14 Policy Options within EAC: Kenya.**

Nyangito (2004) argues that the EAC region specifically Kenya needs to reconsider increasing the use of domestic measures allowed within WTO protocol to stimulate food production. He also asserts that strategic coordination and well-harmonized implementation of trade liberalization policies will enhance good performance in the agricultural sector in Kenya thus reducing food insecurity issues. Hence, policies that affect both domestic food production and international trade are critical for food security in Kenya.

In fact, he further argues that reducing income levels for households and growing dependence on food purchases explains the growing food insecurity in EAC specifically Kenya. In the current Doha round of WTO negotiations, proposals to do away with agricultural export subsidies as well as to lower import tariff bindings may help stabilize international food prices.

However, proposals to broaden the Doha agenda to also introduce sanctions on export bans has been futile.

### **1.2.15 Theoretical framework**

My theoretical framework is based mostly on the neoclassical theory of trade economics specifically the HOS model. Eli Heckscher (1919) and Bertil Ohlin (1993) laid the underpinning for a substantial development in the theory of international trade by focusing on the relationships between the structure of countries factor endowments and commodity trade patterns as well as the consequences of free trade for the functional distribution of income within nations. In the Ricardian model, comparative advantage and thus the direction of trade wholly depends on a comparison of relative prices in autarky (equilibrium price and quantity which leads to self-sufficient economy) and that this autarky prices are completely determined by technology. According to FAO 2001, “The theory argues that differences in productivity and opportunity costs of production between countries form the underlying reasons why it is advantageous for countries to engage in trade.” This implies that the difference in technology between two nations is the basis for trade. Furthermore, the HOS model stipulates that trade is based on different factor endowments in particular, a difference in relative factor endowment in terms of their pricing and quantity availability rather different in technology or tastes. The HOS theory as stipulated by FAO 2003, states that “trade occurs because the cost of labour relative to that of capital is lower in the labour-abundant country, which means that the price ratio of labour-intensive goods to capital-intensive goods is lower in the labour abundant country than in the capital-abundant country.” Policy makers in the most successful developing countries have not accepted either of the two major schools of thought on food price policy.

On relevance of HOS model to my study as shown by Timmer, C.P. (1989), Food price policy: ‘The rationale for government intervention, Food Policy’ 14(1): 17-27, points out that the neo-

classical school favors free trade to maximize efficiency of resource allocation. As shown by Timmer (1989) that structuralist school favors interventions to satisfy goals for income distribution. He asserts that especially in the rapidly growing, rice-based economies of Asia, policy-makers have been more concerned about stability of domestic prices than their level relative to world prices. This concern, Timmer (1989) traditionally dismissed by economists as purely political, is justified on economic grounds because of improved macroeconomic and dynamic efficiency from stable food prices. The paper identifies both the benefits from food price stability and the costs of achieving it.

## **1.3.0 RESEARCH METHODOLOGY**

### **1.3.1 Introduction**

This study relies mostly on secondary data which is obtained mainly from KNBS, MoA, World Bank, FAO and also IFAD. It comprises of time series data on trade and production as well as household attributes such as food production, income and expenditure. This chapter contains a discussion of various components of the research methodology that will be applied in the study. These include research design, target population, sample procedures and methods of data collection. The section further provides an operational definition of variables of the study and the methods of data analysis. A summary of the contents of this section is provided at the end.

### **1.3.2 Research Design**

The study will be exploratory by nature, by using exploratory research, the study will seek to generate a postulations or selected hypotheses by examining a data-set (key informants-policy makers, major stakeholders and key food security reports from leading global organizations such as World Bank, FAO, IFAD and government ministries) and looking for potential relations between variables and the direction and strength of the relation.

The study will also be cross sectional in that data will be collected on relevant variables at one point in time from a sample selected to represent a larger population from a variety of people, subjects, or phenomena. By employing these research design .i.e. triangulation, the study will identify the major factors that influence food security, and test whether international trade is one of them and to what extend it affects and in which direction. The study will give an in-depth description of information on food security in general and explain extensively and intensively information on international trade in the sub Saharan Africa. Both quantitative and qualitative data will be collected, thus, the research will employ the mixed mode. Quantitative data to be

obtained by the study will be associated with the level of international trade among countries in the SSA. Qualitative data on the other hand will be associated with the opinions of local stakeholders, international agencies, government departments as expressed in their interviews, chapters and documentation.

### **1.3.3 Target Population**

According to Saravanel (1992), a population is an aggregate of all units possessing certain specified characteristics on which the sample seeks to draw inferences. In other words it is the totality or the universe of units from which samples of various sizes may be drawn. The target population of this study will comprise of the actual population to which the findings will be generalized in Kenya.

In order to collect all required information, the current research project will make use of qualitative research approach. While designing questionnaire instruments, the research project will incorporate open-ended questions. Using open-ended questions will allow respondents to provide their own opinions concerning food security initiatives implemented within their businesses

### **1.3.4 Sampling Procedure**

Kothari (1990) defines sampling as the selection of part of an aggregate or totality on the basis of which a judgment of inference about the aggregate or totality is made. It is the process of drawing samples that would be a representative of the population of the study. Its objective is to secure a sample which subject to limitations of size will produce the characteristics of the population as closely as possible.

### **1.3.5 Methods of data collection**

A combination of methods which include personal interviews, document analysis, and web scrapping and key informants will be used to collect data. These methods will be employed due to the nature of the targeted population, characteristics of each of the samples, the cost restriction and the required data. The study will collect data in two phases: Phase I to conduct a desk review of relevant literature materials, collection of secondary quantitative data on trends on trade, food security and livelihoods in countries selected, triangulation of other secondary data the United Nations, World Bank, FAO, WHO and other international agencies. Phase II will involve collection of primary qualitative data through administering of questionnaire instruments to a number of stakeholders including institutions and key agencies. Phase III will involve interviewing key informants on the policy implications, food security situation, and cross regional trade.

### **1.3.6 Validity and Reliability of the study**

#### **1.3.6.1 Validity**

Validity is the accuracy and meaningfulness of inferences which are based of the research results. It is the strength of our conclusions, inferences or propositions, a degree to which results obtained from the analysis of data actually represents the phenomenon understanding. Validity is “whether an instrument is measuring what is required to measure”. In order to ensure internal validity of the study, the variables have been carefully analysed which ensures that appropriate indicators are associated with each variable and the required data collected using the appropriate research instrument. For external validity appropriate and representative samples have been selected for study which provides an assurance for results to be generalized to the population.

### **1.3.6.2 Reliability of the study**

Reliability is a measure of the degree to which a research instrument yields consistent results or data the same way each time it is used under the same condition with the same subjects. Reliability of the study results will be assured through triangulation where collected data will be confirmed through the various research instruments and related questions to be used in the study. This will ensure the results of the study are a true reflection of the situation been studied. A pilot study will be undertaken to test the research instruments. Furthermore, voice recorders will be used during key informant interviews to ensure responses are accurately captured. The research assistants will also be trained jointly to ensure they later capture responses accurately.

### **1.3.7 Operational Definition of variables**

This section provides an explanation of the variables to be investigated in this study.

- Economic Growth
- Value of net exports (Agriculture)
- Gross Foreign Reserves
- CPI
- Volume within regional trade

### **1.3.8 Methods of data analysis**

Quantitative and qualitative methods will be used in the analysis of data. The data will be analysed using the Statistical Package for Social Science (SPSS). The process will include both descriptive and inferential analysis. Descriptive analysis will be used for categorical variables which will be described in terms of frequencies and percentages. Furthermore, continuous and

discrete data or variables, the mean as a measure of central tendency, measures of variation, standard deviation and variance will be used in the analysis.

Quantitative methods will be used to analyse numeric data in order to measure and explain the relationship and differences amongst variables such the net exports on agriculture and food availability ratios. The techniques will also analyse the global trade in monetary terms. Qualitative data will be organized, coded and categorized for proper interpretation. The researcher will further analyse variables or cases of qualitative data that illustrate themes and make comparisons and contrasts.

Parametric and non-parametric tests will be carried out in the analysis of data. According to Arora (2008) parametric tests are those hypotheses-testing procedures that assume that random samples are selected from a normally distributed population. It is therefore based on the assumption that in some way data follow a normal distribution and also that the spread of the data (variance) is uniform either between groups or across the range being studied. Parametric tests depend on the mean, proportion and standard deviation. The method will therefore enable inferences to be made from the sample statistic to the population parameter through sampling distributions. The analysis of variance (ANOVA) in the means of the samples and the population will be calculated. Pearson's correlation will be calculated to measure the relationship between the variables of the study. This will help in establishing the relationship between independent variable and dependent variable as well as the relationship among the independent variable. A correlation will be useful in establishing the relationship between two (or more) normally distributed interval variables.



On the other hand, non-parametric tests do not require data to follow a particular distribution and therefore the underlying population does not have to be normal. The method will be used to analyse non-numerical data and qualitative data using Chi Square.

### **1.3.9 Summary**

The study will take the form of a cross-sectional, exploratory research design, a mixed mode where both quantitative and qualitative approaches will be employed in the study. The study will be investigating the relationships between food security and international trade in the Sub-Saharan Africa. Out of the four categorized regions in the SSA the study will pick two countries i.e. Kenya, Rwanda (Eastern Africa), Cameroon, Angola (Middle Africa), Ghana, Nigeria (Western Africa), Botswana, South Africa (Southern Africa).

The study will use questionnaires to collect data from the different agencies, in-depth interviews for Key Informants in trade and food related agencies. The study will also use document analysis and web scrapping to collect data.

The study therefore will make use of both quantitative and qualitative methods of data analysis as well as descriptive and inferential analysis.

### **1.3.10 Chapter Outline**

**Chapter 2:** It provides the background of food security in SSA. The chapter attempts to identify trends of food security issues based on food import dependency, food import capacity and daily energy supplier are discussed. The impact of WTO agreement on Agriculture and the relationship between trade liberalization and food security is also examined.

**Chapter 3:** This chapter describes Kenya's food supply and demand levels as well as its nutritional needs. It gives an overview of the importance of agriculture to the economy, causes and also challenges of food security.

**Chapter 4:** it analyses the impacts of policy reforms on agricultural production and food security in Kenya. In this chapter we look at how policy reforms have affected food prices and trade, food import capacity and the consumer purchasing power

**Chapter 5:** This is an assessment on the impacts of food imports and aid dependency. It briefly discusses the impact of prices and domestic food production as well as impact on foreign exchange on Kenya's food security.

**Chapter 6:** This provides the conclusion of how international trade can enhance food security in SSA specifically in Kenya and gives recommendations.

## CHAPTER TWO

### FOOD SECURITY IN SUB-SAHARAN AFRICA (SSA)

#### 2.1 Introduction

This chapter provides the background of food security in SSA. It attempts to identify trends of food security issues based on food import dependency; food import capacity and daily energy supplier are discussed. The impact of WTO agreement on Agriculture and the relationship between trade liberalization and food security is also examined.

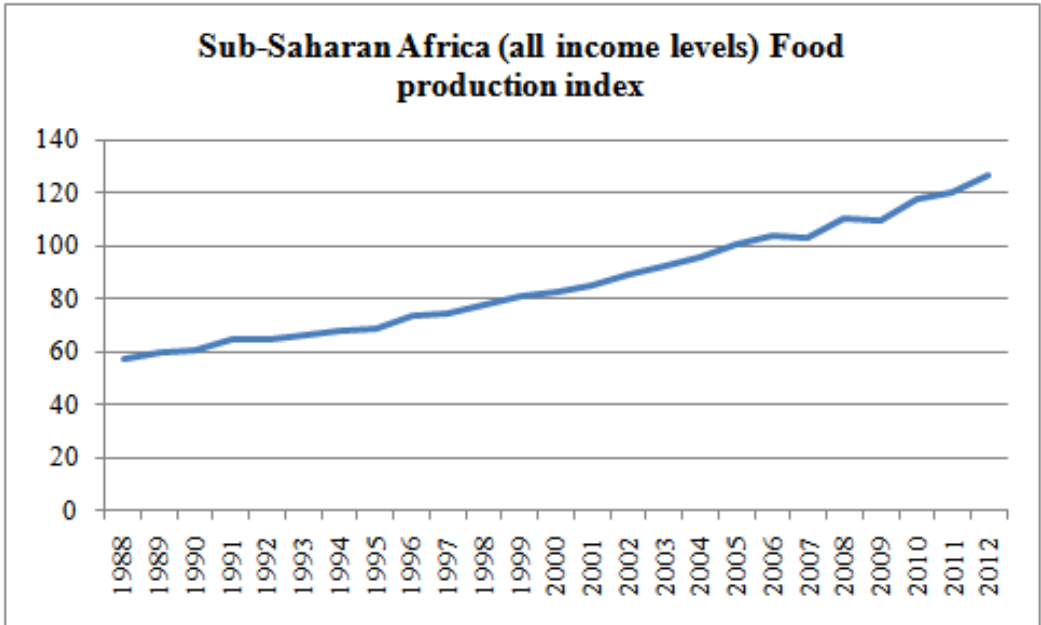
Although Africa has a vast agricultural potential, the continent has remained a net importer of agricultural products for the past three decades. Africa almost had a balanced agricultural trade in 1980's when both agricultural imports and exports were about USD 14 billion, but with time its agricultural imports exceeded exports by about USD 22 billion (FAOSTAT,2011) by 2007.

There has been an increase on food imports in SSA since the mid 1970's especially for basic food stuffs such as edible oils, dairy products, fat, meat and meat products, sugar and cereals. This therefore shows that food imports have been growing increasingly important in ensuring food security in SSA. According to FAO data it shows that in 2007 only 19 out of 53 African countries has enough agricultural export revenues that were able to pay for their food import bills while the rest of the countries got money from other resources or they had to wait for food donations from other agencies for them to ensure a stable food supply.

The concern over the ability of most African countries to afford the increasing food import prices to improve food security has motivated the search for answers on why Africa has become a net food importer. Most FAO reports already have detailed investigations of the issue of food security in Africa.

A recent population growth estimate by the United Nations (UN) shows that the world population is set to reach almost 9.6 billion in the next 36 years to come which may have a negative implication of global food security especially in the SSA region. This has led to estimation that the world will need about 70 percent more food annually by the year 2050 to meet the growing demand of food. In order to achieve this, millions of hectares of forest land will have to be changed into farm land to produce enough food and this eventually may have climate change implications globally.

**Figure 1 Food Production Index for SSA (%) (1988-2012)**



*Source: World Bank*

According to the World Bank findings (Figure 1) food production index in SSA keep increasing yearly. It shows that food production was constant at 60 percent between 1988 and 1990 after which production started growing slowly from 1991 to 1995. As from 1995 to 2007, production grew steadily to about 102 present. There was however a decrease in production between 2008 and 2009 before a steady increase was seen. These are clear indications therefore that demand for food increases as the population increases. So far, according to the U.N. Food and Agriculture

Organization (FAO), more than a quarter of Sub-Saharan Africa's people are currently malnourished, and the region already imports approximately 20 percent of its staple calories. The region would require to step-up its crop production by 260 percent by 2050 in order to feed its projected population. Yet Sub-Saharan Africa has the world's lowest grain yields and extensive areas of degraded soils.

In addition it is also noted that making of policies and sharing of information on production levels both present and the future, the level of stock for farmers and traders and those held by the Strategic Grain Reserve (SGR) will be used to combat food insecurity through trade in EAC and the COMESA region. When such vital information is available, relevant policy reforms can be made in the food sector. Food balance sheet for EAC and COMESA would work as a tool for early warning for policy and other decision makers. In addition the role of stakeholders in private and research sectors, and also the role of the government is important in order to access data on the present food stocks.

One way that will help reduce food insecurity is to encourage family planning in order to hold down population growth. A recent research by WRI "Achieving Replacement Level Fertility", it was noted that Africa can match the rest of the world's fertility rate through programs that give power to women, park up quality of life and save millions of lives.

**Table 1 African Ranking of Food Secure nations, 2014/15**

Country	Rank(2014)	GHI Rank(2003)	Comments
Malawi	1	7	Government policies put in place to get rid of hunger. They are legislation sustaining agriculture like the right to food and access to information laws, both of which are imminent legislation. Others consist of government budget allocation towards agriculture investment, social protection and gender equality issues.
Ghana	2	15	
Mozambique	3	28	
Uganda	4	18	
Ethiopia	5	37	
Rwanda	6	27	Enacted new government policy that supports small scale farming. Investment in sector rose by 30percent between 2007-09
Kenya	16	21	Yet to fully implement land/inputs policy and trade related reforms to enhance food security. Investment in sector is quite low.

**Source: Action Aid Worldwide/World Bank**

*N/B: The lower the GHI index the better the country is in terms of food security.*

According to Action Aid and World Bank reports (Table 1) Malawi tops the list of food secure countries in Africa followed by Ghana, Mozambique, Uganda, Ethiopia and Rwanda at number six respectively while Kenya come at number sixteen. It is noted that the food secure countries have put in place government policies to help get rid of hunger, people have access to information laws and their governments have allocated funds towards agricultural investment,

social protection and gender equality issues. Rwanda on the other hand has enacted government policies that support small scale farmers. Kenya lags behind in this respect because land/input policy and trade reforms are yet to be implemented in order to enhance food security hence investment in the agricultural sector is quite low.

SSA has been struggling in one form or another for almost half a century with the issue of food insecurity. This unending condition has been caused by various factors including global climate change, distribution obstacles and disinterested or the inability of local leaders to implement the same. The situation has however been complicated by inefficient and disorganized international response to the food crisis. Although each of these factors carries at least some validity, there is very little consensus internationally on the best remedy for this crisis.

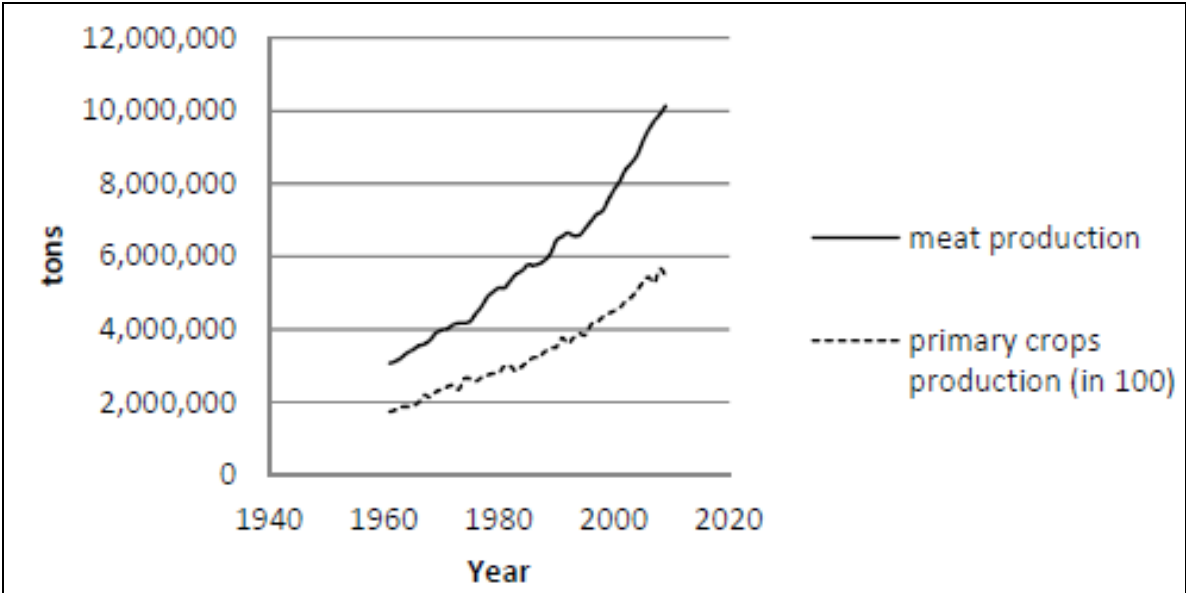
Does the answer to African food insecurity lie within scientific and supply based solutions? This would require a reliance on global market forces and genetically modified (GM) crops to feed the hungry. Or will success be more attainable through a combination of methods such as weather prediction, climate change solutions, and foreign monetary aid? By examining the successes and failures in food aid policy, can the global community create a plan that will truly end hunger in SSA in years to come?

## **2.2 Trends of food security and trade in SSA**

The 1970's was a decade of great improvement in agricultural production for most developing countries especially in the SSA than that of the 1960's. this improvement continued up to about 1980's after which there was a very slow pace and many countries within SSA failed to make much progress and experienced reversals on production. This in turn has caused inadequacy in achieving any nutritional progress (FAO 1996a: ix) as a result these countries will increasingly depend on food imports with net imports on cereals doubling to be able to meet the demand of the growing population.

Figure 2 below shows the historical trends of production of livestock meat from poultry, goat, beef, sheep and buffalo as well as primary crops (all agricultural products). The total production of food both primary crops and meat in SSA has been growing at a very low rate of less than one percent per year. This situation is worrying considering that the rate of food production is not statistically different from SSA's population growth. This therefore raises a lot of concern about the ability to self-insure against food insecurity. If SSA is to ensure adequate food supply for its population both imports and serious efforts to boost food production has to be top of the agenda for the leaders and policy makers.

**Figure 2 Agricultural productions in SSA since 1960s**



Source: FAOSTAT

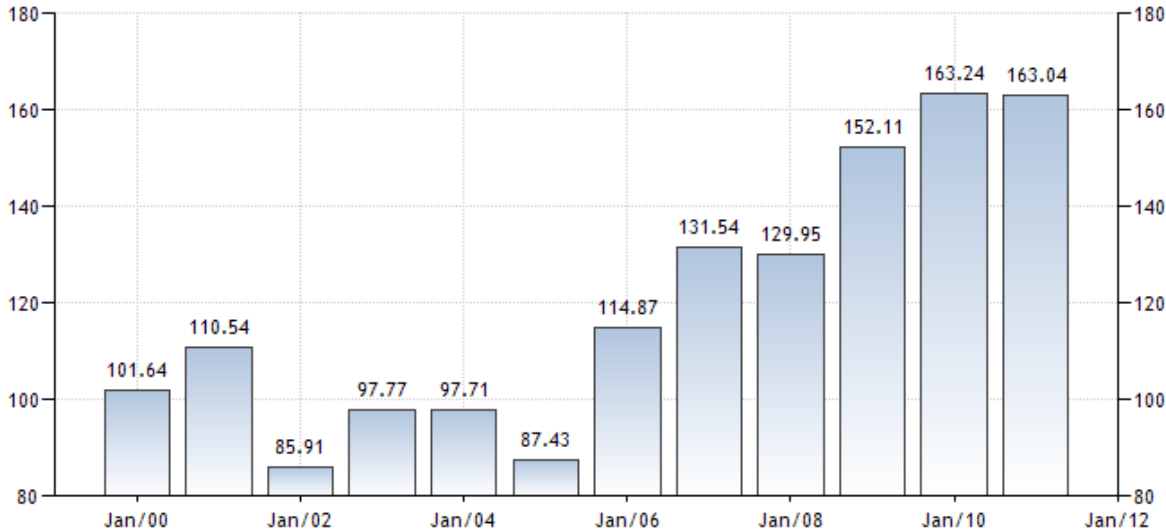
Most countries in SSA depend on seasonal rain for agricultural production and this dependency makes them vulnerable to late rain onsets hence hindering them from obtaining the best possible output. Irrigation could be a possible solution to reduce vulnerability to rainfall fluctuations in SSA. Here most food production is done by small scale farmers who can't afford fertilizers to boost their production, but we see that governments and other development partners have tried to



put in place programs that seek to subsidize fertilizer costs in order for it to be readily available to farmers.

For instance, the World Bank estimated that Malawi would require at least 57,000 metric tons of maize in the 2013/2014 season in order to address the food scarcity. The price of maize increased by 162 percent in 2013, due to low harvest, high cost of transportation, and devaluing of the market. In July 2013, the UK announced that it would donate \$20 million to Malawi for the “looming food crisis”.

**Figure 3 Food Production index for Malawi**



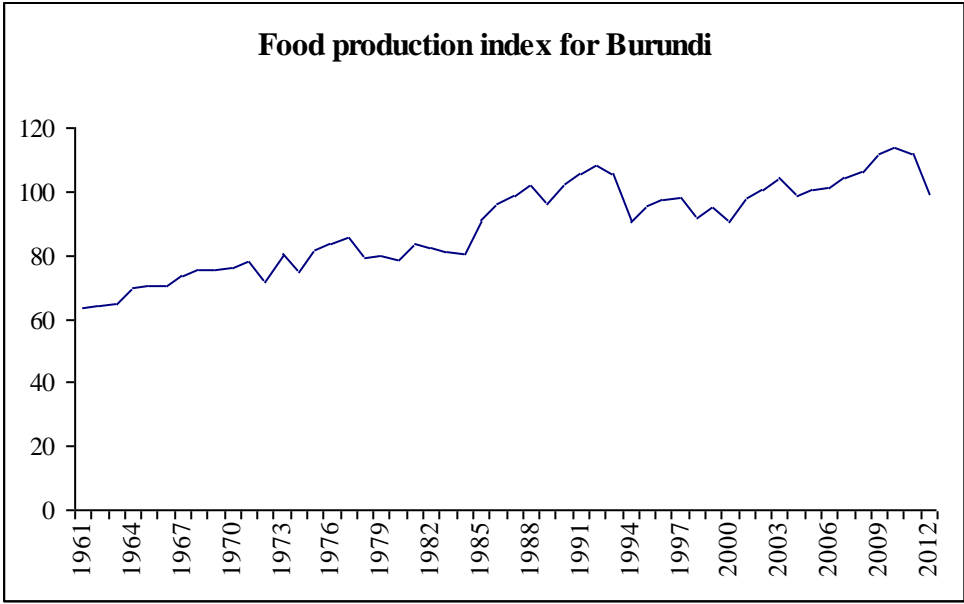
Source: Trading Economics/FAO

Back in 2004, President Bingu wa Mutharika, who died in office in early 2012, rode into power on a promise to increase farm subsidies as part of his Farm Input Subsidy Program, which really improved the country’s food security status.

On contrast, in Burundi according to a study conducted by the World Food Program in 2004, the level of food vulnerability was extremely high. 61 percent of households risk food insecurity at some point during the year as a result of climatic events, declining soil fertility and rising food prices and production per capita is decreasing.

The adverse effects of three years of drought, the expansion of crop pests and decreasing land productivity are most apparent in the eastern and northern regions

**Figure 4 Food production index for Burundi (1961-2012)**



Source: Trading Economics/FAO

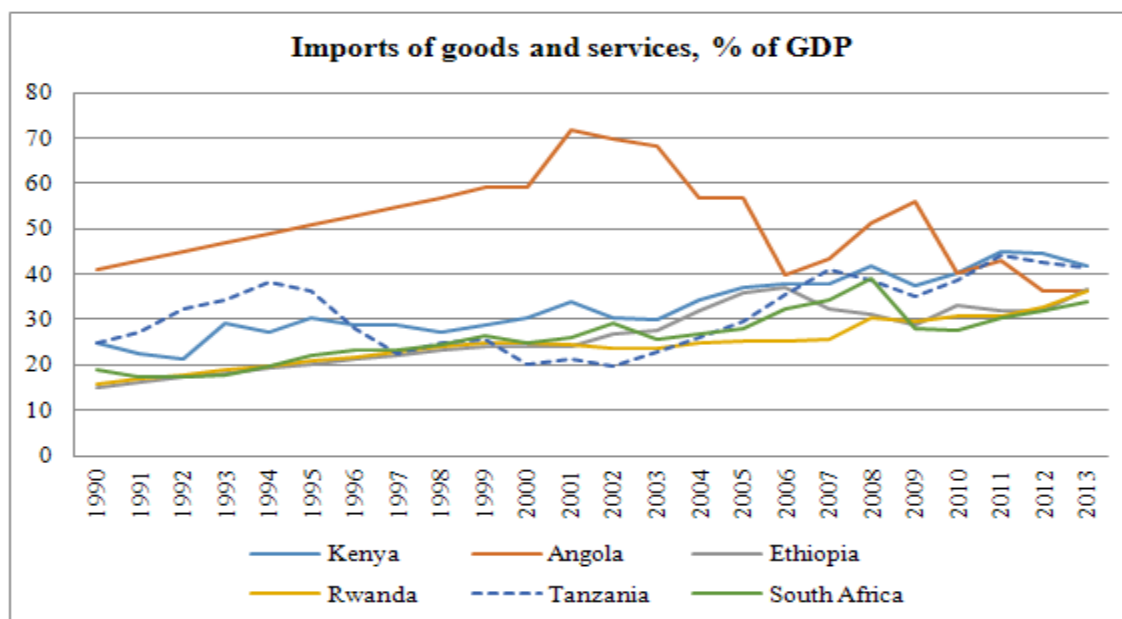
Poverty in rural areas in Burundi is the result of: high population pressures on over cultivated, eroded land supporting farms of an average size of 0.5 ha, persisting drought, insecurity and displacement, scarcity or poor quality of agricultural implements and technology, and limited market incentives, low productivity of labor, low cash incomes from subsistence agriculture or limited non-agricultural activities. The vast majority of Burundi’s poor people are small-scale subsistence farmers trying to recover from the conflict. As a result of this Burundi relies heavily on food aid from the developing countries.

## 2.2.1 Food import dependence

Projections of food availability in SSA have to consider both domestic production and food imports. Changes in import capacity have direct implications on the food security of low-income countries where food import dependency has amplified since greater demand stems from income and population growth, as well as slow gains in domestic production. For highly import-dependent or highly food-insecure countries, any decline in import capacity stemming from rising food prices can have challenging food security implications.

Various studies (e.g Omamo et al.2006; Diao et al.2008) have documented various causes of the on going persistent growth in net agricultural and food imports in Africa and have also cited many reasons for such low productivity, poor agricultural and trade infrastructure, low external and internal trade capacity, low investment on agricultural resources (natural, human, equipment and financial) foreign and domestic distortions, political instability, high population growth and civil unrest.

**Figure 5 Importation of goods and services for selected SSA countries (1990-2013)**



Source: BMI

Food import dependence in several developing countries has grown during the last three decades, leading to improved and more diversified diets. This trend can be attributed to higher incomes, slow growth in domestic food production, and trade liberalization. For lower income, highly import-dependent countries, however, higher food prices and larger import bills can be a challenge, particularly for countries with limited foreign exchange availability and high vulnerability to food insecurity. To identify countries that are highly sensitive to increases in grain prices, FAO ranked the 70 low-income countries by grain import dependence and daily calorie consumption. Five of the low-income countries (Eritrea, Liberia, Haiti, Burundi, and Zimbabwe) depend on grain imports for more than 40 percent of their diets and consume an average of less than 2,200 calories per day. Eritrea, for example, is highly dependent on food imports, 87 percent of grains, 51 percent of vegetable oils, and 100 percent of sugar. Export earnings cover only 25 percent of Eritrea's import bill; the remainder is filled by external assistance. Eritrea's daily calorie availability of 1,465 in 2005 was among the lowest in the world. Therefore, higher prices and the possibility of a cut in imports could result in a food crisis in Eritrea. In the world's least developed countries (50 countries, as defined by the United Nations' FAO, 32 of which are in Sub-Saharan Africa), the import share of production for wheat jumped from 93 percent in 1980 to more than 130 percent in 2005. For sugar, the share soared from only 4 percent in 1980 to more than 65 percent in 2005. A similar pattern is seen for vegetable oils, with the share rising from about 6 percent to 80 percent.

### **2.2.2 Food import capacity**

Compared with the fast growing food imports, Africa's agricultural exports have not increased much. Moreover, Africa as a continent has not managed to diversify much its agricultural and food exports since the 1960s. Between 1980 and 2007 SSA net food imports in real terms grew at an average 3.4 percent per year (FAOSTAT 2011).

**Table 2 Food Import bills and export revenues for EAC**

Country/ Regions	1991-00 Avg		2001-05		2006		2007	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
<b>Kenya</b>	0.33	0.20	0.35	0.17	0.36	0.19	0.41	0.22
<b>Tanzania</b>	0.48	0.35	0.72	0.28	1.02	0.30	0.98	0.28
<b>Rwanda</b>	2.22	0.79	1.69	0.70	0.94	0.45	1.15	0.49
<b>Ethiopia</b>	-	-	0.92	0.55	0.45	0.38	0.45	0.36

Source: FAO, Key: Ratio of food imports to: Total agricultural exports (1) and total merchandise exports (2)

**Table 3 categorizing SSA countries by import capacity (2000-2010)**

Country	Categories
Benin	Moderate Net Food Importer (between negative 5-10% of GDP)
Burkina Faso	Weak Net Food Importer (between negative 0-5% of GDP)
Burundi	Weak Net Food Exporter (between 0-5% of GDP)
Cameroon	Weak Net Food Importer (between negative 0-5% of GDP)
Côte d'Ivoire	Strong Net Food Exporter (more than 10% of GDP)
Dem. Rep. of the Congo	Moderate Net Food Importer (between negative 5-10% of GDP)
Ethiopia	Weak Net Food Exporter (between 0-5% of GDP)
Gambia	Strong Net Food Importer (more than negative 10% of GDP)
Ghana	Strong Net Food Exporter (more than 10% of GDP)
Guinea-Bissau	Strong Net Food Exporter (more than 10% of GDP)
Kenya	Weak Net Food Exporter (between 0-5% of GDP)
Madagascar	Weak Net Food Exporter (between 0-5% of GDP)
Malawi	Strong Net Food Exporter (more than 10% of GDP)
Mali	Moderate Net Food Importer (between negative 5-10% of GDP)
Nigeria	Weak Net Food Importer (between negative 0-5% of GDP)
Rwanda	Weak Net Food Importer (between negative 0-5% of GDP)
Senegal	Moderate Net Food Importer (between negative 5-10% of GDP)
South Africa	Weak Net Food Exporter (between 0-5% of GDP)
Uganda	Weak Net Food Exporter (between 0-5% of GDP)
United Republic of Tanzania	Weak Net Food Exporter (between 0-5% of GDP)

Source: UNCTAD

*Key: Moderate Net Food Exporter (if trade balance is between 5-10% of GDP), Weak Net Food Exporter (if trade balance is between 0-5% of GDP), Weak Net Food Importer (if trade balance is between negative 0-5% of GDP), Moderate Net Food Importer (if trade balance is between 5-10% of GDP), and Strong Net Food Importer (if trade balance is more than 10% of GDP).*

Hence, the Weak Net Food Importing countries are Burkina Faso, Cameroun, Nigeria, and Rwanda while the Weak Net Food Exporting countries are Burundi, Ethiopia, Kenya, Madagascar, South Africa, Uganda, and Tanzania. The only Strong Net Food importing country is Gambia. The Strong Net Food Exporting countries are Cote d'Ivoire, Ghana, Guinea Bissau, and Malawi. The Moderate Net Food Importing countries are Benin, DRC, Malawi, and Senegal. For instance, increasing fertilizer use and agriculture intensification on existing farmlands could lead to an increase in the levels of productivity and production. Based on the proportion of trade balance to GDP, the countries were categorized as Strong Net Food Exporter (if trade balance more is than 10% of GDP).

Several points can be made straight from the above table 3. First, though food import increases with income level, with the rich importing eleven times more than the poor countries per capita, it is striking that on a per capita basis the proportions of average net food imports over GDP in all the groups, regardless of the income level, are relatively small and are strikingly similar (between 3 and 5 percent of GDP). the low amount (USD 17 per year) and low share (about 5 percent of GDP) of net food imports per capita in the lowest income countries in Africa suggest that the food-import dependency is not an insurmountable problem and can be reversed by any increase in productivity, which is still low and has a lot of potential for improvement, especially in cereal and livestock production.

### 2.2.3 EAC, SADC and COMESA trade agreements and food security

The EAC aims at widening and deepening co-operation among the Partner States in and among others political, economic and social fields for their mutual benefit. To this extent the EAC countries established a Customs Union in 2005 and a Common Market in 2010.

**Table 4 Changes in Intra-regional trade share 2000 and 2010**

	Country/Product	Regional bloc(s)	%ge destined for respective regional blocs		
			Maize	Rice	Wheat
1	Botswana	SADC/SACU	100 (100)	99 ↓ (97)	100 (100)
2	Burundi	COMESA/EAC	100 ↓ (98)	99 ↓ (17)	100 ↓ (7)
3	Comoros	COMESA/SADC	71 ↓ (16)	0.3 ↑ (26)	0.0 (0.0)
4	Kenya	COMESA/EAC	42 ↓ (29)	20 ↓ (11)	0.3 ↑ (1.0)
5	Madagascar	COMESA/SADC	98 ↓ (78)	0.04↑ (2.6)	0.0 ↑ (0.9)
6	Malawi	COMESA/SADC	100 (100)	14 ↓ (69)	16 ↓ (2.0)
7	Mauritius	COMESA/SADC	0.4 ↑ (12)	0.2 (0.2)	0.0 (0.0)
8	Mozambique	SADC	94 ↑ (99)	0.8 ↑ (4)	1.0 ↑ (1.1)
9	Namibia	SADC/SACU	95 ↑ (97)	71 ↑ (90)	28 ↑ (47)
10	Rwanda	COMESA/EAC	8 ↑ (100)	44 ↑ (78)	0.0 ↑ (12)
11	South Africa	SADC/SACU	73 ↓ (17)	1.2 ↑ (2.8)	3.0 ↑ (2.0)
12	Sudan	COMESA	0.4 ↓ (0.3)	89 ↓ (60)	0.0 (0.0)
13	Swaziland	COMESA/SADC/SACU	100 (100)	100 (100)	100 (100)
14	Tanzania	SADC/EAC	83 ↑ (94)	11 ↑ (96)	25 ↓ (4)
15	Uganda	COMESA/EAC	69 ↑ (93)	10 ↑ (96)	7.0 ↓ (3.0)
16	Zambia	COMESA/SADC	89 ↑ (98)	57 ↓ (36)	78 ↑ (100)
17	Zimbabwe	COMESA/SADC	92 ↑ (98)	22 ↑ (32)	20 ↑ (26)

Source: WB

In 2010 its share destined towards these two trading blocs had gone up to 98%. Thus, Zimbabwe's intra-COMESA and intra-SADC trade in maize during the period under review, based on this indicator increased.

Namibia, Rwanda, Tanzania and Zimbabwe are the three countries whose intra-regional trade across the three products increased during the period reviewed. These are the countries which have integrated the most as they managed to increase intra-regional trade amongst their respective regional trade blocs for all the three agrifood products than other countries. For instance, in 2000, Namibia traded 71 percent and 28 percent of total rice and wheat with SADC and SACU regions (the two regional blocs to which it is a member), respectively, but as of 2010, the respective shares have increased 90 percent and 47 percent. The next phase of the integration will see the bloc enter into a Monetary Union (whose negotiations started in 2011) and ultimately become a Political Federation of the East African States. The tabulated results show that, for example, in 2005, Zimbabwe's maize average trade which was destined to both COMESA and SADC regions accounted for 92% of its total trade.

### **2.3 The impact of WTO agreements on agriculture in the SSA region**

Because of trade openness there has been evolution in African trade policies and this has been marked by several trade agreements. In order to engage in more trade negotiations and improve the natural welfare of trade partners, it was necessary to formalize these trade policies. As a result many of the African countries are now engaged in not less than three formal trade agreements apart from their bilateral agreements with different nations either within the continent or outside the continent.

The 42 countries that are members of WHO out of a total of 53 countries have since the Uruguay round agreement on agricultural reforms in 1995 made a lot of commitments to see that they



have liberalized their agricultural trade in lowering tariffs and eliminating some of the import restrictions.

Africa now has as many as 12 official Regional Trading Agreements (RTA) with several countries subscribing to multiple RTA memberships (Koroma et al.2009). Even though they are members of WTO and RTA, most African countries soon after gaining independence from colonial rule, have gained access to European markets for some food commodities. Agreements such as the Lomé Convention, Cotonou accord, and recently the new Economic Partnership Agreements (EPA) have offered such preferential access, although the terms of reference have converged toward full reciprocity to both parties.

There has always been conflict between domestic agendas and international commitments in many African countries. Despite the attempt to liberalize trade, government policies such as export bans, subsidies and high tariffs are still widely used. Those countries that are often reluctant to forgo tax revenues and their desire to protect key stakeholders mostly have these inconsistencies. Conflicts may also arise due to various trade agreements such as agreeing to different and incompatible product sanitary standards, which in turn may confuse the decision makers on food production and market chains hence affecting the flow of food production and trade. Yet another drawback is that while the preferential trade agreements provide market opportunity, they may also lock input resources into the production and export of the few commodities selected in the agreement at the expense of the production and export of other promising agricultural and food products.

## **2.4 The relationship between trade liberalization and food security in SSA**

The link between trade policy (or liberalization) and food security is complex, and can be better assessed in country-specific or regional contexts. For food-importing countries, changes in trade policy orientation could have a significant impact on their foreign exchange earnings, and therefore have critical implications for their food security situation. In SSA, for example, the relative ease of collecting taxes on international trade as well as the lack of alternative ‘tax handles’ have increased governments’ dependence on taxes levied on imports and exports. This makes total revenues highly vulnerable to changes in the value of export earnings (UNCTAD 2003), which could jeopardize food security.

There are both negative and positive implications for rural incomes when trade policies are changed in the developing countries depending on how these changes affect the country’s main agricultural exports and the local domestic prices. In countries where these changes encourage economic activities in the tradable sector, they could in time be expected to lead to increased income for primary crop producers in rural areas, particularly if other government policies do not interfere with the transmission mechanism of border prices and if there is a positive supply response. The aggregate impact of changes in trade policy on the food security of a particular country would depend on the relevant strategy pursued, food self-reliance or food self-sufficiency.

Self-reliance in food is when a country pursues an externally oriented trade regime with a view to earning enough from its exports of goods and services to finance its food requirements. On the other hand, the food self-sufficiency approach entails the country meeting its food requirements—or a substantial part of it—from domestic production.

### **2.4.1 The advantages and disadvantages of Trade liberalization**

Following trade liberalization reforms in SSA, the exchange rate, inflation and interest rates stabilized, and by the end of 1995, economic growth had resumed. But lack of fiscal adjustment delayed the return to stability, inducing broad uncertainty, and hence reducing incentives for private sector, export-led growth (Levin, 1998).

Trade liberalization enables countries to specialize in those products that they have a comparative advantage on hence with international trade it increases the size of a firm's market, resulting in increased productivity and lowers average costs ultimately resulting to increased production. Efficiency of resource allocation is improved hence increasing the total domestic output of goods and services and promotes innovative production, marketing and distribution methods. The foreign currency gained from exports is used to imports goods that the country may be lacking.

Trade liberalization improves global efficiency in resource allocation, it is a way of delivering goods and services to those who need and value them most. Trade also allows consumers to benefit from more efficient methods of production which in turn reduces the cost of production and this leads to cheaper goods and services increasing the standards of living in a country. According to James Gwartney and Robert Lawson (2004) in their report, they have asserted that countries that have more liberal trade policies grow faster economically than those with more protectionist economies.

Having highlighted the benefits or advantages of trade liberalization we cannot forget that it also has its disadvantages. When countries are free to produce and sell freely there is a tendency of overproduction of certain farm products and this agricultural surplus is often dumped on world markets which depresses prices and undermines the unprotected farmers. As much as comparative advantage captures the potential provided by a country's resource endowment to

derive gains from trade, the disadvantage with this is that the multinational firms will exploit the small scale farmers and even some large producers in small countries. This happens because the large corporations control production (Burch D, Rickenson R eds.1996) where as there are the supper markets that control purchasing and often multinationals control the distribution chain between production and the finale sales.

It is however noted that trade liberalization within SSA could increase intra-SSA trade by 54 percent and account for over 36 percent of all the welfare gains that SSA stand to receive as a result of global trade liberalization. SSA is not poor because they lack access to the global market but due to political instability and lack of institutions and policies such as private property rights that are important in order for the market economy to flourish. Governments have complete control over the reduction of their trade barriers. They can free trade relations among SSA countries and the rest of the world if they are truly serious.

## **2.5 Chapter Summary**

Quit a good number of African National Societies have come together and engaged actively on the initiative to reduce food insecurity in Africa as a whole. Most of the SSA national societies have managed to implement food security programs that have been designed to improve the availability, access and consumption of food commodities in their communities.

As much as foreign aid is important in feeding the hungry and enhancing agriculture in Africa, food security cannot be left to the generosity of external partners. Food security is as important as national security of a country and therefore requires the same seriousness and resources. When citizens of a country die because of hunger or because of risking their lives while crossing from one country to another fleeing hunger, national security then loses its legitimacy.

With the backup from the African Union members, Africa needs strong food policies to be invested in institutions that promote agriculture. For instance the Comprehensive Africa Agriculture Program (CAADP) that was implemented by AU requires countries that subscribe unto it to spend at least 10 percent of their national budget on agriculture. CAADP also uses its resources to strengthen agricultural institutions and build teams of skilled personnel whose assignment is to move from one country to other sharing best agricultural practices with the relevant national authorities.

Finally the main causes of food insecurity in Africa and other developing countries is the inability of its citizens to access food due to its extreme poverty. Africa especially SSA has lagged behind in implementing measures or policies that helps in poverty elevation. Unless measures are taken, there are projections that show that this tendency may increase. On the other hand the increase of poverty cases in African have been triggered by the prevalence of HIV/AIDS, poor governance, civil war and strife, frequent drought and famine and the dependency of agriculture on the climate and environment.

However views still diverge on what really are the most important issues to be addressed at the country, regional or continental levels in order to reverse food insecurity. Such prioritization is needed because the resources for investment are scarce and the demand for action is quit pressing. Revisiting the causes of food insecurity in SSA is not only crucial to making a consistent up-to-date set of priorities on how to deal with trade and food production problems, it is also important in clarifying the arguments on whether food import is an anomaly to be reversed or an optimal solution towards achieving food security.

Finally although food imports have increased by an average of 3.4 percent per year, their composition has not changed for the last 30 years. The surge in imports of basic products highlights the contribution of food imports to ensure food security.

## CHAPTER THREE

### KENYA'S FOOD SUPPLY AND DEMAND

#### 3.1 Introduction

Kenya for a long time pursued the goal to attain self-sufficiency of the main food commodities that is maize, rice, wheat, meat and meat. This was achieved in the 1970s but it did not imply that every household achieved food security. The problems of food security cannot be tackled only from the production point of view without taking into consideration the demand side especially the poor in the community.

Kenya turned from pursuing food self-sufficiency goals in 1996 and adopted an outward strategy by identifying food that form the core of its current agricultural and food policies to include both export markets and home consumption. These are maize, wheat, meat, milk and horticultural crops as well as tea and coffee. This aimed at achieving several objectives including national and family food security, government revenue, foreign exchange, regional balance and employment. (Eicher, 1988; GoK, 1986).

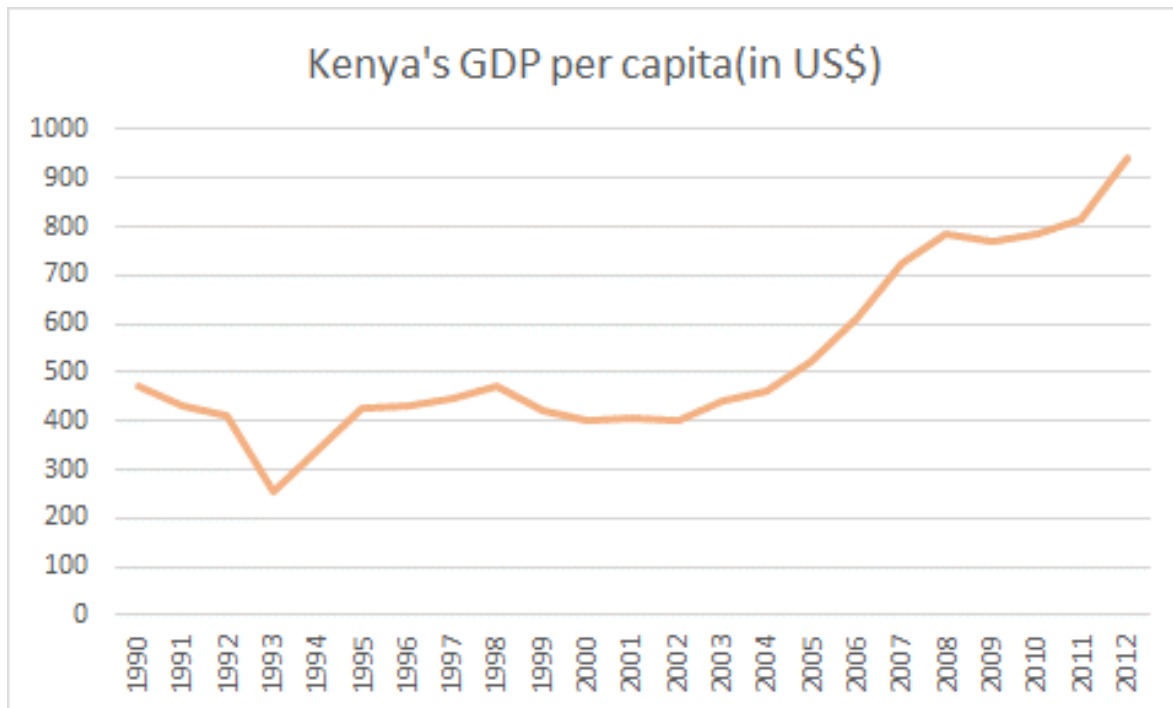
It is noted that 70 percent of the food consumed by the rural household comes from own production while 30 percent is purchased. On the contrary 2 percent of the food consumed in the urban areas comes from own production while 98 percent is purchased. About 50 percent of the households in the rural areas involve themselves in off-farm generating activities and at least 36 percent have someone from a family earning salary and leaving away from the farm (GoK, 2002).

Agricultural production in Kenya has been on the decline, but the trends in growth have not been uniform among commodities. These trends are attributed to a number of factors, including area expansion or contraction, yield changes due to climate factors, technological changes and prices.

While it is true that climate factors such as drought are important in explaining Kenya's agricultural performance, the main factors are policy related. Further, although some commodities like tea show a general increasing trend in production, this is attributed to increase in crop area rather than in productivity. This is an indication that Kenyan farmers may not be using new technologies or research recommendations. In fact, 1980s and 1990s witnessed an impressive annual growth rate of 3.5 percent which further declined to about 2 percent during 1994-2000 trading session. This low-growth rate pushed Kenya from being a self-sufficient country in most of its basic food staples to a notable net food importer leading to high-food insecurity challenges not only in Kenya but also within EAC region which heavily depends on Kenya's agricultural produce.

The major agricultural commodities produced in Kenya are food crops, industrial and export crops, horticultural products, livestock and livestock products. The main tradable food crops are maize, wheat and rice, while the non-tradable comprise of sorghum, millets, pulses (beans and peas), roots and tubers (cassava, sweet potatoes, Irish potatoes and yams). The most important industrial crops in Kenya are sugarcane, cotton, sisal, pyrethrum, coffee and tea. Others are tobacco, cashew nuts, wattle trees and a wide range of oil crops. These are produced for use by industries in agro processing, although some are exported as raw materials.

**Figure 6 Kenya's GDP per capita in US dollars (1990-2012)**

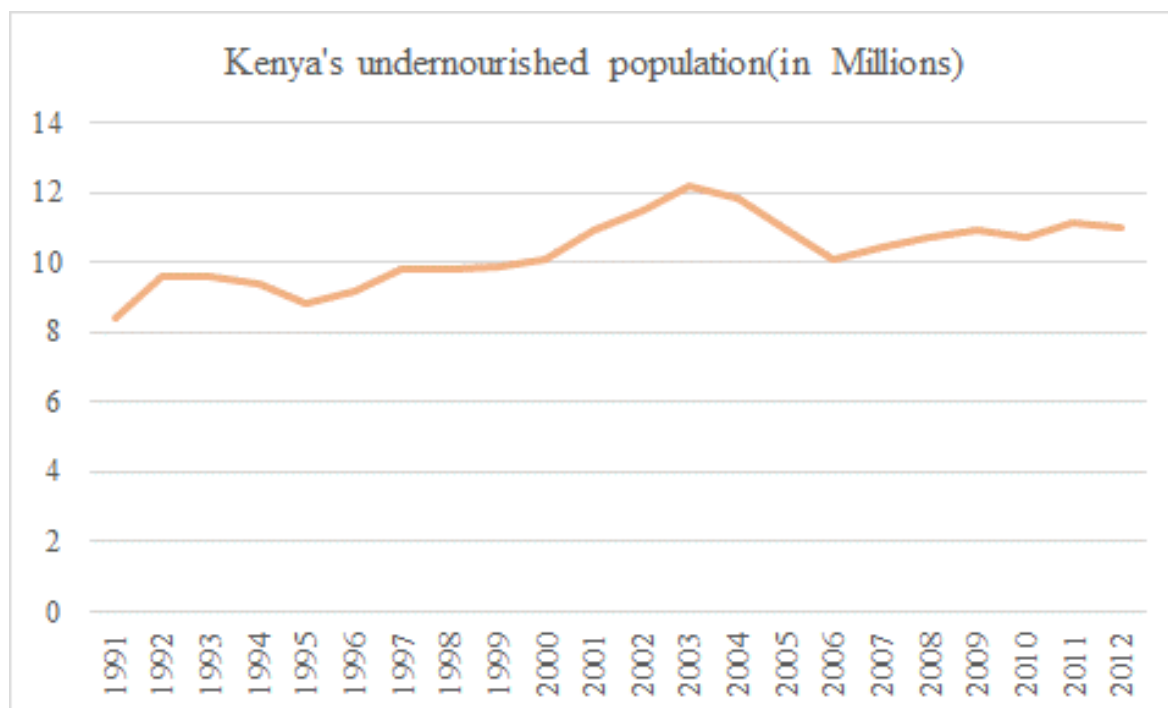


Source: KNBS/WB statistics

The farming population encompasses both small and large-scale operators. Small-scale farmers have land sizes of less than 2 ha. There are about 3 million smallholder farms in Kenya, 80 percent of whom have less than 2 ha, with women providing the bulk of the labor and heading about a third of the households. Small-scale farms account for over 75 percent of the total agricultural production and their share of marketed production has been increasing since 1980. The increasing role of smallholder farmers is an indication of their growing importance in the total agricultural production. In addition, smallholder farmers account for the production of about 70 percent of maize, 65 percent of coffee, 50 percent of tea, 80 percent of milk, 70 percent of beef and other meats, and over 80 percent of the production of pyrethrum and cotton. (Argwings Kodhek *et al*, 1998).



**Figure 7 Kenya's population which is undernourished (1991-2012)**



Source: FAO data

### **3.2 Agricultural resources endowment: Land**

The most important natural resource in Kenya is its land which is predominantly used for agricultural purposes. It is broadly classified into three large categories, Low, Medium and High potential land mainly based on rainfall received. The low potential areas cover about 80 percent of the total land area and receives an average of 612mm of rainfall annually, the medium potential area covers about 7 percent of the total land area and receives an average of about 735 – 857mm of rainfall annually, and lastly 13 percent covers the high potential area of the total land which receives an average of more than 857mm of rainfall annually.

**Table 5 Segmentation of agricultural land in Kenya ('000 ha)**

<b>Region</b>	<b>High potential</b>	<b>Medium potential</b>	<b>Low potential</b>	<b>Other land</b>	<b>Total area</b>
<b>Central</b>	909	15	41	1,318	3,882
<b>Coast</b>	373	796	5,663	8,304	2,623
<b>Eastern</b>	503	2,189	11,453	15,576	4,841
<b>Nairobi</b>	16	-	38	68	2,290
<b>North Eastern</b>	-	-	12,960	12,960	1,055
<b>Nyanza</b>	1,218	34	-	1,252	4,598
<b>Rift valley</b>	3,025	123	12,230	16,883	7,386
<b>Western</b>	741	-	-	823	3,532
<b>Total</b>	<b>6,785</b>	<b>3,157</b>	<b>42,115</b>	<b>56,914</b>	<b>30,207</b>

Source: KNBS

As seen in table 5 the Rift valley covers the largest area of the highest potential land for agricultural production, eastern has the highest medium potential area for agricultural production while eastern and north eastern have the lowest potential areas for agricultural production. The low potential areas are commonly referred to as the arid and semi-arid lands (ASALs) are dominated by nomadic pastoralists and the cover 50 percent of their land area, while ranching and other livestock keeping occupy about 31 percent of the area and the remaining area is used for irrigation for the production of crops. (Short and Kang'ethe 1990)

### **3.3 Agricultural resources endowment: Water**

The supply of water for irrigation, livestock and domestic use, Kenya has significant aquatic resources. There are about 330 gazetted water resources that serve about 80 percent of Kenya's population. In the low potential areas water availability is a constraint and this constitutes about one third of the country's total area. Irrigation is a major source of water for crop and livestock production in these areas, however the irrigation potential in Kenya remains largely unexploited in that out of the 539,000 ha of irrigable land that lies along river valleys only about 87,000 ha has been irrigated (GoK 1992)

Kenya's irrigation schemes are categorized into three major categories, national or public, private and smallholder schemes. The development of the national irrigation schemes started in 1946 when the then colonial government established the African Land Development Unit (ALDEU) that focused on irrigation as part of a broad agricultural rehabilitation programme. In order to pursue its objectives, the ALDEU started a number of irrigation schemes including Mwea and Hola along River Tana, Perkerra along River Kerio and Yatta along Athi River. Later, after independence in 1963 the government developed more new schemes at Ahero and West Kano along the Lake Victoria basin and Bura along the Tana River as shown in table 6.

**Table 6 Kenya's irrigation potential ('000 ha)**

<b>Basin</b>	<b>Irrigation potential</b>
<b>Tana</b>	205
<b>Athi</b>	40
<b>Lake Victoria</b>	200
<b>Kerio Valley</b>	64
<b>Ewaso Ngiro</b>	30
<b>Total</b>	<b>539</b>

Source: MoA

Currently the irrigation schemes are managed by the National Irrigation Board, which was established in 1966 through an Act of Parliament (Cap 347) to take over the activities of ALDEU. Table 7 compares irrigation development of these types of schemes by 1998. Although Kenya has a large amount of land with irrigation potential, only a small proportion (16 percent) has been exploited, partly because of the high costs of investment associated with the difficult land terrain, which requires pump-fed irrigation, a costly system compared with gravity irrigation systems.

**Table 7 Kenya's irrigation development by 1998**

<b>Type of scheme</b>	<b>Area(ha)</b>	<b>Crops</b>
<b>Public</b>	12,000	Rice, cotton, horticulture, maize seed
<b>Private sector</b>	23,000	Coffee, pineapple, horticulture
<b>Small holder</b>	34,000	Rice, maize, horticulture

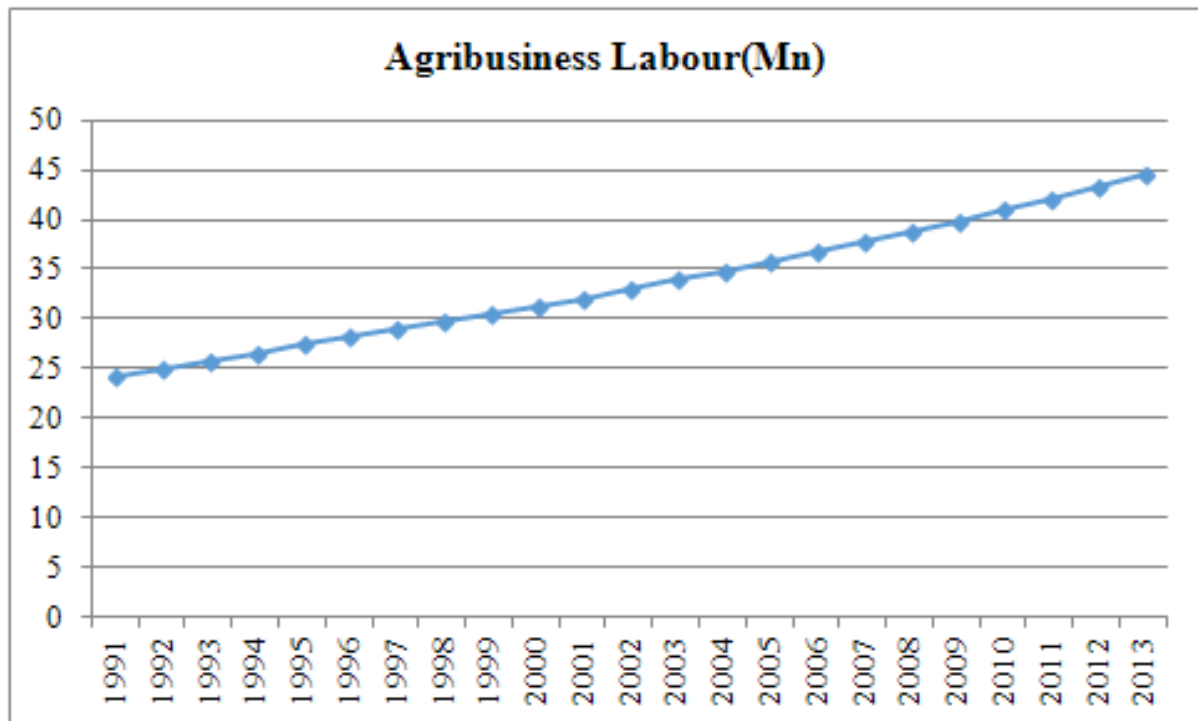
Source: MoA

Besides, government funding of new schemes has been discouraged by the poor profitability of existing public schemes and liberalization effects that have forced the government to cut down on support to agriculture.

### **3.4 Agricultural resources endowment: Manpower**

The population growth rate declined from 4.2 percent in 1980 to 2.1 percent in 2000. The average population growth rate was 3.4 percent per annum for the inter-census period 1979-1989, and 2.9 percent per annum during 1989-1999. Unfortunately, domestic food production in the 1990s, estimated at less than 1.5 percent per annum, did not match population growth. Urban population, which was only about 18 percent of the total population in 1980, grew to about 25 percent of the total by 2000. This has implications on agriculture, and particularly calls for increased food production and efficient food marketing arrangements to ensure adequate food supply to urban dwellers.

**Figure 8 Agricultural labour indicators for Kenya. (1990-2013)**



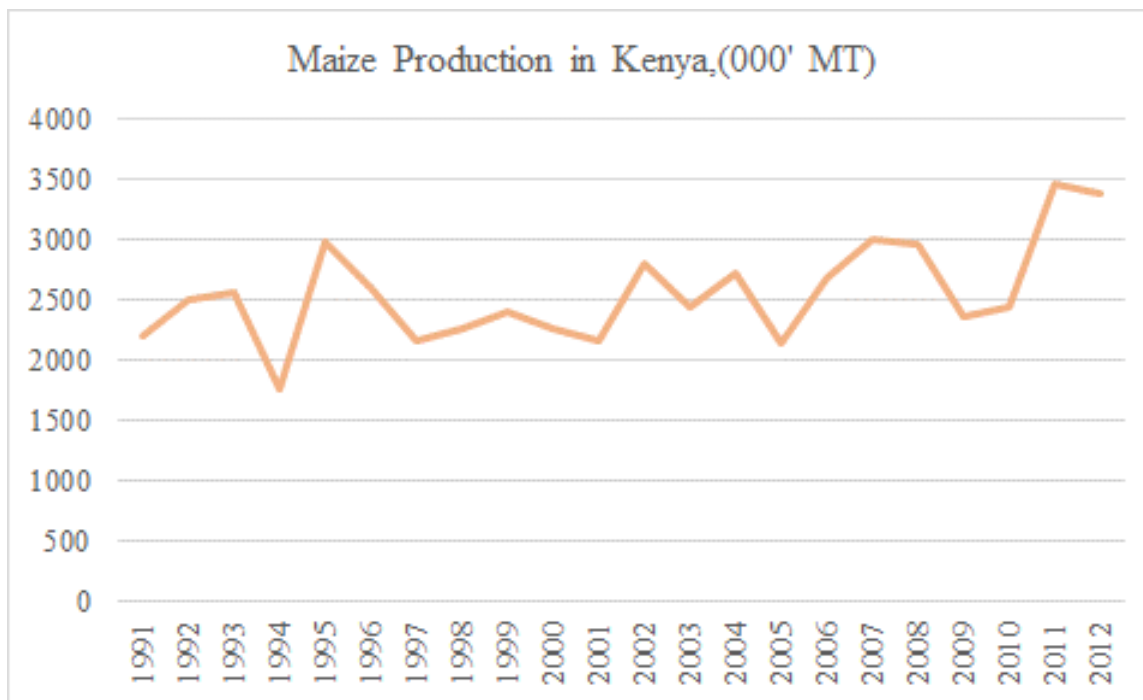
Source: WB

The 1999 population census indicated that over 50 percent of the population was under 15 years old, meaning that majority of the population was dependent on the working age group of 15-64 years. However, about 14.6 percent of the people in the working age group are unemployed and about 22.6 percent are full-time students (GoK 2002). About 74 percent of the labour force is self-employed in the rural areas, mainly in agriculture and informal off-farm work or in family businesses, the remaining 26 percent are in wage employment.

### **3.5 Agricultural production**

A country's food security is naturally linked and tied to the amount of food production be it staple food or cash crops intended for export which is then connected to the state of agricultural production. In Kenya maize is the main staple crop that 90 percent of the population depends on and is also a key component of feedstuff for livestock.

**Figure 9: Maize production in Kenya. (1991-2012)**



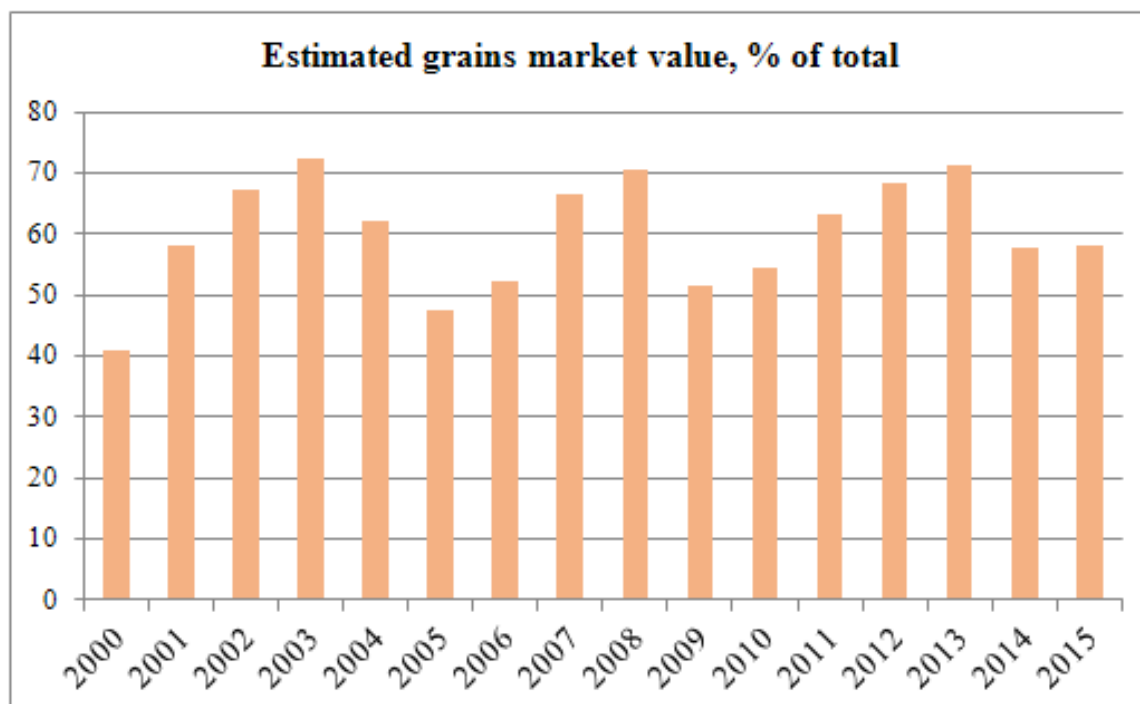
Source: NCPD estimates

Maize production as shown in figure 9 has not been steady having the lowest production in 1994 (1.6 million tonnes) and the highest production in 2011 with 3.5 million tonnes. This could be attributed to climate change since Kenya depends on seasonal rainfall for its crop production.

Other important food crops are wheat, rice, Irish potatoes, bananas, millet, vegetables and fruits. When the rains are normal the country produces 2.7 million tonnes of maize, 270,000 tonnes of wheat and 50,000 tonnes of rice. Other cash crops that contribute to food security are tea, sugar, coffee and cotton and their annual production is 294,000 tonnes of processed tea, 100,000 tonnes of clean coffee, 40,000 tonnes of cotton lint and 420,000 tonnes of sugar.

Figure 10 below shows the percentage of estimated grain market value in Kenya. This are maize, wheat, rice, beans, millet and sorghum. According to the World Bank the lowest value for these grains was in 2000 where the value was only 40 percent and the highest value was at 73 percent in 2003 while the current value stands at 57 percent having a projection of the same in 2015.

**Figure 10 Kenya's estimated grains market value (2000-2015)**

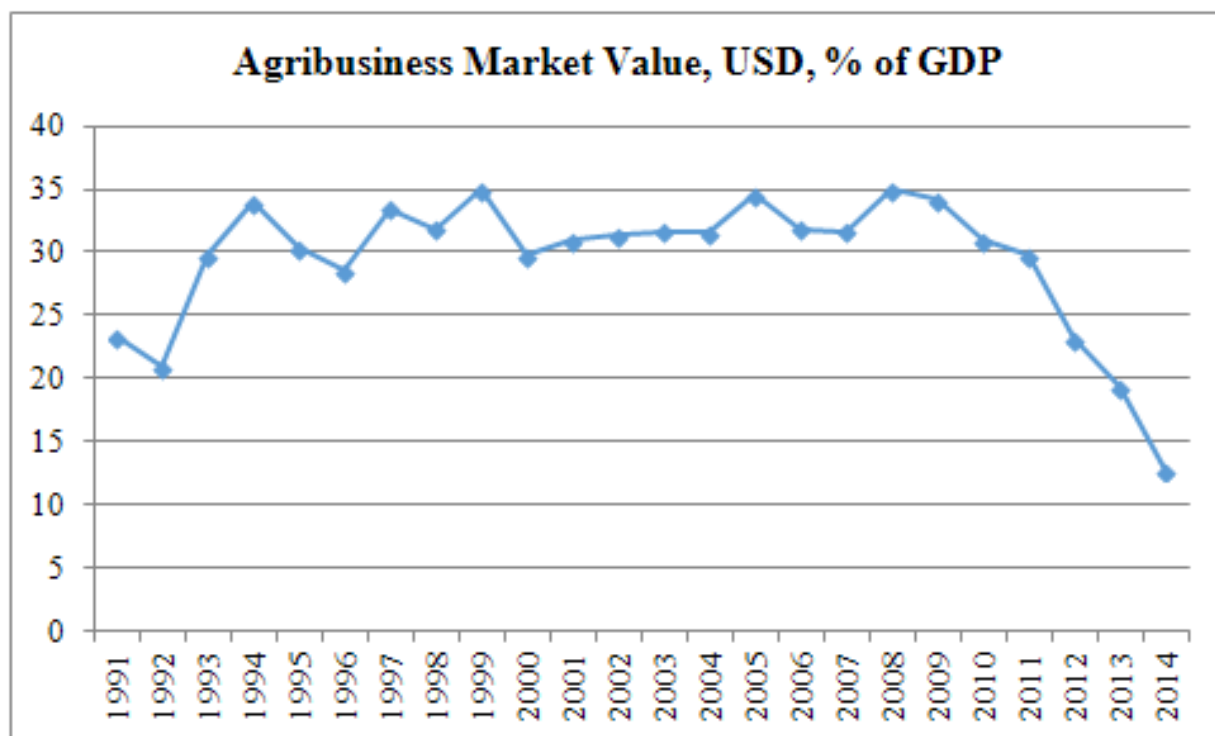


Source: WB

Because of the escalating input costs, the production of most of these crops is very high due to the transportation costs caused by poor infrastructure and low level of mechanization. Various inefficiencies in the agricultural sector and the implicit taxation makes the cost of production of food crops in Kenya high than other parts of the Africa. This has adversely contributed to the lagging behind of production creating a deficit in food consumption. Hence production of these food crops has fallen short of demand.



**Figure 11 Declining trends of Agribusiness value. (1991-2014)**



Source: WB/Business Monitor

The worst decline occurred for maize, rice, milk, cotton, sisal and coffee. The performance of the whole agricultural sector in the 1990s was dismal with annual growth in agricultural GDP averaging 2percent compared with an average of 4percent in the 1980s. Past growth in the sector can be categorized into two distinct phases (Kariuki, 2001): pre- and post- reforms periods.

Growth in 1963–1980 was characterized by heavy government and donor involvement through subsidization of services and inputs such as artificial insemination (AI), fertilizers, disease control, extension and marketing infrastructure. This was not sustainable, and since 1980 the sector has faced major crises arising from scarcity of funds, fluctuations in international prices and inflation that have caused declines in growth rates, which plummeted to all time low in the late1990s.

During 1980–1990, the sector had an average annual growth rate of 3.5percent. This impressive performance was attributed to three main factors: area expansion, use of improved production technologies, and a sound extension system. The performance of the sector has deteriorated in recent years, averaging about 2percent during 1994–2000. The low growth rate has changed Kenya from being self-sufficient in most basic staples to a net food importer. The poor performance of the sector, and therefore the general economy, is manifested by widespread poverty in the rural population.

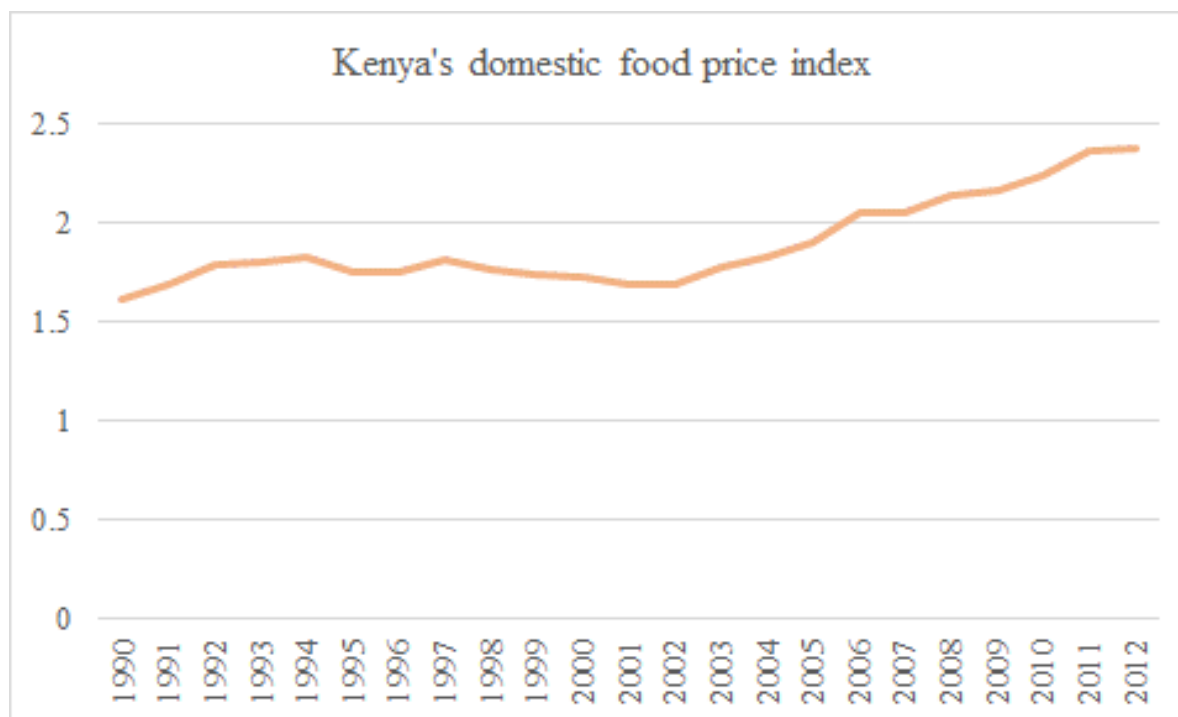
### **3.6 Food Production Trends and Price Analysis**

The prices paid to farmers for produce are an indication of market performance, since they are a major incentive for production. Real prices received by farmers for various commodities. The base year for the real price estimation is 1982. The trends show that prices fluctuated and that price instability for food and industrial crops was more pronounced during the 1990s than the 1980s. The price instability may be attributed to liberalization with its domestic policies (such as elimination of trade constraints) and world market price changes.

During 1980-2000, there was a mixed domestic production trend for major food commodities such as maize, rice, milk, cotton, sisal and coffee as well as tea in Kenya. The average growth in agricultural GDP was 4 percent in the 1980s compared to dismal annual growth of 2 percent on average in the 1990s.

According to FAO and world bank in figure 12 Kenya's domestic food price index has been on the rise since 2002, the reasons for this could be crop failure, low levels of world cereal stocks, population growth, rising oil prices and urbanization. The post-election violence in 2007 caused an unprecedented price increase that fuelled food price volatility. In 2009 food prices kept increasing throughout 2010 and reached its peak in 2011.

**Figure 12: Food price trends for Kenya (%) (1990-2012)**



Source: FAO/WB estimates

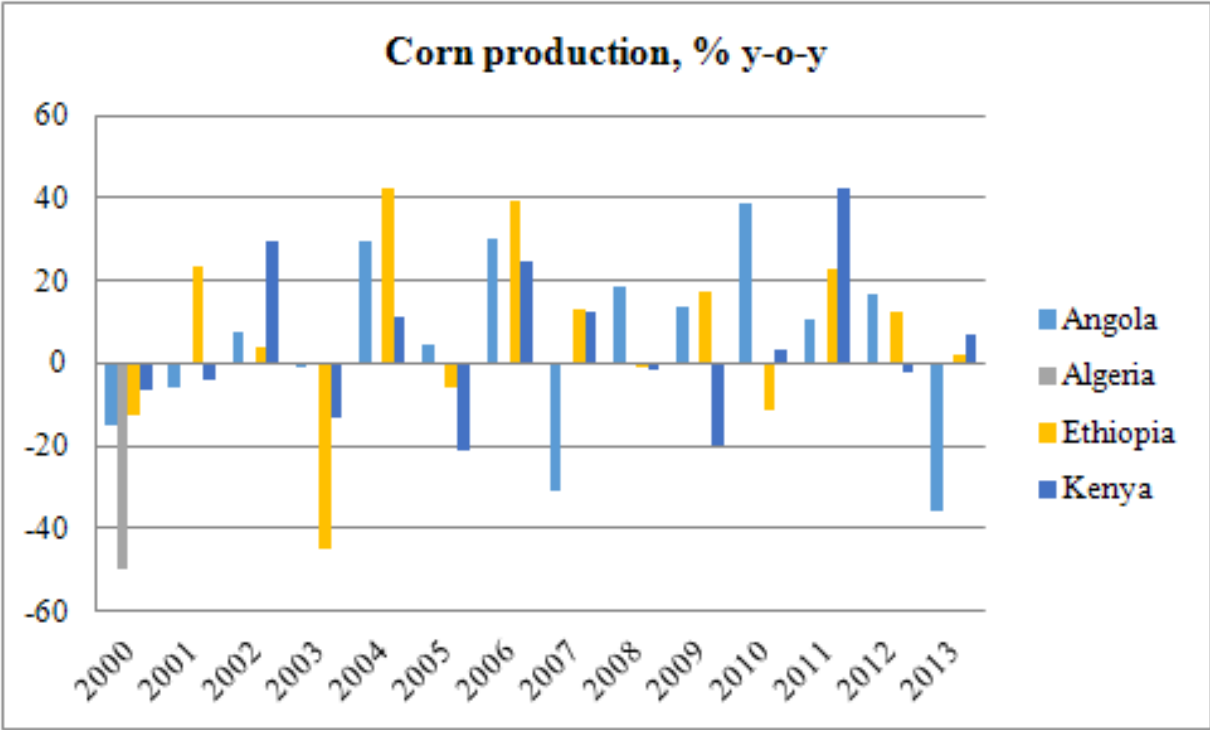
### **3.7 Kenya's Agricultural supply response**

The mixed trends in agricultural exports may be attributed to market access limitations and supply constraints in the country. Market access is explained by trends in export flows to the major market destinations. The major destinations of Kenya's exports during 1980-2000 were the East African Community (EAC), the EU and COMESA. The EU was the dominant market for the exports until 1997, when the EAC took over, and it continues to dominate. This may have resulted from the regional trade agreement formed by the three East African countries.

Kenya's pricing policies have favoured the production of coffee and tea vis-a-vis maize. The maize producer price was fixed by the government and increased at about 10 percent annually to correct the low prices set in the early 1970s. After reaching parity with world prices, it has subsequently been adjusted annually to remain by and large in line with international prices. The

high returns to coffee and tea producers in Kenya also reflect the premium earned on world markets for Kenya's high quality Arabica coffee and small-holder tea.

**Figure 13 Comparing Kenya’s corn production and other selected economies (2000-2013)**



Source: USDA

Kenya’s trade with the COMESA region excluding EAC countries has been increasing in recent years. The data also show that Kenya’s trade has increased for other countries in Africa, possibly as a consequence of regional integration efforts. However, increase in trade with the rest of the world other than the EU has been marginal. A significant decline of about 9 percent has occurred in trade with EU since 1990. This is an indication that market access for Kenyan products outside Africa has not been favorable in recent years. In the past 15 years, Kenya’s exports have been dominated by agricultural commodities while imports were mainly capital and manufactured goods. Also the share of agriculture in terms of export earnings for the similar period averaged 55 percent with major revenues coming from Tea, Coffee, pyrethrum, and

horticultural products though coffee was main cash crop for Kenya until 1988 when tea took the lead.

**Table 8: Kenya’s GDP growth and Agricultural sector contribution**

	GDP(US\$ billion)	GDP per capita(US\$)	Real GDP growth (percent)	Agriculture share of GDP (percent)
1990	12	504	4.1	28
1995	12	433	4.3	25
2000	12	399	0.6	24
2005	19	547	6	26
2010	32	808	5.6	24

Source: IMF data

According to Mwega (2000), performance of traditional exports excluding tea and crude vegetable materials averaged a low of 7.4 percent compared with the non-traditional exports which grew at 20.1 percent during the 1990s. Mwega 2000 asserts that, performance of non-traditional exports is attributed to the removal of restrictive trade policies by importing nations under the Lome Agreement such as the EU states.

On the other hand, food import levels for most products in Kenya were quite low during the 1987 and 1991 marketing years on account of equal measure of domestic food production and consumption levels. Nyangito (2004) notes “since 1992, food imports have been quite high due to low domestic productions. Also, most food imports were from EU, USA and Australia as they appear highly subsidized which poses a risk to local production of the agricultural products

leading to price fluctuations in the local market.” It is imperative to note that cheap imports may increase food accessibility at a lower cost but excessive imports derails growth of agricultural exports reducing revenues to ease food purchases and hence food security.

### **3.8 Food demand and Nutrition.**

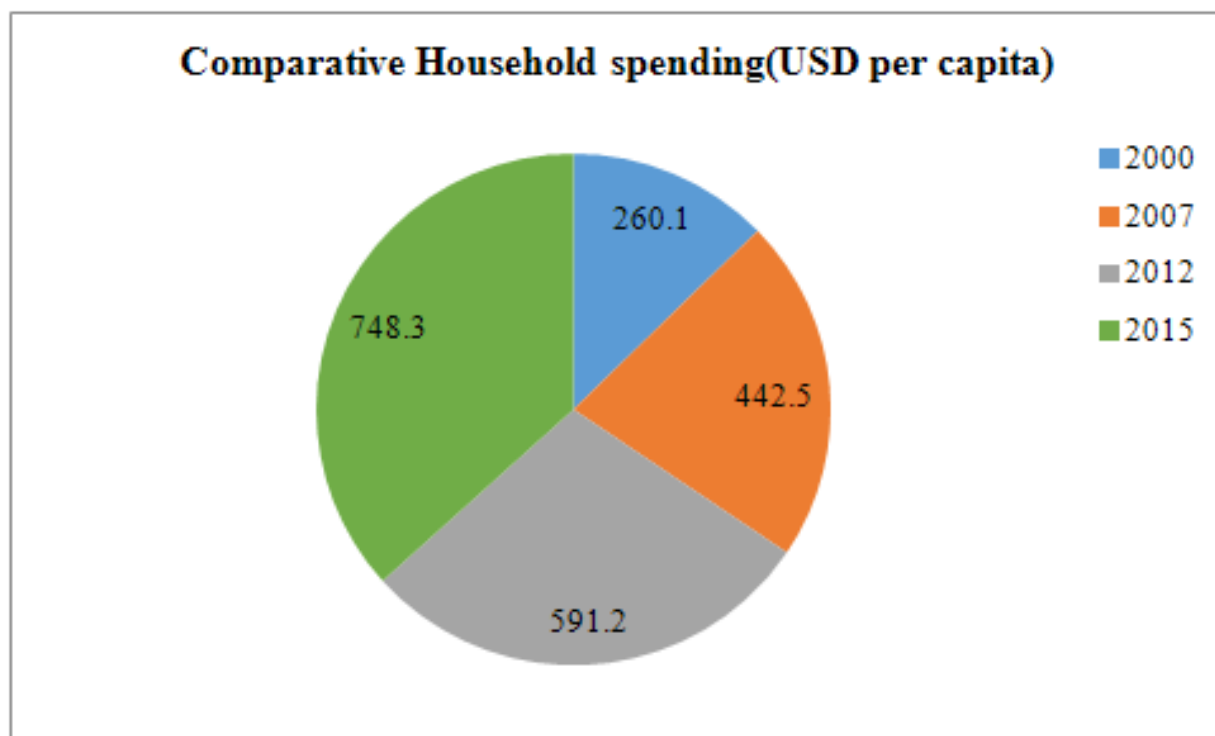
The high rate of population brought about by increased life expectancy has increased the demand for food hence caused the local staple food production to decrease. In 2001 the dietary energy supply (DES) was 2117 kcal/per capita /day, which is not sufficient to satisfy the populations energy requirements of 2209 kcal/per capita/day (FAO 2004a), this means that because of the inequality of dietary energy supply in the country a good percentage of the population cannot be able to satisfy their energy requirements.

We have about 44 percent of the Kenyan population chronically undernourished. This is a reflection that there is low per capita income that limits access to food hence the current demand falls far short of the real food needs. But apart from the low energy intake there is a widespread of iron deficiency anemia and other nutritional problems caused by poor hygiene and lack of clean water (Kilungo.J.K 1992).

About 75 percent of Kenya’s population lives in rural areas and depends on agriculture for livelihood. Most of the people are concentrated in the high and medium potential areas of central and western Kenya. This area records the highest cases of malnutrition because the high rate of population affects farm size per family which means low food production per family which in turn affects quality of food intake.

Chart I below according to world Bank shows Kenya’s household spending which has continues to increase since 260.1 percent to a projection of 748.3 percent by 2015, this means because of low agricultural production households are spending more to purchase basic food stuffs.

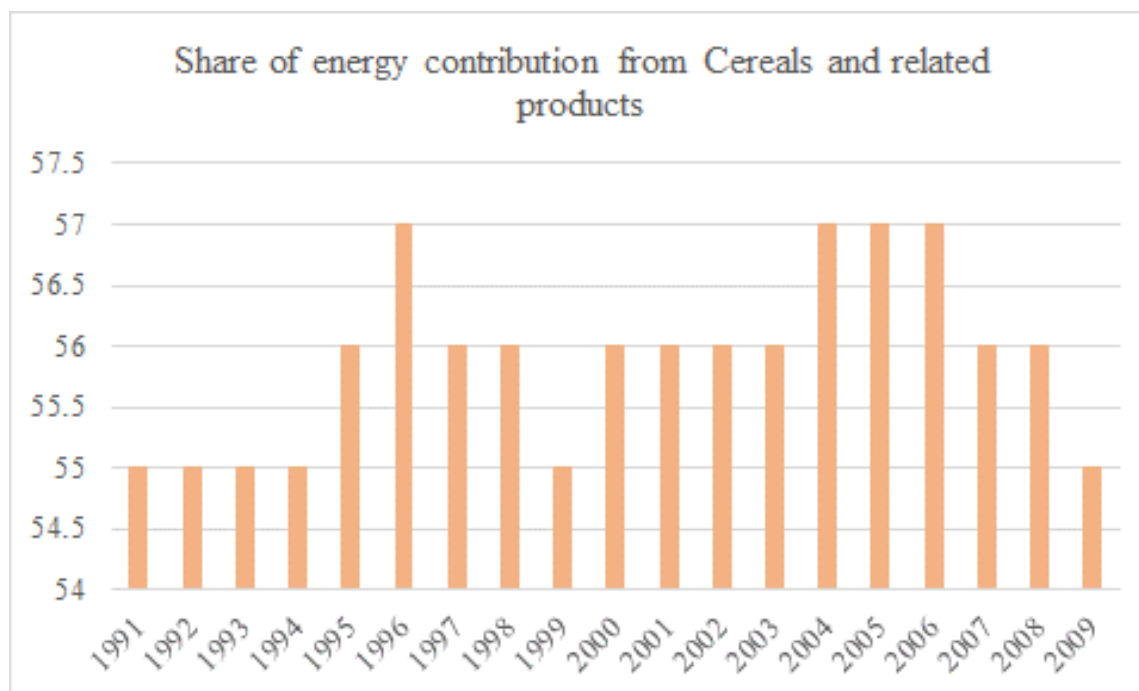
**Figure 14. Kenya's household spending**



Source: WB

The main sources of food security for the rural people are subsistence food production and purchases using farm and off-farm income. On the average, 70 percent of the food consumed by rural households is purchased and 30 percent is derived from subsistence production. The impact of technological factors is shown by change in yields. Yields of most crops have stagnated since 1980, although some increases have occurred for a few crops such as tea and wheat. A common feature for all crops is periodical fluctuations in yields. Different levels of crop husbandry practices, fertilizer and chemical use, quality of seed, production techniques and climate conditions also explain the fluctuations in yields. Maize production has seen the worst declines in yield (compared with yields in the 1960s) owing to persistent droughts and poor adoption of recommended husbandry practices. Nyangito and Kariuki (2001), contends how a number of countries still use indicators such as Status Quo gap and nutrition gap to measure the extent of their food security levels.

**Figure 15 Energy contributions from Cereals. (%) (1991-2009)**



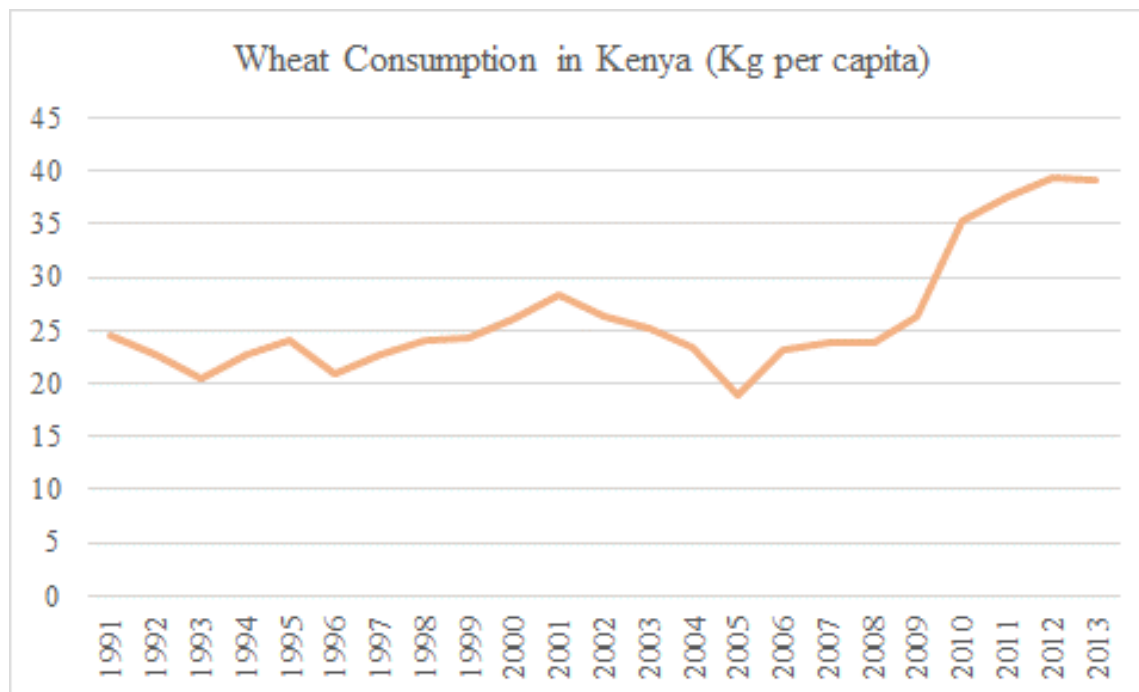
Source: FAO

On the other hand, countries use nutrition gap indicator to measure the difference between anticipated food supplies and the amount of food necessary to support minimum per capita nutritional standards. Research done by FAO in figure 14 is a clear indication that dependency on cereals and related products for energy has sharply declined since 2007 from 56 percent to 55 percent in 2009 meaning people are looking for other sources of energy apart from cereals.

Dependency on starchy foods is responsible for the high malnutrition levels in the country, particularly in rural households. The poor try to cope with food stress by borrowing, begging or relying on relief food, especially in drought-prone areas. As a result, redistribution of income and food, and remittances are important features in the food strategies for the poor. However, these strategies are not sustainable. The poor are concentrated in marginal or overexploited high-potential agricultural land. This means that strategies that will enhance agricultural production could also support the food security status of the rural poor.



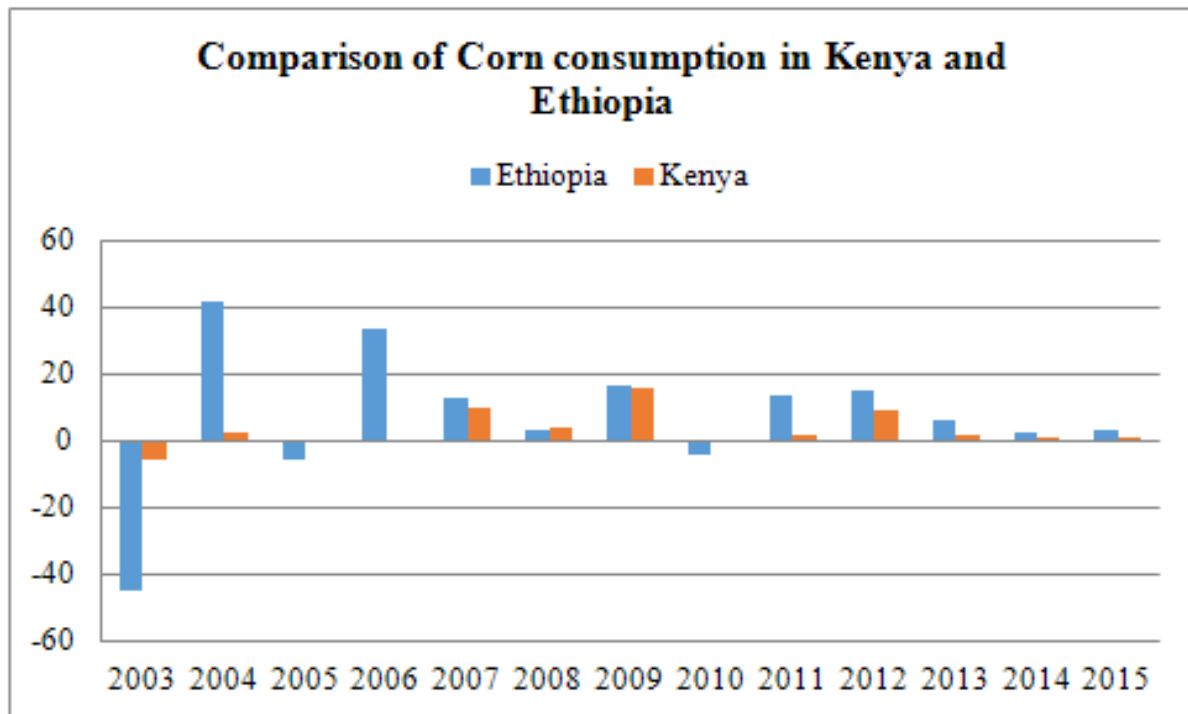
**Figure 16: Wheat Consumption trends in Kenya (1991-2013)**



Source: USDA

Most of the wheat produced in Kenya is for export but as the population increases we see an increase in wheat consumption in 2006 at 24 percent after it had hit its lowest in 2005 at 19 percent. There has been a steady increase up until 2012 and 2013 when the consumption was at 29 percent. According to Kariuki (2001) the Status Quo indicator gives the criteria to evaluate the safety net programs whereas the Nutrition gap indicator demonstrates an assessment of comparative well-being.

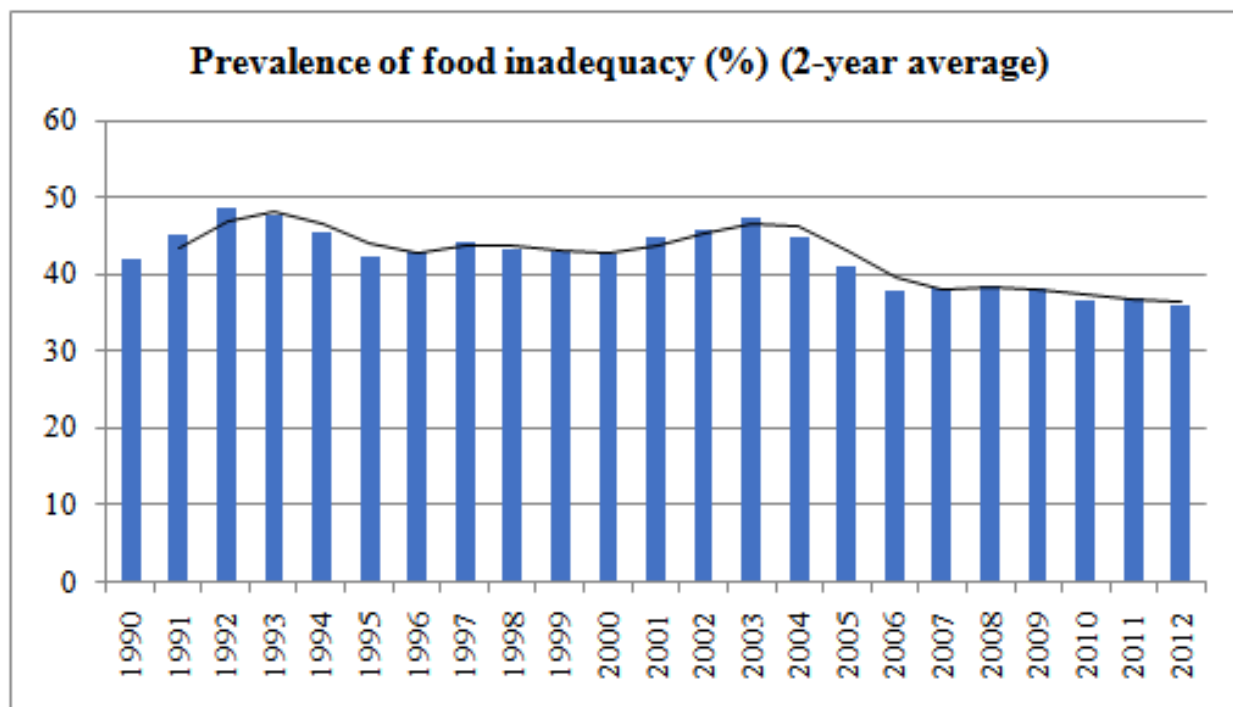
**Figure 17: Corn consumption in Kenya and Ethiopia (2003-2015)**



From above its evidential that corn consumption has been dropping significantly on account diversification of consumer basket. In fact, substituted food such as cassava, have found their access to Kenya market especially the rural economy.

Ethiopia's higher consumption for corn than Kenya as shown in figure 16, may explain the reason farmers in the country are motivated to plant the crop. Though, consumption doesn't necessarily show the demand trends for the crop in question.

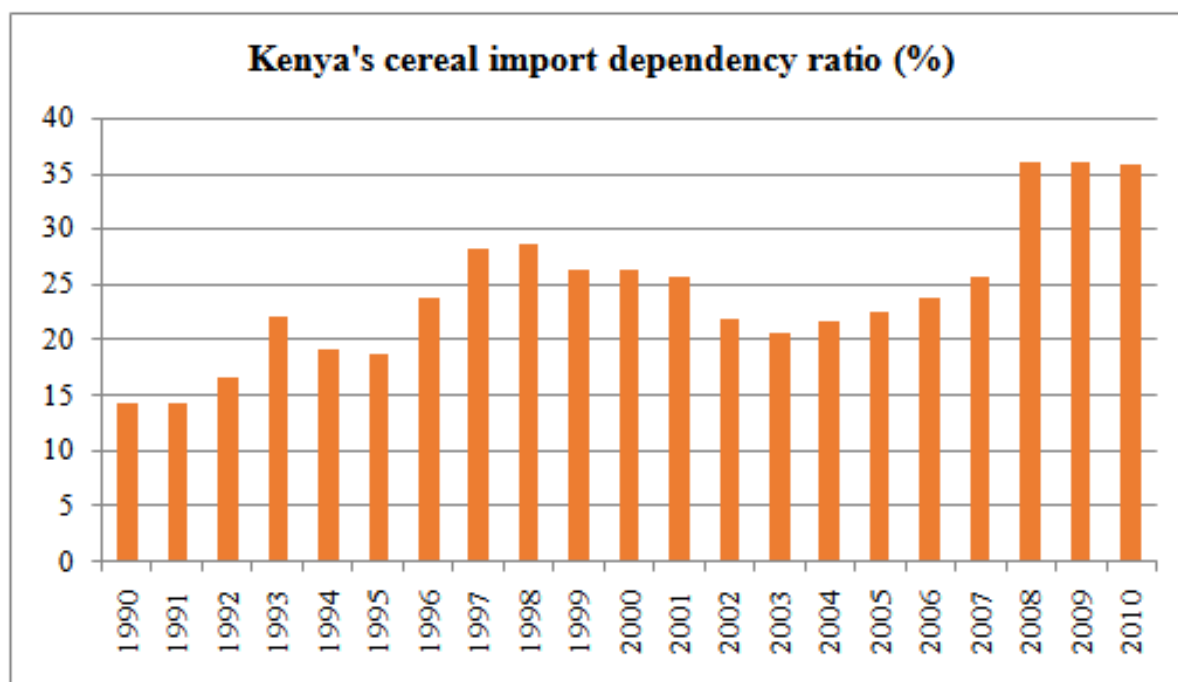
**Figure 18: Food inadequacy levels in Kenya (1990-2012)**



Source: FAO/WB statistics

According to FAO and World Bank statistics, the levels of food inadequacy in Kenya keep increasing. There was better production in 1992 and 2003 with 48 percent and 47.5 percent respectively. Since 2007 Kenya has experiences a severe food deficiency that has been inadequate to feed its population with 2010 and 2012 experiencing the worst shortages of 36 percent. This a clear indication that food imports will go a long way in subsidising its food production in order to be able to meet its demand and nutritional status of its citizens.

**Figure 19: Cereal Import dependency ratio in Kenya**



Source: FAO data

In fact, food insecurity was high in 2003 but later levelled out in 2006-09 as food import went up. According to FAO (2003) between that period, cereal import dependency ratio went up by nearly 9-12 percent from 22.6 percent in 2005, by 2010 Kenya's import on cereals had risen to 35.2% which depicts an increase in demand. This was a clear indicator of how food insecurity level can be impacted by imports drive.

### **3.9 Causes and challenges of food security.**

There are various causes and challenges associated with food security in Kenya. These include political, policy, social economic and environmental factors.

*Political causes:*

The tribal clashes of 1992-1993 and the post-election violence in 2007 made areas in the country with very high agricultural potential decline in production making these areas vulnerable to food insecurity. Political instability in food producing areas tends to reduce farming activities even after the conflict has been resolved causing food shortages. When there is insecurity in the neighbouring country that supply food to Kenya during drought periods also affects food production.

*Policy causes:*

Kenya's food policy since independency was centred on improving domestic supply of basic food stuffs especially grain crops, but poor implementation of these policies by the government has lowered the incentives to produce by the farmers. Market liberalization policies led to increased taxes affecting farmers, lack of support policy for private traders has limited their engagement in food distribution and the general decline in agricultural production has led to reduced food availability and decreased income which has made the country more vulnerable to food insecurity (Nyangito 1998).

Policies that were meant to increase the general productivity have on the other hand contributed to the decline in production because these policies were mainly price oriented and did not consider non-price factors like infrastructure, institutional framework and the development of the private sector (Mbithi 2000).

*Environmental causes:*

The main environmental factor behind insufficiency of food in Kenya is lack of consistent rainfall caused by climate change. The potential of agricultural production is dictated by the amount of rainfall received and the seasonality of the same. Food production in Kenya is rain-fed that is why low production due to drought leads to increased food fluctuations which in turn

affects the purchasing power of household leading to food insecurity. During the rainy season most parts of the country experience floods which also affect production.

### **3.10 Chapter summary**

Production of maize, wheat and rice has declined from the high levels of 1987, showing mixed trends in growth. Policy shifts, particularly liberalization of markets and prices which affected producer incentives, are partly responsible for the changes in the supply of maize, wheat and rice. However, traditional cereals were not part of the commodities that the government controlled and set prices for before the reforms. The price incentives to produce traditional crops were based on 'policy spill over effects' from schedule crops. If producer prices for maize in particular were high, most farmers switched to growing maize at the expense of traditional crops, and vice versa. This reduced per capita supply of the traditional cereals when producer prices for schedule crops (maize, wheat and rice) were more favorable. But even when producer prices for maize were low, production of traditional crops has been low due to factors such as poor consumer preference, which limits their market, therefore generating a dampening effect on their production.

This means that most rural households are net food purchasers. On average, Kenyan households spend about 54 percent (56 percent in the rural and 41 percent in the urban areas) of their income on food (GoK, 1994). The fact that rural households spend more of their incomes on food is a reflection of their low income levels, following Engel's law. It is also evident that rural households do not produce enough food for their domestic requirements. Their dependence on agriculture for household incomes exposes them more to risk in so far as food security is concerned.

However, due to the poor performance of the agricultural sector, most rural households rely on off-farm incomes, which unfortunately have also increased at a relatively lower rate than

consumer prices. The declining household incomes and dependence on food purchases observed in Kenya explain the increasing food insecurity for most households. Although food supplies may be available through imports, households are unable to purchase the food because their incomes are limited, particularly income from agriculture and agriculture-related activities. The majority of the rural poor also spend most of their incomes on starch-based foods (cereals), which are relatively cheaper than protein- or fat-based diets.

## CHAPTER FOUR

### POLICY REFORMS AND FOOD IMPORTS IN KENYA

#### 4.1.0 Introduction

The relationship between trade related policy reforms and food security is of vital concern not only to Kenya but other developing countries as well. They are an integral part of a number of policy measures put in place in order to correct perceived imbalances in an economy and/or achieve particular objectives.

Economic and trade policy reforms pertain to the shift from government control of economic activities and trade to a liberalized economy. On the basis of this definition, economic policies in Kenya since independence can be grouped under two distinct categories. First are policies under which direct government control and participation dominated economic activities, including control of foreign exchange, investment and production activities (era of government controls, 1963 to 1980). Second are policies under which government participation in economic activities was reduced and market forces and private individuals or organizations became the major players in agricultural production, marketing and investment. Although market liberalization started in 1980 under SAPs, it was not until 1993 that rigorous implementation of related policy reforms started. For this reason, the policy reform period considered in this study starts in 1993. Implementation of the reforms before 1993 was accompanied by considerable official ambiguity and covert and overt resistance, but this changed from the year 1993 when the reforms were implemented with greater commitment (Ikiara *et al*, 1993; Nyangito, 1999).



#### **4.1.1 Policy reforms and Food security**

The policy reforms have affected Kenya's economy in several ways. They were first detailed in the sessional Paper1 of 1986 on 'Economic management for renewed growth' (GoK, 1986). The policy reforms discussed in this paper included; monetary and fiscal policy reforms, removal of import licensing and foreign exchange controls, price decontrol on all commodities, adoption of outward oriented policies and privatization of public enterprises.

Kenya's external trade is mainly dependent on agriculture therefore trade policies have a major impact on agriculture. The main objective of forming the policies was geared towards domestic protection with the aim of encouraging import substitution and government revenue generation. To achieve this objective the government took the following steps, licensing of importers, high tariffs and bans on exports and imports and also quantitative restrictions on imports. The implementation of these policies were strengthened in 1993. (Nyangito, 2004).

Following the policy reforms in 1993 on the food subsector producer prices went up on all commodities except for rice which was still under the control of the National Irrigation Board (NIB). These reforms however led to fluctuations of production of food commodities like maize, rice, wheat, sugar and milk, hence the liberalization of trade of these commodities has resulted to increased imports of foodstuffs while importation of wheat, rice and sugar have been on the rise since then. (Nyangito 1998). The policy reforms have also encouraged the participation of private firms and individuals to trade in food products.

Trade policy will automatically have implications on food security through income and expenditure in both rural and urban settings and there will also be an impact on government revenues which will in turn impact household's levels hence affecting household access to food through household incomes directly or indirectly.

According to Nyangito (table 9) most of the policy reforms have already been implemented but although they have generally helped in bringing about macroeconomic change growth in the agricultural sector has been less successful.

**Table 9: Specific policy changes for various agricultural commodities**

Commodity	Policy before change	Policy after change	Date of change in policy	Implementation status
Coffee and tea	Auctioning marketing and No retention of foreign Currency proceeds by exporters	Auctioning using foreign currency and retention of proceeds by exporters	November 1992	Completed, 1995
Sugar	Producer prices controlled And control of imports	Minimum prices Established variable Duties used to protect Local producers	1994	Done, 1994
Maize	NCPB only importer and Controller of producer And consumer prices NCPB maintained Strategic reserves	Private sector to import but variable duty imposed and minimum (floor) prices based on NCPB prices foreign Exchange reserve of USD 60 million established	1992  1994	Done, 1993  varies annually
Wheat	Producer prices controlled And NCPB only importer	Minimum (floor) prices based on long term Import parity prices and Imports controlled using Variable duties	1994	Done,
Milk and Dairy products	Price controls and KCC Monopoly in processing And marketing Kenya diary Board a Monopoly for imports	Prices decontrolled and private sector participation in processing and marketing Liberalized imports but duties to control imports	1992  1992	Done, 1993  Done 1993
Cotton	Domestic marketing, trade and price controlled	Complete deregulation of domestic Marketing and pricing	1992	Done, 1993

Source: Nyangito (2001)

**Tariff levels:** Reduction and quantitative restrictions in tariffs started in 1980 as part of market liberalization efforts and by 1991 the protection and restriction was only for purposes of public safety and health. Because this is a policy to reduce and harmonize the structure of tariff levels, the average tariff rates both unweighted and weighted have fallen since 1990. The import tariff rates were reduced from 30 percent in 1984/85 to 23 percent in 1991/92 and about 18 percent in 1999. While the number of tariff bands were reduced to 3 percent in 2001 down from 7 percent in the 1980s, this also saw the tariff dispensation decrease at the same time tariff levels were more than 70 percent but by 1999 they had reduced to 35 percent.

When Kenya became a member of WTO, she bound its tariffs at 100 percent for all its agricultural products and 62 percent for all its fish and committed to eliminate all non-tariff barriers on agricultural imports. Since then the tariff levels have significantly reduced for most of agricultural commodities and processed products from between 40 and 60 percent to about 35 percent. (WTO, 2000) When there is need to protect the industry the suspended duties are sometimes reintroduced although tariff levels have never reached the bound ceiling set. Sugar has had this effect where the tariff rates plus the reintroduced suspended duties were 100 percent in 2011. The suspended duties were needed so as to reduce the level of sugar imports which were seen to be cheaper than the locally produced sugar.

**Non-tariff barriers to trade:** The non-tariff barriers mainly used in Kenya relate to customs procedures, import prohibitions and licensing, anti-dumping regulations, and use of standards. Imports to Kenya are required by custom procedures to be of the value of less than USD 5000, for free-on-board goods that are more than the said value or more should be subject to a compulsory quality inspection and price comparison. Certified invoices are produced by the importer if goods are suspected to be under-valued. If merchandise is shipped without pre-shipment inspection (PSI) a penalty of 10 percent ( 20 percent for motor vehicles) of FOB value

is charged. A PSI fee is included and an import declaration fee of 2.75 percentages that is paid on all merchandise imported to Kenya irrespective of their value.

Import licensing regime for all goods was abolished in 1993 but there are a list of products subject to import prohibition, control and restriction that exist only for the purpose of health, moral security and environmental reasons. Under the international conventions Kenya applies no trade sanctions either internationally or nationally except those endorsed by the UN Security Council, COMESA and OAU or other regional organizations where it is a member

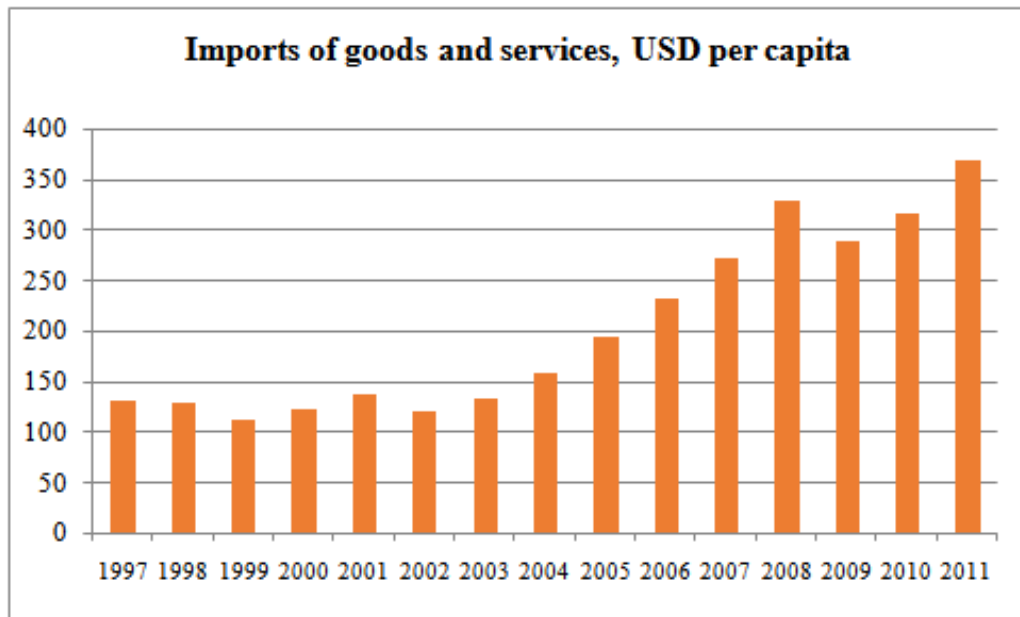
Kenya opened up in earnest in 1993 with the abolition of trade licensing requirements and its foreign exchange control. The official exchange rate under the dual exchange rate system was finally abolished in 1993 paving way for a freely floating exchange rate. All capital accounts and all current account restrictions were virtually lifted in 1993-94, the tariff dispensation was lowered and the tariff structure harmonized.

Trade costs whether linked with trade policy interventions or not have implicit and explicit taxing and subsidizing effects on local producers of traded goods. (Ellis F. 1992) The local producers whose products compete with imports can raise their prices without losing competitiveness as a result of anything that will raise the trading costs of the imports, whether it be non-tariff barriers or high tariff against high international shipping costs or against competing imports or high costs of moving imports from the port to domestic Centre consumptions or moving imports through the port. The explicit and implicit taxation effects are not identical whether for production for the export market (export production) and production for local market (import production), the key message is that the higher the trade costs, the greater the disincentive to produce exports for the export market and similarly the lower the trade costs the greater the incentive to produce imports for domestic markets. Krueger. O. Schiff.M. Valdes (1988).

#### 4.1.2 Food import capacity and food security

From the figure below (figure 19) it's evident that imports of goods and services started rising steadily since 2002 until 2008, the decline in 2009 was due to the post-election violence that rocked the country meaning that stability of a country contributes a great deal on its development. After which there has been a steady increase in imported goods and services, this indicates that there has been demand on equal measure.

**Figure 20 Kenya's Imports of Goods and services (1997-2011).**



Source: BMI

Agricultural imports are dominated by food items, particularly cereals and dairy products. The levels of food imports for most commodities were low between 1987 and 1991, since food from domestic production almost matched domestic consumer needs. However, imports have been high since 1992 as a consequence of the decline in domestic production. The fluctuations in import levels are a reflection of fluctuations in domestic production. The largest amounts of food

imports are from developed countries (EU, USA and Australia). Food production in these countries is highly subsidized, which poses a threat to domestic production of food commodities. This is particularly so when the imports dampen domestic producer prices, therefore reducing incentives to producers. On the contrary, cheap imports may allow consumer to access food cheaply.

**Table 10: Imports of major food commodities, 1980-000 ('000 t)**

Year	Maize	Wheat	Rice	Sugar	Dry milk
1980	323.0	48.5	1.2	3.1	12,888
1981	77.3	49.2	4.6	2.1	11,210
1982	89.0	139.3	11.9	2.2	4,210
1983	0	81.9	44.8	2.4	4,532
1984	405.4	149.9	0.5	1.7	11,108
1985	125.5	14.8	0.6	39.1	6,677
1986	0.7	115.3	61.7	126.3	1,508
1987	0	217.9	39.2	49.1	545
1988	0	75.6	10.0	42.0	82
1989	0	123.5	30.0	80.0	15
1990	0	322.6	28.0	64.0	48
1991	0	242.6	61.2	59.7	65
1992	414.9	100.8	58.9	153.8	829
1993	12.9	314.4	37.2	184.8	747
1994	650.4	353.1	93.5	256.1	2,319
1995	12.0	364.0	30.7	244.0	679
1996	10.8	486.9	47.9	65.8	309
1997	1,101.1	388.1	62.4	52.4	863
1998	774.0	478.9	62.8	186.5	2,500
1999	73.5	579.0	53.4	55.6	2,694
2000	409.4	636.0	105.8	91.6	1,749

*Source: Kenya Statistical abstracts (1980-2001) and authors' calculation*

While Kenya depends on imports especially for food stuff like wheat, rice, maize and sugar imports of the same significantly increased during the reform period (table 11).

**Table 11: Imports of foodstuffs, animal and vegetable oils and fats (t)**

Year    Foodstuffs    Animal and vegetable oils and fats    Total

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1987    324.9            135.7                                    460.6

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1988    110.8            135.2                                    246.0

1989    208.7            151.1                                    359.8

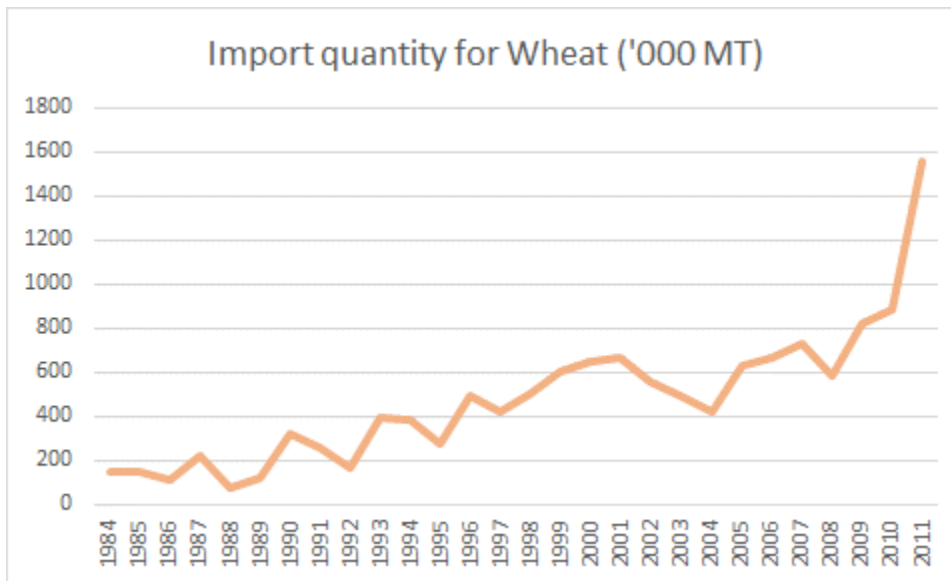
1991    305.9            178.8                                    484.7

1992    578.9            197.9                                    776.8

*Source: FAOSTAT*

However as shown in table 10 the capacity to import declined because of the poor performance of exports which means that the country spent a large portion of its export earnings on food imports hence incurring high import bills which affected the government's ability to be able to finance other socioeconomic development activities which are also important in poverty reduction.

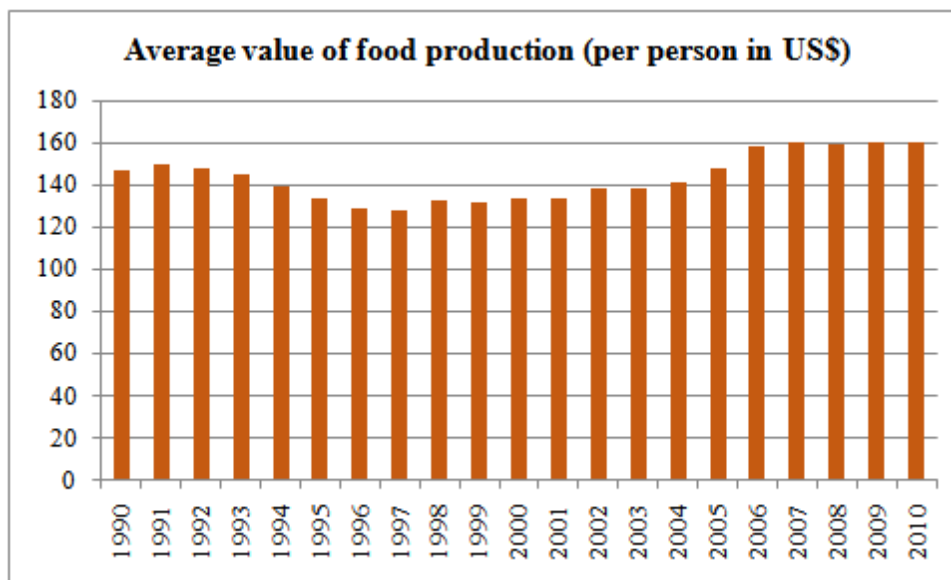
**Figure 21: The growing trend of Wheat importation in Kenya**



Source: FAO

According to FAO findings the importation of wheat for example, (table 20) there has been major fluctuation until 2008 when the imports started a steady increase. It can be assumed that the rest of the major food commodities like maize, rice and sugar took the same trend.

**Figure 22: Kenya's decreasing food production per capita (1990-2010)**



Source: FAO/WB



### **4.1.3 Impact of Policy Reforms and market liberalization**

Although market liberalization policies had an objective of increasing the general productivity and efficiency in production, they have contributed to a decline in food production in Kenya. This came about when too much government interventions in agriculture started to be viewed as having a negative impact on agriculture. This when policy makers from major international institutions in 1080s especially World Bank and IMF hand in hand with the local technocrats and policy makers called for the government to reduce its involvement in productive sectors, this was therefore the beginning of the liberalization paradigm, a shift towards liberalized market policies in Kenya.

But it was not until 1993 that the government actually became committed to implement these policies (Ikiara, Juma and Amadi, 1998; Nyangito 1998) while liberalization was supposed to ensure availability of food to all Kenyan citizens, hunger still exists and sometimes escalates to the point of death even in areas where food is expected to be sufficient. Furthermore marketing and pricing liberalization of food lead to producer price increases for most commodities, this was due to the removal of price controls and response to market forces as determined by supply and demand. Consequently the motivation of growing food crops dropped because prices did not give adequate incentives for increased production of crops. Furthermore an analysis shows that trade liberalization has led to an increase in import of food stuffs and a reduction of government to support agricultural production.

Because agricultural production in Kenya has declined causing food shortage, low income from cash crops, unemployment and poor nutritional status, it has attracted the attention of researchers, policy makers and development partners who feel that this trend must be reversed if Kenya is to attain sustainable development. Public investments should be channelled into

agriculture in technology, human capital and institutional innovations among others. (Eicher, 2001).

Trade policies that were originally meant to safeguard local agriculture and domestic manufacturing sector from adverse competition, the regime instead unfairly taxed agricultural exports thus denying the country of vital foreign exchange with which it could use to access food imports.(Nyangito 1999). Even after liberalization cheap food imports continue to suppress domestic food prices which in turn affect food production. Some factors that slow down the effect of liberalization include competition in land use due to increased population has reduces the area dedicated to farming, and also the government has underinvested in infrastructure which could have been vital in encouraging cross border trade in food commodities hence an added step to food security.

#### **4.1.4 Food Security through Agricultural reforms.**

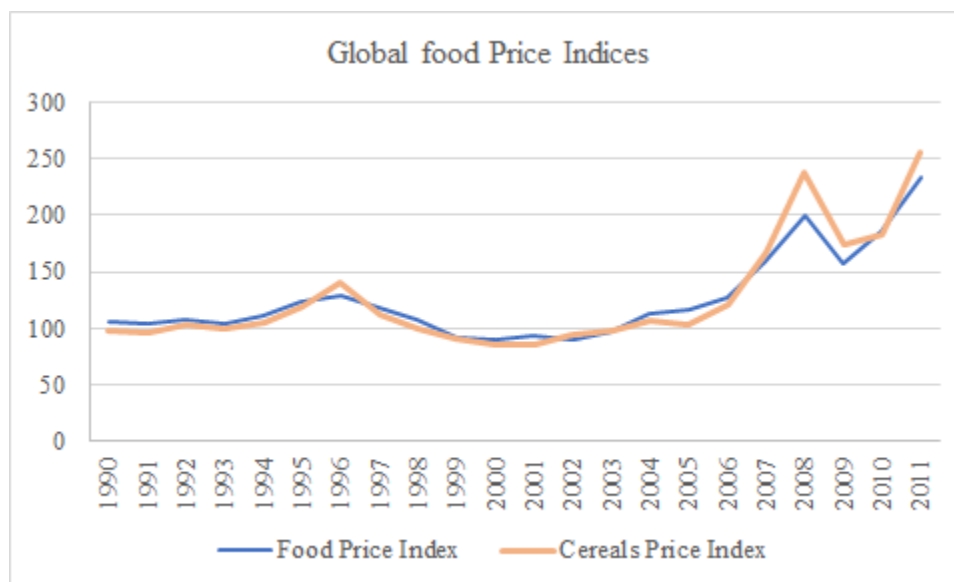
Agriculture was affected by the policy reforms that were introduced in 1980s just like any other sector in the economy. Prior to the reforms small scale farmers produced and marketed their own commodities through organized cooperative societies whose main function was sourcing for production inputs and marketing of their commodities. There were also government run farmer organizations that supported production and marketing of major commodities. These organizations included Kenya Cooperative Creameries (KCC) for milk, Kenya Tea Development authority (KTDA) for tea, National Irrigation Board (NIB) for irrigated crops, National Cereals and Produce Board (NCPB) for cereals, and Horticultural development Authority (HCDA) for horticultural crops.

The government had also put in place boards that regulated production and marketing of all important commodities, they included, Pyrethrum Board of Kenya, Sisal Board of Kenya, Coffee Board of Kenya, Kenya Sugar Authority, Tea Board of Kenya, Kenya Dairy Board, Kenya Meat

Commission and The Cotton Board of Kenya. All these bodies put together could not achieve their objectives, for example NCPB was responsible in ensuring price stability and food security in cereals, this was not always the case because operational costs were always high, it also had managerial problems in the board which led to inefficiencies in service delivery to the farmers and payment delays hence becoming unreliable. As a result cereal production in surplus areas often fell below government prices while those produced in deficit areas prices rose beyond government controlled prices.

The major concern in the policy reforms was to liberalize markets which were controlled by the government. They were to remove the monopoly of the government on pricing, marketing and distribution of farm inputs as well as ending associated price controls. Even though these reforms have helped bring about macroeconomic changes in general, they have failed to enhance growth in the agricultural sector. This is because there is no proper sequencing in the implementation of the same and also there is lack of institutional framework to make sure that the policies are properly implemented and evaluated.

**Figure 23: The growing global food prices (%) (1990-2011)**



Source: FAO data

Global food price indices indicates that since 2005 the prices were at 100% and 104% respectively and food prices have steadily increased except there was a fall in 2009-2011 but shot from 170% to over 250% an indication that food prices in the global market are increasing annually.

#### **4.1.5 Chapter summary**

A key question for Kenyan policy makers is ‘why has substantive trade policy reform in Kenya produced to date a limited response in terms of the growth and diversification of exports?’ This chapter has concentrated on a number of issues relevant to answering this question and to the formulation and implementation of future policy, the issue of export market access, possible further trade policy reform and complementary measures to support trade policy reform. All are shown to be necessary, but probably not sufficient to turn Kenya into a competitive, export-oriented economy.

While employment may have increased in exporting sectors such horticulture and EPZs, the quality of jobs is still an issue— casual workers often operate without job security, low pay and non-wage employment benefits, with implications for poverty. Arguably, trade should promote human dignity besides simply spurring economic growth. At the same time, the high cost of living particularly in the urban centers (food, housing, transport, utilities) leads to pressure for higher real wages in Kenya, which is a disincentive for foreign direct investment in exporting sectors. The other challenge is the footloose investors with limited forward and backward linkages. With trade liberalization, service sector has become the key source of employment, accounting for over 50 percent of total wage employment in Kenya.

There has been some recovery (following the post 1993 fallback) in the decade since the late 1990s, but import growth has in general outstripped export growth. The resulting deterioration in the trade balance is not necessarily a source of concern for an economy in need of investing at this stage of the development. What is of greater concern is the rather limited response of exports in growth and diversification has been experienced following the substantial trade reforms.

The trade liberalization process is not necessarily complete, though the pace of further liberalization will be dependent on the capacity of the economy to adjust and to develop further export capability.

## CHAPTER FIVE

### FOOD IMPORTS AND AID DEPENDENCY:

#### 5.0 Introduction

In this chapter the researcher seeks to understand the various implications of food imports and food aid. Depending on food imports or aid has a lot of challenges that deserve a closer look. Those that are opposed to food aid have various arguments. First, it will have saviour effects on food production locally because it will lead to low prices hence discouraging the farmers which in turn will reduce motivation to invest in production and so increasing demand for the commodity and this will increase dependency on food imports and food aid. Second, there is unpredictability on the amount of food aid because this is at the discretion of the policy makers in the countries where it is imported from and if supply doesn't meet the demand then there could be starvation and death in the recipient country. Third, if the aid is given in a form of a loan then it could increase the countries' debt burden. Fourth, food aid sometimes is a method of disposing food surplus from the donor countries which may compromise with the quality of food and nutritional standards (e.g the yellow maize in Kenya). Finally food aid is likely to reduce the urgency of the country in solving its food security problems as there is always availability of food from donors (Iseman and Singer, 1977. Ndegwa 1989).

**Table 12 Food aid 2001 to 2003 (tonnes)**

<b>Year</b>	<b>Cereals</b>	<b>Processed cereals</b>	<b>Pulses</b>	<b>Oil/fats</b>	<b>Blends</b>	<b>Total</b>
2001	228 961.63	7 532.21	24 306.18	14 431.87	27 171.91	<b>306 643.10</b>
2002	13 355.69	9 850.94	14 676.24	2 775.05	1 917.09	<b>42 575.01</b>
2003	24 491.63	4 969.37	1 965.69	815.56	2 409.81	<b>34 781.45</b>
<i>Average</i>	<i>88 936.32</i>	<i>7 450.84</i>	<i>13 649.37</i>	<i>6 007.50</i>	<i>10 449.60</i>	<b><i>127 999.85</i></b>

**Source:** WFP

According to world food programme data between 2001 and 2003 Kenya received the largest amount of food aid in 2001 after which there was a steep decline in the same in the subsequent years.

### **5.1 Impact of food import/aid on nutrition and food security:**

In areas that are frequently afflicted by drought, floods, displacement by civil war, fires and crop failure or feeding refugees, food imports or food aid is an important source of food security that runs on a short term basis for vulnerable groups. Food aid improves the nutritional status of poorly fed people giving them sustainability to be productive in their agricultural production activities. There are many organizations that have been involved in school feeding programmes like World Food Programme (WFP) that have projects conducted by Catholic Relief Services in Turkana, Kitui, Machakos and Baringo which have also seen an improvement in school enrolment.

### **5.2 Impact of food import/aid on domestic production and prices:**

Food imports are known to reduce domestic food prices and discourage farmers from production. In Kenya food imports before 1990s was low and so the food production was high and prices were reasonably good for farm producers but after 1992 imports started going up and has caused

a decline in domestic production in cereals, dairy products, rice and sugar. The highest amount of food imports come from Australia, EU and USA.

When cheap food imports come to Kenya they force the domestic food prices to decline reducing the market for domestic agricultural products hence leaving the local farmers in the agricultural sector without any source of income unless they turn to other productions in order for them to survive (Nyangito, 2001). This in turn causes unfair competition to domestic producers, at times the imported food is much cheaper than the locally produced food making the domestic producers unable to offload their produce in the local market because the prices offered are not able to cover their production costs (Schuh, 1982).

In a country where most of its citizens depend on the agricultural sector for their livelihood and is a source of employment, food imports distorts the labour market due to its low pay less people will be devoted to agricultural production (Togaro, 1960). The labour is therefore shifted to non-agricultural sectors where they can get higher pay for them to buy the cheap imported food creating a high level of rural to urban migration. It also shifts demand towards imported non-traditional foodstuff.



**Table 13 Imports of major food commodities 1980–2000 ('000 tonnes)**

Year	Maize	Wheat	Rice	Sugar	Dried Milk
1980	323.0	48.5	1.2	3.1	12 888
1981	77.3	49.2	4.6	2.1	11 210
1982	89.0	139.3	11.9	2.2	4 210
1983	0.0	81.9	44.8	2.4	4 532
1984	405.4	149.9	0.5	1.7	11 108
1985	125.5	14.8	0.6	39.1	6 677
1986	0.7	115.3	61.7	126.3	1 508
1987	0.0	217.9	39.2	49.1	545
1988	0.0	75.6	10.0	42.0	82
1989	0.0	123.5	30.0	80.0	15
1990	0.0	322.6	28.0	64.0	48
1991	0.0	242.6	61.2	59.7	65
1992	414.9	100.8	58.9	153.8	829
1993	12.9	314.4	37.2	184.8	747
1994	650.4	353.1	93.5	256.1	2 319
1995	12.0	364.0	30.7	244.0	679
1996	10.8	486.9	47.9	65.8	309
1997	1 101.1	388.1	62.4	52.4	863
1998	774.0	478.9	62.8	186.5	2 500
1999	73.5	579.0	53.4	55.6	2 694
2000	409.4	636.0	105.8	91.6	1 749
<i>Average</i>	<i>213.3</i>	<i>251.5</i>	<i>40.3</i>	<i>83.9</i>	<i>3 122.7</i>

**Source:** Kenya Statistical Abstracts (Various years)

Kenya currently imports rice, wheat, maize, sugar and milk powder and in turn receives food aid from donor agencies EU and USA in a form of development assistance and also as relief food during times of emergencies (Kilungo, 1992).

Looking at table 13 food imports for most commodities was low between 1987 and 1999, this is because there was food availability from the domestic producers. But from 1992 imports have been quite high with an exception of 1994 and 1995 this is due to the decline in domestic production hence the fluctuations in the import levels are a reflection on the fluctuations on the domestic production. Most commodities showed an increase in the twenty year period except for

maize which had no imports in 1983 and for the period 1987 to 1991 because there was sufficient production locally but imports were high during the drought year 1984 as well as 1992, 1994, 1997 and 2000.

### 5.3 Impact of food imports/aid and Foreign Exchange:

Food aid acts as substitutes for commercial food imports hence providing net foreign exchange transfer that can be used to generate income development which is generated from the local sale of programme food aid to help in the development of infrastructure, extend rural health and educational facilities and also invest in agricultural research. (Ndegwa,1998, Barret, 1998 and Gillis et al 1992). As long as foreign exchange is available especially in times of shortages food aid would benefit the vulnerable groups and the poor by lowering the prices and increasing food supply.

**Table 14 Value of Agricultural Imports and Exports (Primary and processed crops and livestock)**

Year	Agricultural Imports	Agricultural Exports	Imports %
1990	221,135	687,497	32.2
1991	181,331	640,585	28.5
1992	334,747	812,331	41
1993	262,264	975,263	26.9
1994	434,911	1,044,306	41.6
1995	317,776	1,152,419	27.6
1996	372,751	1,213,649	30.7
1997	549,968	1,156,599	47.6
1998	558,532	1,383,613	40.4
2000	500,359	1,021,487	49
2001	548,704	1,049,771	52.3
2002	390,104	563,073	69.3

Source: FAOSTAT

The volume of imported food items has been on the rise in Kenya in the recent years. The role of food imports in releasing the land used for food production so that it can be used for cash crop production may be a better idea for a developing country like Kenya because it has comparative advantage in cash crops and also needs foreign exchange for economic development.

## CHAPTER SIX

### DATA ANALYSIS, CONCLUSION AND RECOMMENDATIONS

#### 6.1 Introduction

The results and discussions of this study have been divided into six major sections. The first section provides the sample population captured and their response rate, 2nd section looks at demographic feature with special interest on the level of awareness, the 3<sup>rd</sup> section evaluates agricultural supply in relation to food security, while the fourth looks and interaction between market access, integration and food security. The fifth section evaluates on policy reforms in Kenya while the last section is evaluating the data results.

##### 6.1.1 Response Rate

Nearly 31 respondents who included key stakeholders, decision makers and potential investors into Kenya's economy with specific interest in agricultural sectors were interviewed. Out of the target 37 interviews the response rate was 83.7percent which was quite interesting bearing in mind the sector is one of the busiest in the whole economy.

**Table 15 Response rate for the key informants**

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	17	54.8	54.8	54.8
Valid Female	14	45.2	45.2	100.0
Total	31	100.0	100.0	

The survey shows that 45.2percent of the respondents were female while the rest (54.8percent) where males indicating a strong consideration of gender and related issues which is key within the agricultural sector specially in developing economies.

### 6.1.2 Demographic Information

Almost 29percent of the respondents had acquired a bachelor’s degree in their area of their respective studies. 32.3percent of the respondents were diploma holders; only 3.2percent of the population sample had a primary level education with nearly 5 years of experience in their field of expertise.

**Table 16 Level of Education for respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Primary	1	3.2	3.2	3.2
Secondary	4	12.9	12.9	16.1
Diploma	10	32.3	32.3	48.4
Valid Bachelor Degree	7	22.6	22.6	71.0
Postgraduate	6	19.4	19.4	90.3
Other	3	9.7	9.7	100.0
Total	31	100.0	100.0	

The study further shows that postgraduate, bachelor’s degree and diploma holders were more than 50percent of the surveyed sample making a pass on minimum requirement for education as

set by the United Nations education sector. 41.9percent of the respondents came from public firms, 22.6percent for private firms. Only 16.1percent was local NGO while international NGO was represented by 12.9percent. Other faith based organizations comprised only 6.5percent of the respondents.

**Table 17 Type of Organizations**

	Frequency	Percent	Valid Percent	Cumulative Percent
Public	13	41.9	41.9	41.9
Private	7	22.6	22.6	64.5
Local NGO	5	16.1	16.1	80.6
Valid International NGO	4	12.9	12.9	93.5
Other	2	6.5	6.5	100.0
Total	31	100.0	100.0	

## 6.2 Agricultural supply and Food security in Kenya

Governments have been hesitant to permit prices to fluctuate to echo transport and storage costs, albeit studies showing that allowing better price variability will lessen the cost of supply stabilization operations (Pinckney 1986). With almost 32.2percent citing price fluctuations as a risk to supply of food and only 22.6percent showing low output factors, it is indeed evidential

that nearly half of the respondents are in support of slight government intervention on the supply and demand sides.

**Table 18 Source of Agricultural growth and traits of domestic market demand**

		Responses	
		N	Percent
<b>Source of agricultural growth</b>	Climate Change	5	16.2percent
	Macroeconomic Environment	10	32.2percent
	Government Expenditure On Agriculture	7	22.6percent
	Trade Policy	8	25.8percent
	Other	1	3.2percent
	<b>Total</b>	<b>31</b>	<b>100.0percent</b>
<b>Characteristics of local demand</b>	Price Fluctuation	10	32.2percent
	Low Output	7	22.6percent
	Limited Variety	8	25.8percent
	Highly Un-Nutritional	4	13.1percent
	Other Specify	2	6.4percent
<b>Total</b>	<b>31</b>	<b>100.0percent</b>	

Only 16.2 percent of the respondents cited climatic conditions as a major factor that influences how the agricultural sector performs. Also, 54.8percent felt that macroeconomic indicators and the budget allocation to the sector either undermined or promoted food security status in the country. Of the 32.2 percent who indicated macroeconomic environment as a determinant for agricultural productivity were of view that exchange rates and fiscal/monetary policies were key issues of concern. Floating exchange rates results to unstable export returns. As a result, this low savings leads to lower reinvestment potential into the agricultural sector to enhance food capacity in the country. Indeed, 25.8percent of the respondents expressed the need to have supportive trade policy that would steer growth in the agricultural sector.

### **6.3 Market integration, Market Access and food security in Kenya**

The small sizes as well as the underdeveloped infrastructure for many SSA countries and other food insecure nations present numerous development challenges that may not be easier to surmount at national level. Highly integration of market can thus develop productivity, inflate trade, boost competitiveness and in turn produce higher income levers and a more flexible food supply system. Trade capacity building, lesser tariffs and more rapidly tackling of delays at the border will improve market integration thus helping to alleviate food insecurity issues in the country.



**Table 19 The role of Government in enhancing market access and integration**

	Responses		Percent of Cases
	N	Percent	
Offering incentive	6	19.4percent	75.0percent
Regulate market price	7	22.6percent	87.5percent
Favorable trade policy	5	16.1percent	62.5percent
Role of government in market access <sup>a</sup>	8	25.8percent	100.0percent
Ensure land policy	3	9.7percent	37.5percent
Investing in human resource	2	6.5percent	25.0percent
Other	31	100.0percent	387.5percent
Total			

a. Dichotomy group tabulated at value 1.

In simple term accessibility refers to “ease of use” or “openness to” to a certain facility. The existence of infrastructure in most cases determines if discrepancy from producer price will be either high or low. Household food security in Kenya is impinged by trade barrier, poor market access and other extension access. Major study results have demonstrated that most households in Kenya are mostly delayed from efficient market resulting to food insecurity. Markets are vital in boosting productivity as well as food availability. Improved access to agricultural input markets such as seed or fertilizers are very essential and fundamental when agricultural productivity issues fall in place. Furthermore, farmers tend to raise production of food crops than

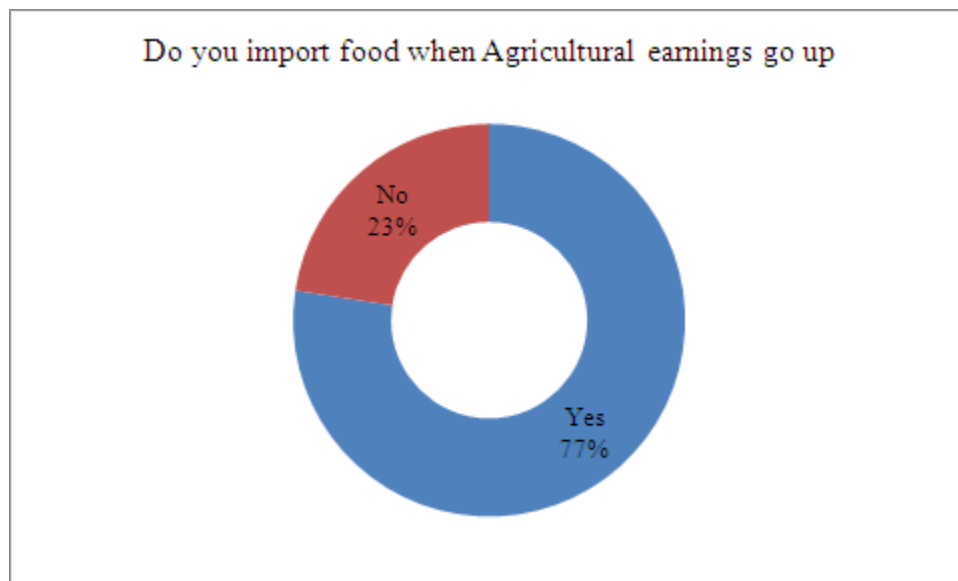
cash crops if they have access to viable markets that will not only buy their agricultural inputs but also create elevated profitability.

The extent to which insufficient markets for food crops limit the taking up of new technology and the significance of price support are additional major issues which are no longer given the importance assigned to in the 1960s and 1970s to bring about food security. The COPI has a rising trend, but there was an impressive swell in 1993 of about 250 percent from the 1991 levels. There has been a general rise in prices, but this has been much inferior since 1997, averaging about 3 percent annually. There is a considerable variation between farm gate and market food prices, and this has special effects on ease of access for household food.

#### **6.4.1 Exchange rate reforms**

According to Nyangito (2004), nearly all the key reforms that led to liberalization of the foreign exchange system took place in 1993. From the market survey carried out, nearly 77percent of the key informants concurred that when agricultural earnings went up; the country was likely to import more resulting to a neutral effect of earnings to farmers. They cited need to diversify dietary needs as more income was available to get better food that mean balanced diet.

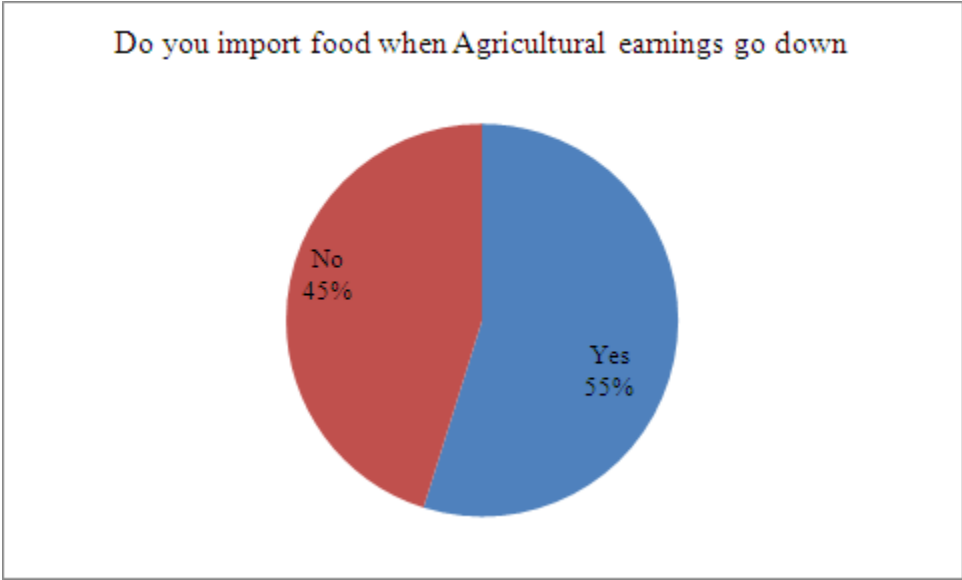
**Figure 24: Relationship between Food imports and high agricultural returns**



In fact the study showed that, as the earnings went down from agricultural exports, there was still high tendency for government to import more foods at 55 percent. Low returns were an indication of low crop yields in the industry.

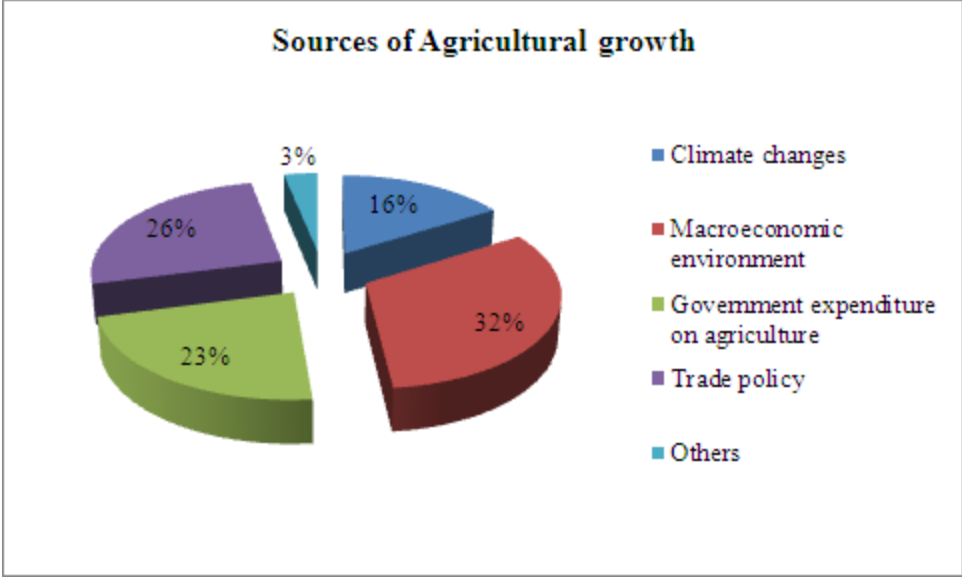
The main concern about the foreign exchange policy relates to need for a stable policy to support agricultural development by reducing uncertainty in the sector. Only 45 percent were of the view that the reduction in agricultural returns would translate to more food imports.

**Figure 25: Relationship between Food imports and low agricultural returns**



It is indeed vital to realize that floating exchange rate, with its instability and uncertainty, seems to be hurting the Kenyan economy.

**Figure 26: Sources of Agricultural growth**



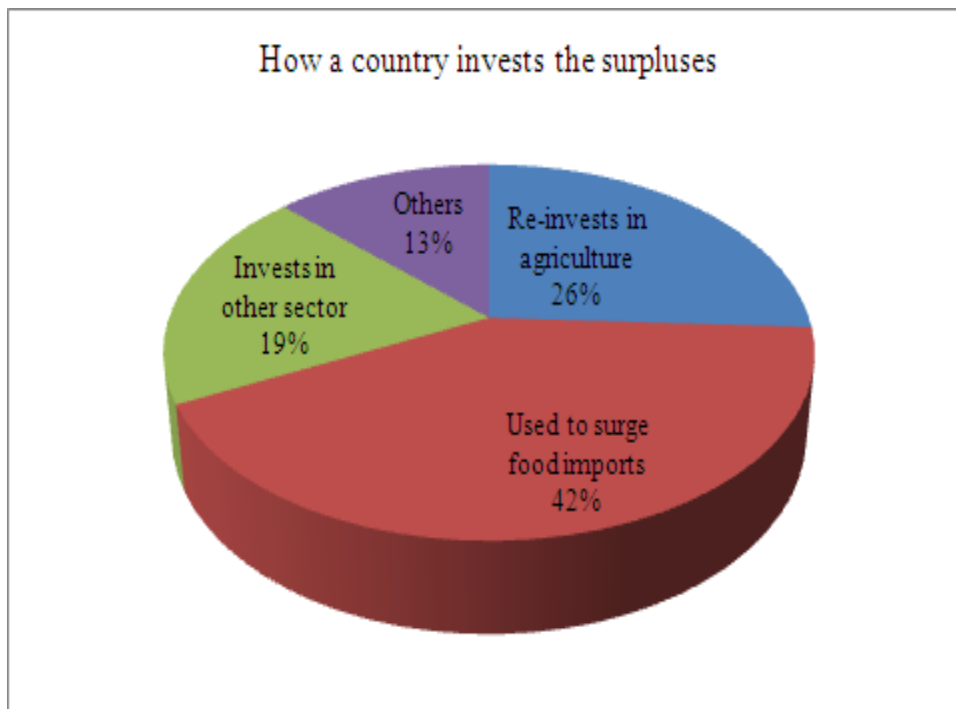
On the other hand, only 16 percent of agricultural supply was affected by climatic changes as cited by the survey indicators. About 32 percent of the key informants argued that stable macroeconomic environment was essential to sustain agricultural supply in the economy.

### 6.4.2 National food import capacity

Kenya heavily relies on imports, especially for commodities such as maize, wheat, rice and sugar. Imports considerably increased during the reform period. However, the capacity to import has declined for the reason that of the poor performance of exports. Furthermore, the ratio of the value of imports to the value of total exports and agricultural exports after the reform period saw a general increase, demonstrating that the country expenses a large proportion of its export earnings on food imports and incurring a high import bill, which in turn affects the government's capability to fund other socioeconomic development activities such as health and education, which are also significant in enhancing poverty decline.

From the survey, nearly 42 percent of the surpluses were ploughed back into the economy to surge food imports. 19percent was invested in other sectors to boost the economy. The study elaborates that only 26 percent of the respondents cited that the returns were re-invested into agricultural development to bolster food production.

**Figure 27: How a country invests the surpluses**



From above, it evident that low investment into the agriculture, of 26 percent has too resulted to high incidences of food insecurity in the country. in fact, the other 13 percent was lost as a result of foreign exchange fee and related taxation, and even swindled away in form of corruption.

### **Summary**

For a multifaceted summary, the study gives an objective summary to all the three hypotheses of the research and gives the rationale if the hypothesis holds or not using Pearson correlation and chi-square where necessary and sufficient.

### **H<sub>1</sub>: Trade liberalization will help alleviate challenges facing the agricultural sector:**

Assume that trade liberalization removes discrepancy to access output ,input or credit market thus affecting choice of market channels for food supply, let's consider a 95percent confidence level, it is evidential that discrepancy to access output, input or credit markets will have a statistical significance on the choice of market channels after reforms.

**Table 20 Standardized table for market channels**

Model	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	.956	.313		3.057	.006
Macroeconomic environment	-.353	.335	-.190	-1.052	.304
Discrepancy to access output, input or credit markets	1.397	.249	.539	5.602	.000
Offering incentive	-1.000	.635	-.455	-1.576	.129
Regulate market price	1.347E-015	.635	.000	.000	1.000
Favorable trade policy	-2.869E-014	.550	.000	.000	1.000
Ensure land policy	-1.205E-016	.550	.000	.000	1.000
Investing in human resource	9.621E-015	.410	.000	.000	1.000

a. Dependent Variable: choice of market channels from reforms

Since  $t=5.6$  and sig.value (p) is 0.000 i.e. $>0.05$ , we therefore accept the null hypothesis that harmonized trade liberalization will alleviate problems facing agricultural development. But it is

important to realize that total liberalization will lower household income and hence erode the very economic development sense as stipulated by Todaro M. (2003). However, the overall effect of market liberalization must be weighed against all other possible effects and macro-objectives of the reform process by government which requires food security status. Trade liberalization plays an essential role in supporting global food security by creating the international food system more efficient. Since producers will access bigger markets outside of their local and regional areas, utility of economies of size can, permitting countries to grow food output competently.

**H<sub>2</sub>: Global food sufficiency will ensure food security at both national and individual levels:**

Let's consider the classic Durbin and Watson data set regarding market accessibility for food sufficiency. The sample size is 31, there are 2 regressors, and there is an intercept term in the model. The Durbin- Watson test statistic value is 0.254. We want to test the null hypothesis of zero autocorrelation in the residuals against the alternative that the residuals are positively auto correlated at the 1percent level of significance. When we examine the Savin and White tables, we find a row for sample size 31. Since there are two regressors, find the column labeled  $k=2$ . Cross-referencing the indicated row and column, we find that the printed bounds are  $dL = 1.085$  and  $dU = 1.345$ . Since 0.254 is less than 1.345, we reject the null hypothesis. Hence it not always true that Global food sufficiency will ensure food security at both national and individual level.



**Table 21 Durbin-Watson table on food sufficiency**

R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
			R Square Change	F Change	df1	df2	Sig. Change	
.220	.193	.400	.220	8.164	1	29	.008	.254

**H<sub>3</sub>: Governments interventions in SSA have helped to lower food insecurity in the region**

From the literature review, it's evidential that government reforms are effective in enhancing food security in any county. For instance, according to FAO/Action Aid, the recent Rwanda government policy reform of offering incentives to farmers in terms of certified seeds, fertilizers and credit has caused it to overtake Kenya and Tanzania on the ladder of food secure nation in Africa. Considering a 95percent confidence level, it is evidential that discrepancy to access output, input or credit markets will have a statistical significance on the choice of market channels after policy reforms.

**Table 22 T-Test table for government interventions to enhance food security**

Model	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	.956	.313		3.057	.006
Macroeconomic environment	-.353	.335	-.190	-1.052	.304
Discrepancy to access output, input or credit markets	1.397	.249	.539	5.602	.000
Offering incentive	-1.000	.635	-.455	-1.576	.129
Regulate market price	1.347E-015	.635	.000	.000	1.000
Favorable trade policy	-2.869E-014	.550	.000	.000	1.000
Ensure land policy	-1.205E-016	.550	.000	.000	1.000
Investing in human resource	9.621E-015	.410	.000	.000	1.000

a. Dependent Variable: choice of market channels from reforms

From above table, since  $t=5.6$  and sig.value (p) is 0.000 i.e. $>0.05$ , we therefore accept the null hypothesis that government interventions in the SSA markets will help lower food insecurity. It is in fact true that government reforms that targets to increase farm inputs and enhance supply of farm outputs will literally enhance food security in the nation. For instance, the maize shortage in the country which resulted to price escalation was eased when government allowed subsidized food imports. This policy, helped to lower food prices. This lowered downward pressure on economy and made households well off as they saved on the low price of food.

## **6.5 SUMMARY AND RECOMMENDATION**

### **6.5.1 Summary.**

Agriculture remains an important sector in generating income and creating employment for rural households in Kenya. The sector contributes to economic growth, foreign exchange earnings and industrialization of the economy. The policy reforms should cover monetary and fiscal, trade and agriculture sectors. Trade policy reforms focused on reduction of tariffs and elimination of non-tariff barriers. The response of agricultural production to liberalization has regrettably been depressing. Most commodities, predominantly food commodities and industrial crops dropped in production. The most unpleasant decrease occurred for maize, rice, milk, cotton, sisal and coffee. The mixed trend in production is accredited to a number of factors that take account of area extension or reduction, yield changes due to climatic factors, technological changes and prices. Climatic factors such as drought are essential in amplification of Kenya's agricultural performance, but the major factors are policy-related; they comprise reduced coordination and sequencing of liberalized policies.

First of all, food security is of principal significance in Kenya's development policy. This is strongly implied by the food policy document (GoK, 1981) and its revised version (GoK, 1994), and the Poverty Reduction Strategy Paper (GoK,2002), and the consecutive five-year development plans. The objective of the food policy is to ensure food self-sufficiency to help keep the nation fed without using the scarce foreign exchange resources on food imports. The NCPB had the monopoly to market all cereals, to import food whenever there were deficits and to export surpluses. This board was also mandated to guard against food insecurity by maintaining strategic reserves of foodstuffs, principally maize, which would be released to the market during grain shortfalls. With liberalization, the NCPB monopoly in trade of food

commodities was dismantled leaving the board in the market as a commercial buyer and seller of last resort.

The country's reliance on food imports has augmented due to decrease in household production. However, national food security is also dying out since the country has a weak base of sources of income to import food, which depend mainly on agricultural exports. Therefore, trade in agricultural commodities is a major determinant of national food security as much as domestic food production is. Policies that affect both domestic agricultural production and international agricultural trade are therefore central for food security in Kenya. The decline in the performance of the agricultural sector may be accountable for the drop in household incomes and the subsequent dependence on off-farm incomes.

Large increases in the land and labor productivity such as that achieved in Central Province are due to the changes in crop mixes. In crops like coffee, tea maize and wheat, the growth in productivity was as a result of area expansion rather than intensification of the existing farming systems. Growth in land productivity has also resulted from the development and adoption of new varieties of maize and wheat crops. But crop yields have also declined since crop varieties and other production technologies adopted in the low potential and marginal areas are inappropriate for them.

A major challenge in Kenya now is to adopt policy reforms that may possibly stimulate technical change in agriculture. Policies adopted should solve the broader problems relating to the generation, dissemination and adoption of new technologies and thus stimulate changes in crop mixes towards the production of high value crops. Market policy reforms and technology development therefore need to be viewed as different facets of the same problem. Marketing strategies will need to refocus their emphasis from the liberalization of markets to the sustainable promotion of productivity growth for the millions of low-input semi-subsistence rural

households in Kenya. This implies a foremost role for future marketing research in identifying public and private investments and activities that will intensify input use on smallholder farms. Can such research activities be financed within the constraints of available budgets, and involve greater coordination between the public and private sectors in providing smallholders with access to integrated input, credit, and output markets. With most of Kenya's poor residing in regions of significant agricultural potential, and in light of severe land constraints in many of these regions, developing strategies to increase the value of agricultural production per unit of land and labor is a top priority. Smallholder commercialization, particularly into higher-value export crops, generally has produced significant and positive effect on food crop fertilizer use and productivity; however, this varies by crop and region.

### **6.5.2 Recommendations.**

Given that both supply constraints and poor implementation of liberalized policies are responsible for the poor performance of Kenya's agriculture, the country needs to reconsider increasing the use of domestic support measures allowed within the WTO agreement on agriculture to allow the agricultural sector to develop adequately. Market access concerns such as reduction of domestic tariffs and export subsidies have had an impact on imports into the country, while market access into developed countries has not expanded much. These are issues the country needs to pursue in its multilateral trade agreements. Implementation of liberalized policies should be harmonized and coordinated to avoid adverse effects on the sector. The linkages between the performance of the agricultural sector and household incomes are such that when the performance of the sector is poor, household incomes go down. This is because although the role of agriculture in directly contributing to household incomes is diminishing, the close link between rural off-farm job opportunities in such areas as agro processing and

manufacturing and marketing of farm inputs means that agriculture still plays a leading role in the welfare of rural households.

The mutual benefits of reciprocal opening up within the wider region, of resource-sharing and increased bargaining power and capacity beyond the region need to be embraced by Kenya, and the phased deepening and broadening of regional economic integration and policy cooperation needs to be embedded in Kenya's vision for the future. Similarly the greater integration of the economics within the region should be seen as supporting greater international economic integration. Improving access for Kenya's exports (through the multilateral trade negotiations or through the implementation of bilateral opportunities associated in the US with AGOA or the EPA with the EU) should be viewed as requiring also increased competition in Kenya (appropriately sequenced and phased in, and supported by adjustment support measures and investments).

Increased import competition should not ultimately be viewed as the price to be paid for increased export opportunities but as a necessary ingredient for improved export performance. Other necessary ingredients of improved export performance are improved competitiveness of business and financial services and intermediate input suppliers in Kenya, and reduced trade costs in general. Trade policy should not only be viewed as occupying the narrow range of policy space associated with border policy instruments (tariffs, export promotion and agency activities), but as occupying a much broader space. Competitive Kenyan exporters need competitive suppliers, competition in local and regional markets, effective institutions like customs and well-functioning infrastructure (transport and telecommunications). The agenda and investment needs for Kenya's future trade policy are substantial.

### **6.5.3 Areas of Further Research**

A major avenue for future research is to understand better how successful commercialization arrangements linking smallholders and marketing/processing firms have been structured so that their successful ingredients can be replicated and incorporated more broadly into commercialization strategies in other regions. This is likely to yield high payoffs in terms of increasing agricultural productivity and food security

In market-oriented growth strategies, well tested and improved management practices for commodities for which there are viable markets, work synergistically with improved input and output markets to create sustainable conditions for intensification and productivity growth. Yet national research budgets and donor funding of technology development are in many cases declining. An increasingly important role of the interrelated research, marketing, and legal systems is to work out the details of use and exchange of information and knowledge.



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## APPENDICES

### Appendix 1: Research Questionnaire

#### Agricultural supply response and food security

##### 1 General information

Name of interviewee.....

Gender.....

- Male
- Female

Level of Education.....

- Primary
- Secondary
- Diploma
- Bachelor degree
- Post Graduate
- Other specify

Type of Institution.....

- Public
- Private
- Local NGO

- International NGO
- Other specify.....

2 (a) Kindly identify the sources of agricultural growth.

- Climate changes
- Macroeconomic environment
- Government expenditure on agriculture
- Trade policy
- Other specify.....

(b) Characteristics of local Demand?

- Price fluctuations
- Low output
- Limited variety
- Highly un-nutritional
- Other specify.....

3 How does a country invest the surpluses? Are growths in export incomes reinvested in Agriculture, used to surge food imports or invested in other sectors?

- export incomes reinvested in Agriculture,

- used to surge food imports
- invested in other sectors
- Other specify.....

4 Do food Deficit countries import additional food when export (agricultural or total) earnings Intensify?

- Yes
- No

5 Do food Deficit countries import additional food when export (agricultural or total) earnings reduce?

- Yes
- No

6 Have there been substantial variations in the technologies used in the sector?

- Yes
- No

7 Explain how intensity of factor use transformed?

- Gradually
- Slowly
- Rapidly
- Don't know
- Stagnant

8 What have been the consequences for returns to these factors? What are the relative chances for investment of surpluses locally, countrywide?

.....

.....

9 What are the effects of these outcomes for the magnitudes of agricultural multipliers?

- High
- Medium
- Low
- Unknown
- Don't know

**Market integration**

1 Would you say producer price for a particular crop in all regions and producers are identical?

- Yes
- No

2 Would you say there is a distinct price in relation to the period of sale?

- Yes
- No

3 Would you say there is a distinct price in relation to accessibility of market?

- Yes



- No

4 Would you say there is a distinct price in relation to the information?

- Yes

- No

5 State relevant devices to counterbalance the outcome of price rise and fall (for instance?

- Storing capacity,
- warehouse receipt structures
- Favourable trade policies
- Other specify.....

6 Identify mechanisms for effective management of commodity price risk?

7 Identify an association between the reforms regarding the degree of price transmission?

- Very strong
- Strong
- Weak
- Very weak
- Not sure

8 What is the outcome of dropping the activities of marketing boards on price?  
Transmission?

9 Does transmission contrast rendering to whether trade involves local, regional or  
bilateral?

10 Does transmission vary by crop category?

• Yes

• No

11 Is it more affirmative for cash as contrasting to food crops?

• Yes

• No

12 Do all producers profit from improvement (for example, is transmission adversely Associated with geographic remoteness)?

• Yes

• No

**Market access**

a. Is there discrepancy to access input, output, or credit markets for small compared to large producers?

• Yes

• No

b. Identify the disparity to access markets for those involved in the production of key cash crops as opposed to food crops?

• Very high

• High

• Low

- Very low
  - Not sure
- c. Has market access for diverse groups of agricultural producers improved or declined because of trade reforms?
- Improved
  - Declined
  - Constant
  - Not aware
- d. Does market access fluctuate subject to the commodity in reference?
- Yes
  - No
- e. What is the role of government in enhancing market access, or protecting small farmers against segregation?
- Offering incentives such as farm inputs
  - Regulating market prices
  - Enacting favourable trade policies
  - Ensuring land policy are in line with food security
  - Investing in human resource
  - Other specify.....

f. Have new institutional arrangements materialized? In specific, what alternative arrangements have changed the activities of agricultural state-owned organizations?

.....

.....

.....

g. Which is the best way of supporting and promoting rivalry in agriculture? Is enriched competition in input delivery important? Are there cases of prosperous institutional engagements?

.....

.....

.....

h. Is there more or less choice of market channels resulting from the reforms for farmers?

- More choices
- Enough choices
- Less choices
- Not sure