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Smallholder Accelerated Market Access for Inclusive Growth, Food Security and Poverty Reduction in Kenya; Institutional and Macroeconomic Perspective: Lessons from Netherlands

Vitalis Omondi Othuon[1*] Millicent Akinyi Oyugi[2]
1.School of Social and Development Studies, Department of Economics and Resource Management Technical University of Kenya PO box 52428, Nairobi, 00200, Kenya
2. Department of Agricultural Education and Extension, Egerton University P.O box 536 Egerton 20115 Kenya and PhD Student, Texas Tech University P.O Box 45004, Lubbock, TX 79409 USA.

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Abstract
This report provides an overview and illumination of key institutional incentives that can optimize smallholder agricultural productivity, market access, food security and poverty alleviation in rural Kenya. Analysis is by extensive literature review, stakeholder interviews emanating from international training, seminars, workshops and general observations in the Netherlands. The results inform the existing opportunities and obstacles for the transformation of the Kenyan smallholder agricultural system through optimization of institutions. This Publication is the initial phase towards documenting and sharing key institutional incentives, macroeconomic policies and innovations that leverage smallholder agricultural productivity, market access, food security and poverty reduction in the context of increasing global population, climate change, rising food prices, poverty and food insecurity in Kenya. The findings and recommendations will direct policy discourse and action in transforming the Kenyan agri-food system development, through smallholder accelerated integration into modern agri-food markets through optimization of institutional and macroeconomic incentives.
Keywords: Institutional Incentives, Accelerated Market Access, Smallholder Agricultural Productivity, Food Security, Poverty Reduction, Macroeconomic policies**.**

1.0 Introduction

This report features findings of an extensive review of institutional and macroeconomic environment of the Dutch agricultural sector conducted as a response to participants' case development during the 2017 Market Access for Food Security, held in the Netherlands. It is aimed at understanding "*How Institutional and macroeconomic policies and incentives can be used to accelerate rapid smallholder market access for inclusive growth, food security and poverty reduction in Kenya*" A stakeholder, scenario and SWOT analysis augmenting extensive literature review, recognized potential obstacles and opportunities in the commercialization of Kenyan smallholder agricultural productivity aimed at the extreme, chronic and transitory poor in the rural areas. This analysis is crucial for stakeholders in the Kenyan agricultural sector, including local and international private entities, national and county governments with interest in smallholder agricultural productivity, market access, food security, employment creation, poverty reduction and rural development.

The contribution of family farming and smallholder agriculture to food and nutrition security, income generation, market access and poverty reduction cannot be gainsaid. Food and Agricultural Organization (FAO, 2015), states that more than 90 percent of the 570 million farms globally are managed by an individual or a family relying predominantly on family labour. These farms produce more than 80 percent of the World's food in terms of value. Globally 84 percent of family farms are smaller than 2 hectares and manage only 12 percent of all agricultural land.

Jacobs in the lecture series during the Market Access for Food Security (MAFS, 2017) in the Netherlands, states that family farms also dominate in highly developed nations. These family farms are small enterprises that operate in dynamic and rapidly changing markets. She, concludes that farming is a business and due to their market participation and risks, agricultural producers, including smallholders that are predominantly subsistence-oriented, must be perceived as entrepreneurs.

Professor, Modi (MAFS, 2017) states that agriculture and the economy are correlated in three major ways**.** **Firstly**, agriculture involves farming, a process of producing food, feed, fibre and other goods by the systematic raising of plants and animals. Agricultural output is a component of the Gross Domestic Product of a nation. **Secondly**, industry which is a segment of the economy concerned with production of goods such as fuels and fertilizers. Industrial output is also a component of the Gross Domestic Product of a nation. **Finally**, service sector, which is the non- material equivalent of a good. Service provision is defined as an economic activity that

does not result in ownership, and it is what differentiates it from providing physical goods. It is a process that creates benefits by facilitating either a change in the intangible assets. Service output is a component of the Gross Domestic Product of a nation. The service sector output includes (but is not limited to) farm and factory related activities.

1.1 The State of Food Security in the World

The state of food insecurity in the World 2015 (FAO, IFAD and WFP, 2015a), states that some 795 million people suffer from hunger globally. World Health Organization (WHO, 1996), defines food security as a situation where the entire population at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. According to Modi (MAFS, 2017), the World Health Organization (1996), definition of food security, particularly refers to the market system. Modi (MAFS 2017) further postulates that, access to sufficient, safe and nutritious food refers to the market.

FAO (2013) states that, current upsurge in the levels and volatility of agri-food prices have generated substantial obstacles to attempts to reduce levels of food insecurity instantaneously at national and household levels. Consequently important political focus has been directed to the promotion of improvements in food staples productivity in developing nations, aimed at ameliorating the rapidly soaring costs of food imports and to stimulate increased incomes and enhance food security at the household level. FAO (2013) in addition propounds that many developing countries including the G-20 initiatives, have identified smallholder agricultural productivity as a fulcrum for agricultural development. These initiatives promotes mechanisms that will yield increased production by smallholder farmers, through the application of productivity enhancing technology, leveraged by improved research and development, facilitated access to critical inputs and production and related risk reduction measures.

However, the use of institutional and macroeconomic policies to promote inclusive smallholder agricultural investment and growth will essentially depend on the political and governance aspiration of the ruling elite as defined in their political manifestos. Partnership for African Social and Governance Research (PASGR 2015), defines inclusiveness as the involvement in the development discourse through employment creation, increasing household incomes and transforming social and power correlations. In addition, inclusive advancement includes a broad prediction of progress beyond merely growth of macroeconomic indicators, but comprises economic, social, cultural and political aspects of people's welfare. It recognizes public policies to instantaneously drive growth and distribution as a versed to ex-post policy instruments to combat poverty and reduce income inequality.

Alliance for a Green Revolution in Africa (AGRA , 2016), states that over the last ten years millions of small family farms in Africa have undergone major agricultural transformations. The smallholder farms are the main source of food, employment and income. However, AGRA (2016), argues that a lot more must be accomplished to maintain and extend the agricultural transformation process that has commenced in Africa as outlined in the Malabo Declaration and the Sustainable Development Goals (SDGs).

According to Kenya Food Security in Brief Final Report (2013), Kenya experiences structural production deficit in agriculture. Agricultural growth is undermined by many obstacles such as droughts, floods, limited access to inputs, pests and diseases, lack of credit. Further, insecure land tenure systems have led to low investments in land development and productivity. World Bank (2016) states that Kenya has the potential to be one of the success stories from its growing juvenile population, a dynamic private sector, a robust new constitution and its pivotal role in East Africa. World Bank (2016) opines that the major goal for Kenya will be addressing challenges of poverty, inequality, governance, low agricultural investment and low firm productivity to realize rapid sustainable growth rates.

The importance of markets and macroeconomic variables as institutions to increase smallholder agricultural productivity, promote inclusive economic growth, reduce poverty and raise incomes has not received much attention from researchers, development agencies and policy makers in Kenya. This report seeks to identify key institutional factors that can influence rapid and accelerated smallholder farmers integration into modern agri-food markets for inclusive growth, enhanced food security, higher incomes and poverty reduction by drawing experience from Netherlands. Kenya today is experiencing the worst food shortages and high food prices forcing the government to pass an urgent supplementary bill for Kenya shillings six billion for emergency food subsidy and additional Kenya shillings 3.7 billion food importation. This is aimed at increasing food supplies and stabilizing food prices.

1.2 Institutions

Hodgson, G.M (2000) has rephrased Hamilton's, (1919, 314-18) definition of institutionalism by stating that institutionalism makes extensive use of ideas and data from other disciplines such as sociology, psychology and anthropology in order to develop a richer analysis of institutions and of human behavior. Institutions are the key

elements of any economy and thus a major task for economists is to study institutions and the processes of institutional conservation, innovation and change. Hodgson (2000), adds that the economy is an open and evolving system situated in a natural environment, effected by technological changes and embedded in a broader set of social, cultural, political and power relationships. Hodgson (2000) concludes that the notion of individual agents as utility-maximizing is regarded as inadequate or erroneous. Institutionalism does not take the individual as given. Individuals are affected by their institutional and cultural situations. Figure 1, contains some of the key institutions that are significant in promoting smallholder accelerated market access for enhanced agricultural productivity, food security and poverty reduction.

1.2.1 Agricultural Markets

Helder (MAFS, 2017) during Market Access for Food Security Course held in January from 8th to 29th in the Netherlands, postulates that markets as institutions plays a pivotal role in agricultural productivity, food security, poverty reduction and inclusive economic growth. To access markets individuals need income in order to purchase agri-food products or productive resources to produce for subsistence and supply excess to the market.

Bryan et.al, 2008; Chapple, 2008 in (FAO 2016) opines that markets have been transforming rapidly in the last few years with increasing quality standards, rising demand for high value agri-food products, contemporary market arrangement and advent of some new markets. Smallholder famers are constrained in accessing these markets due to higher requirements, asymmetrical power relations, and rural farmer organizations are beset by poor and weak governance, limited financial endowment and non-enabling policy matrix.

IFAD(2003), states that in many developing countries, majority of the extremely and chronically poor live in rural areas and assisting poor producers to enhance their agricultural productivity is often the most effective and the only avenue to bring about rapid and inclusive economic growth and food security.

1.2.2 Social Protection Programme for Agricultural productivity

The Social protection programme aimed at alleviating poverty should specifically target asset acquisition, agricultural productivity and market access by the absolute and chronically poor people. (FAO, IFAD, WFP, 2015b) states that to eliminate hunger and poverty the World requires a recipe of continued private and public investments and social protection initiatives. The report further observes that, eliminating global hunger completely will need an approximated US$ 267 billion per year on average for investments in rural and urban areas and in social protection to enable poor people have access to food and improve their livelihoods. This is equivalent to 0.3 percent of the global GDP and would average US$ 160 annually for each person living in extreme poverty over the fifteen year period.

1.2.3 Macroeconomic Matrix

Muftaudeen Olarinde and Hussainatu Abdullahi (2014) states that macroeconomic policies comprises of fiscal, monetary, exchange rate regimes and trade policies that influence production output in real sectors including the agricultural sector. Unfortunately, macroeconomic policy results in any economy differ based on the policy instrument used, the objectives and the operating environment. Fischer (1993) and Lachaal (1994) as cited by Muftaudeen Olarinde and Hussainatu Abdullahi (2014), lists five conditions which collectively denote that a macroeconomic framework is favorable to growth, food security and poverty reduction. These are: a low and predictable inflation rate; an appropriate real interest rate; a stable and sustainable fiscal policy; a competitive and predictable real exchange rate and a balance of payment that is viable. In summary a sound macroeconomic policy among other institutional incentives is integral for the attainment of food security and poverty reduction through agricultural growth in an economy.

1.3 Overview of Kenya's Agricultural Sector

The significance of the agricultural sector in the Kenyan economy cannot be gainsaid. The agricultural sector contributes 30 per cent to the National Gross Domestic Product and accounts for 60 per cent of export earnings, 18 per cent of formal employment and approximately 60 per cent of informal employment. As an adjunct, the sector contributes about 75 per cent of the raw materials used in the manufacturing and 65 per cent of rural household incomes in the country (Economic Survey 2016). However Kenya experiences low agricultural productivity. Indeed the low total factor productivity in agriculture is corroborated by Omiti and Irungu (2013) cited in Kosura (2016) In their study of the total factor productivity in Kenya between the years 1964 to 2009, the total factor productivity using malmquist Index averaged a paltry 0.13 percent annually.

According to the Kenya Demographic and Health Survey (KDHS, 2014) approximately 50 per cent of the Kenyan population live below 1.90 US$ per day and majority of the poor population live in rural areas. Household consumption expenditure on agricultural products and food is relatively high and smallholder farmers despite producing over 80 percent of total agricultural output, remain net buyers of food.

1.4 Statement of the Problem

Markets as institutions plays a pivotal role in agricultural productivity, food security, poverty reduction and economic growth. To access markets individuals need income in order to purchase agri-food products or

productive resources to produce for subsistence and supply excess to the market. The current market dynamics in Kenya does not enhance market access for a large segment of the rural population, who are mostly smallholders, thereby undermining food and nutritional security, poverty reduction and economic growth. According to the National Drought Management Authority (NDMA, 2017), the number of Kenyans, in need of relief food supplies has risen to 2.7 million from 1.3 million in 2016. The report indicates that, the next major harvest is expected in February 2018, implying that most households will depend on markets for survival throughout 2017. The President of the Republic of Kenya through Executive Order Number One of 2017 declared drought and famine in parts of Kenya a national disaster. The importance of markets and macroeconomic variables as institutions to increase smallholder agricultural productivity, enhance food security, combat poverty and raise incomes has not received much attention from the Government, researchers, development agencies and policy makers in Kenya. Despite the fact that smallholder farmers contribute a significant amount of agricultural production, the households continue to wallow in a miasma of debilitating poverty and food insecurity. The study seeks to identify key institutional factors that can influence rapid smallholder farmers' integration into modern agri-food markets for enhanced food security, higher incomes and poverty reduction.

1.5 Research Questions

A key research question is: What key institutional and macroeconomic variables can influence accelerated and rapid integration of smallholder farmers in modern agri-food value chains, for increased food security and poverty reduction?

Other research question: What key recommendations on institutional and macroeconomic policy reforms can enhance rapid and accelerated and inclusive integration of smallholder farmers into modern agri-food value chains to bolster food security, rural incomes, poverty reduction and enhance economic growth?

Objectives of the study includes:

1). Identify key inclusive institutional and macroeconomic variables that need to be addressed to accelerate rapid integration of smallholder farmers in modern agri-food value chains;

2). Provide recommendations on institutional policy reforms that can be used to accelerate rapid inclusive integration of smallholder farmers into modern agri-food value chains to boost food security, rural incomes, economic growth and reduce poverty.

1.6 Theoretical Framework

This report relies on the Chain-Wide Learning for Inclusive Agri-food Market Development. This is a guide to multi-stakeholder processes for linking small-scale producers to modern agri-food markets. Vermeulen, S et. al, (2008) states that the guide provides a methodology for finding ways to better link small-scale producers to modern markets. The theory is based on four main pillars, modern markets, value chains, institutions and policies and finally multi-stakeholder processes.

Conceptual Framework: Linking Institutional Policies with the Smallholder Farmers.

This conceptual framework is derived from Hannah,P. et.al, (2013). It acknowledges an array of institutional polices that can stimulate, household food security through resource and asset accumulation. Thus, Key institutional policies such as public policies, rural producer organizations, land tenure and property rights, social protection, education, health, public-private partnerships, can help mobilize resource endowment for smallholder households to engage in agricultural productivity, for increased incomes and poverty alleviation. The conceptual framework is depicted in the diagram below. However, key institutional polices for smallholder accelerated market access for enhanced food security, income generation and poverty reduction are illustrated in **Figure 1.**

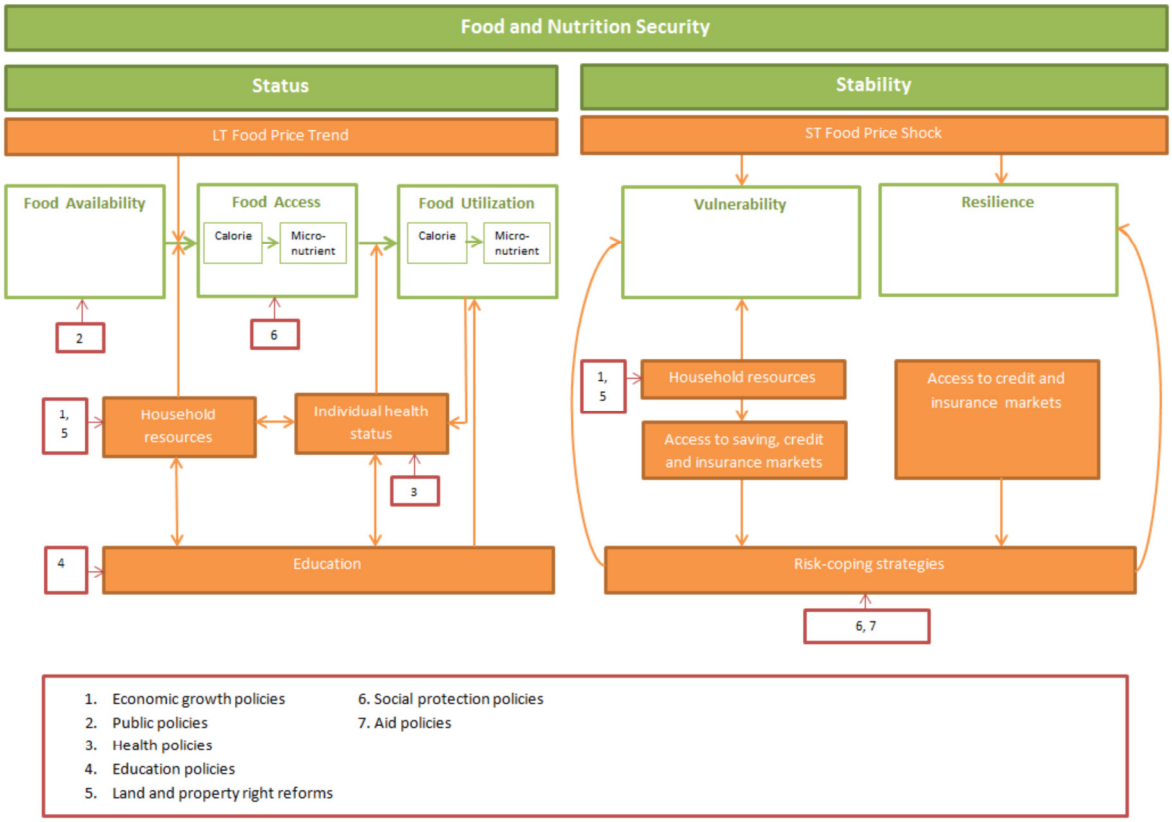


Figure: Adopted from Hannah, P. et.al, (2013), Conceptual framework for the analysis of the determinants of food and nutritional security.

3.0 Research Methodology

3.1 Data Collection and Analysis

This work in progress paper is the first objective of the broader research being undertaken to address smallholder rapid access to agri-food markets for enhanced agricultural productivity, food security and poverty reduction in Rural Siaya County, Kenya. This is a comparative study between Kenya and Netherlands agri-food systems development. This publication has been compiled by the authors in Kenya, with information obtained during a short course on Market Access for Food Security from 9th to 28th January 2017 and Agriculture in Transition from April 4th to 15th 2016 in the Netherlands, organized by the Center for Development Innovation (CDI) in conjunction with the Wageningen University and Research . The publication also immensely benefited from the world class and premium presentations by CDI Lecturers under the tutelage of Course Co-ordinator Jan Helder for meticulous organization of the entire programme and presentations on (making markets work for the poor, Chain Wide Learning and agrifood value chain dynamics and governance); Jacobs (Optimizing the performance of producer organizations); Lieshout (Sparking the market; A business approach to development); Botden (Supply chain management in fresh produce value chains); Kooten (Driving innovations in fresh produce value chains: how to deal with new trends in a market environment); Schrader (The Sesame Business Network; From Networks towards Agribusiness Cluster Development); Professor Modi (Rural People's Organization; Towards Commercialization of Homestead Agriculture); Rizopulos and Guijt (Public Private Partnerships; Instruments for Driving Inclusive Market Development and Value Propositions for Sustainable Trade); Timmermans (Reduction of Post-Harvest Losses in Horticultural Value Chains); Lammers and Saavedra (Financing Value Chain Actors); Ravensbergen (Metropolitan Food Clusters) , de Roo (Gender Issues in Agriculture); Rizopulos and Bram (Stakeholder and Scenario Analysis respectively, and finally Helder and Bram (Strategic Action Planning Process). More information was obtained from observations and key informant interviews during field excursions. The publication also gained from the materials obtained during the main presentations and plenary discussions of the International Seminar on urban food security held at the Impulse, Wageningen University and Research Campus. The technical and social excursions also presented additional material for synthesis. These excursions included, visits to organic farmers, Delphy Research Center, Flora Holland Auction Market at Aalsmeer, Arnhem Museum and Zaanse Schans in Amsterdam

4.0 Results and Discussions

Several analyses were carried out to determine existing challenges and opportunities in the Kenyan agricultural landscape ideal for leveraging smallholder accelerated integration into modern agri-food markets, for enhanced agricultural productivity, food security and poverty reduction. SWOT Analysis of Kenyan Agricultural sector represents some of the obstacles and opportunities (**Table 1**). The factors responsible for the success of the Dutch agricultural sector performance have also been presented in the analysis (**Table 6).**

However, agriculture being the leading sector in Kenya's economy, both public and private investment into the sector continues to decline **(Table 3 and 4).** According to Economic Survey (2016) the government's Fiscal policy objective is aimed at supporting rapid and inclusive economic growth, ensuring sustainable debt position and supporting devolution for effective delivery of services. In 2015/16 the fiscal plan was aligned to the second Medium Term Plan (MTP II) and strategic interventions of National Interests. The Fiscal strategy involves a continued prudent public expenditure management to contain fiscal risks, gradually lower the fiscal deficit and contain growth of recurrent expenditure in favour of productive capital spending.

The 2015/16 budget emphasized resource allocation towards development progarmmes in infrastructure, agriculture, security, health, education, social protection, and youth empowerment aimed at enhancing sustainable and equitable growth and job creation. However, from the budget statements for the years 2016/2017 and 2017/2018, the government's resource allocation is incoherent with its fiscal policy. The agriculture sector which is the fulcrum of economic growth, has seen its resource allocation drastically dwindle to 2.77 percent and 2.33 percent respectively. This allocation could even be lower considering that agriculture is combined with rural and urban development **(Table 3).** In addition budget deficit continues to grow. According to the Institute of Economic Affairs (2017) the financing gap in 2017/18 is about Ksh 880 billion.

According to Kosura (2016) **Figure 2,** the main drivers of the agricultural sector performance in Kenya, includes, the institutional environment (policies, laws and regulations), the biophysical environment (genetics, pests and diseases). The economic environment (markets, macro matrix) and the social environment (community, farmers).

4.1 The State of Food Security in Kenya

The Daily Nation, February, 6th 2017 states that the number of Kenyans, in need of relief food supplies has risen to 2.7 million from 1.3 million in 2016. The National Drought Management Authority Report (NDMA, 2017) indicates that, the next major harvest is expected in February 2018, implying that most households will depend on markets for survival throughout 2017. Nation on Saturday, May 20th 2017, Kenya is in the throes of an acute food shortage occasioned by a prolonged drought and poor governance. Prices of basic commodities have hit the roof top. The Treasury Cabinet Secretary, Published a Gazette Notice No 4536 dated, 11th May 2017 lifting duty on maize, milk and sugar to allow importation of these basic commodities. Kenya is experiencing one of its worst food shortages and high prices in decades. To ameliorate acute maize shortage, the government of Kenya through Parliament has approved a supplementary budget of Kenya shillings 6 Billion maize importation subsidy to cushion consumers of the escalating high prices. This has reduced the prices of a 2 kilogram packet of maize flour from Kenya shillings 150 to Kenya shillings 90. However majority of half of the Kenyan population lives below poverty line and therefore cannot access the market to purchase this vital commodity.

4.2 Lessons from the Netherlands Agri-Food System Development

4.2.0 Introduction.

●According to the Organization for Economic Cooperation and Development (OECD, 2015), the Dutch food, agriculture and horticulture sector has numerous advantages such as natural and geographic conditions, supporting different agricultural undertakings, a buoyant primary production, a system of family enterprises and a well- educated labour force, integration in net chains (networks and supply chains) of agro food products and a robust international orientation. OECD (2015) further alludes that, the Netherlands high share of agro-food exports in total exports and in Gross Domestic Product is relatively based on its high levels of land and labour productivity in primary agriculture propelled by extensive and incessant adoption of innovation that has enhanced input use efficiency in recent years and on the composition of high value production package, resulting from a constant process of rationalization, consolidation, mechanization and specialization. OECD (2015) concludes that this process has been supported by sound government policies that focused on agricultural development in a general environment conducive to innovations.

●Olaf (MAFS, 2017) states that industrial revolution and horticulture development at the end of the 19th Century caused a growing demand for food from the urban industrial areas of the Netherlands. In response the farmers organized themselves and created their own auction market and bank (Rabobank), while the Government invested heavily in research, extension and education, leading to the establishment of the Wageningen University and Research in 1918.

●The second surge in food demand in the Netherlands occurred after the Second World War. There was a very

high demand for food in the European Union, and the European Union tried to control agriculture, but not horticulture. According to Olaf (MAFS, 2017) the Dutch growers capitalized on the deregulated horticulture and enhanced their production efficiency supported by availability of ready market. Thus Dutch growers became champions of production, with production characterized with cheap energy, little space, moderate climate, enough water, good bank, research, education and big market.

●OECD (2015) states that the Dutch food, agriculture and horticulture sector is innovative and export focused accompanied by high value added in the entire food chain and important export shares for numerous agri-products. The persistence application of innovation has enabled the attainment of high degree of productivity and sustained productivity expansion especially at the farm levels, notwithstanding increasing environmental regulatory obstacles.

●OECD (2015) in addition posits that the general policy matrix in Netherlands is one of the best in the world and conducive to investment in agribusiness. This favorable investment climate includes innovation to increase productivity and sustainability. The Netherlands is a highly developed and knowledge based economy. The policy environment is encouraging to innovation because of the simplicity of conducting business, well-functioning and competitive markets, openness to trade and investment, which also enables knowledge transfers, high quality infrastructure and high quality education system responsive to business demand providing a well-educated and skilled labor force.

4.3 Dutch Agricultural Cooperatives

●Botden (MAFS, 2017) asserts that, there are about 500 agricultural cooperatives and about 50 Co-operatives have a turnover lager than 10 million Euros (**Table 7 & 8).** The Dutch agricultural cooperatives are particularly strong in input supply- (feed, fertilizers, seeds), Processing and marketing (milk, sugar and starch potatoes) and sales (vegetables, flowers and fruits). In The Netherlands farmers joined to buy a seed manufacturing Company while at the same time, acquired substantial ownership of the retail outlets. Thus the Dutch agribusiness is founded on strong cooperative movement with absolute ownership and management. This has eliminated completely brokers and middlemen in the value chain and substantially reduced the distance between producers and consumers and therefore stabilized agri-food prices.

● The market share analysis of the Dutch Cooperatives clearly indicates the significant role played by the Cooperative sector in the agricultural production and economic development of the Netherlands. By the year 2010, the Cooperative sector controlled the market share of sugar, cereals, dairy processing, potato, fruit and vegetables, mushrooms, flowers, cattle breeding and animal feeds. It is worth noting that the largest flower and horticulture auction market in the World (Flora Holland) situated at Aalsmeer is fully owned by growers association.

● In the Netherlands Famers Cooperatives are significant in reducing the gap between the farmers and the consumers and input providers. In other words the Dutch agriculture system has been able to drastically reduce the impact of agricultural brokers and middlemen. Majority of the farmer Cooperatives were founded at the end of the 19th Century and the beginning of the 20th Century because farmers were exploited by traders in the processing and marketing of agricultural products by private traders and processors. One significant aspect of the Dutch Cooperatives is the fact that the Cooperatives are owned by farmers and farmers are duly responsible for their administration. Cooperative activities cover all aspects of agri-food chains, form providing inputs, processing and trade in agricultural products in the global market. The Cooperatives have helped farmers to develop countervailing power against the non-cooperative sector.

4.4 The Changed Role of the Dutch Government

● Presently, the Dutch government has established the national top ten leading sectors for agricultural transformation, stimulating creativity and active roles of the private sector. The Dutch government has also adopted a policy shift from aid to trade in relation to its cooperation with developing countries starting the year 2020. The established national top ten sectors are, water, agri-food, horticulture plus propagation, high-tech, life sciences, chemicals, energy, logistics, creative industry and head offices.

4.5 Public-Private-Partnership

All the top sectors in the Netherlands are supported by a team comprised of, a team leader, a scientist, a senior official, and an innovative SME entrepreneur. The top sectors aim to strengthen their position by investing in knowledge and innovation. Government, Industry and science (The Golden Triangle), will target investment in the sector. The top teams develop action plans. The action plans are converted into innovation contracts. These set out arrangements and financial agreements between the industry, scientists and government.

4.6 Market Development and Strategy

● Botden (MAFS, 2017) posits that the Dutch have transformed the marketing mix strategy that previously relied

on the 4Ps to the current 4Es (**Table 9).**The institutions such as the market system and chains are well organized in the Netherlands. The markets are organized by growers through auctions and the supermarkets control the retail market. The markets are becoming increasingly flooded whilst the share of agricultural and food products in consumer expenditure is nominal. The volume of demand is stationary, while the composition of demand is varying because of changes in consumer behavior with increased focus on food safety and diversified consumer market.

4.7. Market and Price Policies

● Markets and price polices have assumed and integral role in the development of agriculture in the Netherlands. Following the 19th Century agricultural crisis caused largely by cheap grain imports form America, the Dutch sought the solution by maintaining the principle of free trade and in improving the factors of production and the chains of production. This deliberate choice of increasing competitiveness is the hallmark of the starting point of modern Dutch agriculture. The Formation of the European Economic Community (EEC) and the EU after the Second World War. The European Union developed a common agricultural policy with a common market and price policy as its major components. This created a huge market inside the EU without bottlenecks to trade between member states, albeit the protection of the market from outside the EU boundaries. Thus the establishment of the EU has an important step for the Dutch agricultural sector by providing a large market for its agri-food products.

4.8 Macroeconomic policy environment

● OECD (2014a), states that stable and sound macroeconomic policies play a significant part in setting a conducive matrix for investment by farms or agri-food firms seeking to introduce new products to adopt new production methods or to undertake organizational changes that can lead to higher productivity growth and more sustainable use of natural resources. In the Netherlands, Economic growth is directly correlated with food security and wealth creation.

4.9 Supply Factors in the primary Sector

● The policies of the government and the farmers union to enhance the quality of the factor inputs and the farm structures have greatly predisposed the success of the Dutch agriculture. These polices have been an important tool to expand labour productivity and thereby farmers' income and competitiveness.

4.9.1 Land and Water:

● Land ownership in the Netherlands is both public and private. All land is registered in the land register, which is a basis for efficient land use and explicit ownership rights. There is an entire judicial system of institutions for the control of property and land rights. Tenants are allowed to rent land and farm buildings for a long term period and at the completion of the tenure the tenant is paid for amelioration.

4.9.2 Land use Planning:

● There is system of land use planning whereby the central, provincial and municipal governments are engaged respectively and the plan is reviewed after every decade. The strategy at the local level denotes what kinds of land use are permitted. This provides a certain protection for agriculture against high land prices. Botden (MAFS, 2017) states that, agriculture land price in Netherlands is approximately 100 Euros per square meter.

4.9.3 Land Consolidation and Water Management:

●.At the lowest tier are the District Water Boards whose members are elected by the residents. The District water board is responsible for proper water management. The District water boards are the oldest public institutions in the Netherlands dating from the 14th Century. In the Netherlands, requirements for proper land use have changed over the years due to mechanization, the introduction of new crops and different management systems. As a result, land consolidation occupies a significant part in Dutch agricultural transformation. Land consolidation is based on a legislation partly subsidized by the central government, and stakeholders are involved in the development of the land consolidation strategy. **Figure 3** shows the trend in structural change in Dutch agriculture, especially land consolidation.

4.9.3 Labour and Farm:

● Since the 1950s agricultural employment in the Netherlands has been declining. To avoid and reduce hidden unemployment in agriculture, growth in non-agricultural employment in the rural areas has been promoted. The Dutch government encouraged rural employment by enhancing transport infrastructure, developing rural industrial zones, subsidizing the development of firms by low land prices, transferring government services from over-crowded urban to rural areas. The expansion of non-agricultural employment catalyzed the movement from agriculture and by extension the increase in agricultural productivity.

●According to the Economic Survey Government of Kenya (2016), the gazetted monthly basic minimum wages for agricultural industry indicates that unskilled employee earns a monthly basic wage of Kenya shillings, 5,437 as at 2016. Botden (MAFS, 2017) affirms that labour cost is very high in the Netherlands. Unskilled minimum

wage in agricultural sector earns 17 Euros per hour, translating to euros 136 per day for eight hours worked. This converts into Kenya shillings 436,560 at today's exchange rate. With stable and low agri-food prices this implies that the share of agricultural and food products in consumer expenditure in the Netherlands is nominal.

4.9.4 Farm structures:

From 1950 Netherlands has been aggressively undertaking the policy of land consolidation. This policy has led to a substantial reduction in the number of family farms, whilst the size of farms have remarkably increased. By the year 2008, the farm sizes were approximately26hectares per farm. This consolidation has enhanced mechanization, and improved productivity through both economies of scale and scope.

● Family farms are dominant farm structures in the Netherlands. Currently due to structural transformation, there is an ongoing process of enlarging family farms. The government is achieving this by terminating less efficient farms of older farmers. Majority of the farmers are enlarging the size of their farms (measured in value added) by intensification of land use and may increase efficiency of farming by specialization. This was accompanied by an increased application of pesticides and production of manure. However, the EU and the Dutch government environmental policies are presently addressing the resultant environmental obstacles.

4.9.5 Human Capital Formation

● The improvement of research, education and extension has been the main subject in the agricultural policies of the Netherlands for more than a hundred years. Research, education and extension molded an integrated system in which there was a large degree of consistency and harmonization between the organizations in charge for the diverse types of research, education and extension. This strategy created a significant contribution to the expansion of labor productivity in Dutch agriculture. The consistency was targeted at effective and efficient improvement, transfer and application of knowledge. The harmonization resulted from a complex system of the representation of interests in the administration of the organizations involved.

●All stakeholders in private (farmers' Organisations) and public sector were represented in the management of every link in the system. An effective representation of the interests of the sector guaranteed a robust orientation towards the development of knowledge, for the answers of practical problems even within strategic and basic research. The government allocates colossal amounts of resources to the establishment and dissemination of knowledge for agriculture and administration. Private industry and agribusinesses provide strong support to the improvement and use of cutting-edge technologies in agriculture. The degree of education of Dutch farmers is quite high and advancing. Intensive application is made of diverse kinds of extension including extension of supplementary industries.

4.9.6 Capital:

● Agriculture is increasingly becoming capital intensive in the Netherlands. The supply of capital is not the domain of the government. Framers established cooperative banks for the provision of capital at reasonable rates of interest. In this regard cooperative banks performed a significant part in the development of Dutch agriculture. Additionally two government policy tools enhanced the modernization of Dutch agriculture. The Agricultural Loan and Guarantee Fund (ALGF) founded in the 1950s and still in operation targeted profitable investments with insufficient securities in order to promote productivity and profitability of the agricultural enterprises. The purpose was that skilled farmers who had less capital should not be denied borrowing credit for profitable investment if they lacked sufficient usual securities. The fund guaranteed the payment of the interest and the repayment of the loan. Many farmers took advantage of this facility and the default risk was very minimal.

● Development and Reorganization Fund operating in the 1970s and 1980s was a subsidy scheme on the interests on loans. This was the brainchild of the EU with the objective of modernizing agricultural enterprises with development potentials. The subsidy was granted on account of a development strategy and compensated by the European Agriculture Guidance and Guarantee Fund (EAGGF). The Dutch derives its competitive strength in agriculture from the interest subsidy. Economy –wide instruments also influenced the modernization of the agriculture. The fiscal legislation during the period 1978-1990 encouraged industrial investment. Entrepreneurs who adopted this policies paid less tax because they could reduce the investment bonus from income or corporation tax due. Many Dutch farmers made good use of this scheme.

4.10 Economies of Scale in Agri-food Production Process

● The Dutch agribusiness has taken a northerly trajectory due to incessant process of increase in in scale of the supply and processing industry. Growth in scale has caused enhanced efficiency of industrial processes by lowering the costs per unit of product and expanding the contribution margin. The Dutch were able to achieve two kinds of economies of scale; at the level of the location and at the level of the enterprise. Economies of scale at the level of the location are mostly product specific. Expansion at the location was obtained through autonomous development or through amalgamation of productive capability after a take –over or merger.

● Economies of scale at the level of the enterprise are primarily linked with non-material variables such as, management and organization, knowledge, experience and brands. The increase in scale that determined the growth of the Dutch supply and processing industries for most of the 20th Century was preliminary a process of

the concentration of production activities. Cooperatives have invariably played a significant role in the process of cost reduction by large scale production mostly directly benefits the members. Continuous technological advancement in production and transport has been of paramount significance in the process of concentration

4.11 Internalization

● Globalization and internalization of the economies is the current trend in the contemporary World. Globalization and internalization occurred in the Netherlands several decades ago. Globalization takes different forms, such as exports and imports of products, issuing a license for knowledge or a brand, and foreign investment in production. In the case of foreign investment, an enterprise can elect a joint venture with another enterprise, take-over of an existing enterprise or start up a new enterprise. The Dutch agriculture and food industry is mostly global in its emphasis in terms of exports and for firms to have production facilities abroad. The Dutch agri-food industry is aggressively pursuing the strategy of globalization. This can be demonstrated by the fact that, today the Dutch is leading exporter of cocoa and coffee products with no local production of cocoa and coffee. As firms in the Dutch agri and food industry developed in the 20th Century, they complimented this export plan with strategy of foreign production, thereby attaining economies of scale and economies of scope.

● To encourage the export of agricultural products and processed foods, sound knowledge of the destination countries is imperative. The Dutch has established agricultural consulates in many countries to aid in obtaining timely and reliable information to the Dutch agribusiness enterprises. The immense success of the Dutch agricultural export has been pegged on the principle of comparative advantage and as a result to import a huge quantity of land –intensive farm-products. The extensive livestock and poultry sector has grown largely leveraged by huge imports of feed grains, comparative advantage and the development of research and development and marketing. This strategy has proved vital for the last 65 years and it is this trade strategy which has been the game changer in the success of the Dutch agri-food sector.

4.12 Institutional Framework

● Institutions are the framework of the success of any agribusiness enterprise. The Netherlands is characterized by free entrepreneurial, organized production and distribution. Competition is regarded as desirable and promoted by the government in the spirit of continuous consultations between the government and farmer groups. The aforementioned characteristics also apply to agribusiness. The public private partnership (PPP) is a significant factor in the growth of the Dutch agriculture. The PPPs in Dutch agriculture is analogous to the oil that keeps the machine running smoothly. PPPs has proved vital in the development and modernization of the Dutch agriculture .This strategy ensued close relations between the agribusiness, politics and the civil society. There are good laws and regulations that governs every aspect of agri-food systems development.

5.0 Conclusion

5.1 Market Access by Smallholder Farmers

● Market is a vital institution for poverty alleviation and income generation. However, the extreme and chronically poor households cannot benefit from the workings of the market because in terms of asset accumulation, they have none to be able to participate in agricultural production to supply to the market nor have income to purchase in the market. However, empirical evidence has shown that, various institutional incentives can help extricate the extreme and chronically poor households from perennial poverty through asset accumulation and agricultural productivity stimulated by market access. In Kenya, despite smallholder agricultural productivity being high, the smallholders are characterized by extreme and chronic poverty, food insecurity and low productivity. To revitalize smallholder agriculture and enhance market access an array of institutional incentives are necessary to encourage the extreme, the chronic and transitory poor engagement in agricultural commercialization (**Figure 1).** Through sound institutional arrangements Netherlands a small Country in Western Europe with high population density has managed to be a global leader in agri-food production and export. In fact Netherlands in the second country after the United States of America in agri-food production and export. As alluded by the World Bank, Kenya has the potential of becoming a leading agri-food producer and exporter in the region through optimization of institutional incentives and arrangements.

● Empirical evidence has shown that Kenya is among three countries in Africa, where economic growth has not supported food security and poverty reduction initiatives. Thus there is an urgent need to investigate the apparent inverse relationship between kenyas' annual economic growth and food security and povertry reduction among the rural poor. The third objective in this broad research aims at providing solution to the aforementioned inconsistency.

● Helping poor producers to expand their output is the most effective and the only way to bring about rapid overall economic growth. The critical areas of intervention for the rural poor, includes, access to productive resources (especially land and water), sustainable agricultural production (including, fisheries and livestock intensification), small-scale water management and irrigation, provision of rural financial services, rural

microenterprises, storage and processing of agri-food products, research, extension and training, small-scale rural infrastructure (feeder roads, electricity and security), and capacity building for rural producer groups and organizations. The government should ensure more budgetary resources are devoted to infrastructure development in all counties to stimulate agri-food investment and production by the poor in the forty seven counties within the principle of comparative advantage.

5.1 Recommendation

5.1.1 Social Protection Programmes in agriculture

● The social protection program should be reviewed to target specifically the poor who will then engage in agricultural productivity, using their own farms for the transitory poor and land rental for the extreme and chronically poor. Land reforms should ensure land consolidation and eschew sub-division of family land in high potential agricultural areas below 3acres.

5.1.2 Agriculture Public Private Partnerships (Agri- PPPs)

● The government should promote through enabling environment the application of agri–Public Private Partnerships in agricultural entrepreneurship development. Predisposed by increasing budget deficits and burgeoning public debt, the government is confronted with limited resources for effective inclusive agricultural investment. The government should encourage innovative partnerships that coalesce business (private sector), government and civil society actors to promote a mechanism for increasing growth and driving development in agriculture and food sector in Kenya.

● Through utilization of agri-Public- Private Partnership concepts, the government should provide a conducive environment for registration of more agri-PPPs tailored towards smallholder commercialization. The agri-PPPs will provide technical, financial and markets for the smallholders. School feeding progarmmes should be expanded to include all primary and secondary schools and provide legislation for institutional purchases of agri-food products from local organized farmer groups. The smallholder farmer groups should enter into contract farming with local institutions and supermarkets. In particular legislation should be enacted that will ensure that at least 50 per cent of all government and private institutional purchase emanates from smallholder farmer groups.

● Against the backdrop of dwindling and limited government resources, expertise and to reduce the burgeoning fiscal deficit, innovative partnerships that bring together private sector (smallholder farmer organizations), government and the civil society should be promoted as a mechanism of driving growth in agriculture and the food sector in Kenya. Agricultural PPPs are broadly promoted as having the potential to assist modernize the sector and provide an array of benefits that can contribute towards sustainable agricultural growth that is inclusive of smallholder farmers.

5.1.3 Total Factor Productivity Improvement and Agriculture Value addition

● There is an urgent need to increase the total factor productivity in agriculture by the smallholder farmers. According to the Technical Report for the Post-2015 Development Agenda (2013) by the Solutions for Sustainable Agriculture and Food Systems, total productivity is the productivity of all inputs taken together. It compares growth in all inputs (land, labor, capital, material inputs) with growth in total output of crop and livestock products. It is mainly a measure of technological efficiency and does not account for agriculture's effects on the environment.

● Usage of fertilizers, pesticides and water by smallholder farmers is still very low in Kenya. Smallholder farmers should be facilitated to access more credit to purchase sufficient agricultural inputs. The government should optimize institutional incentives to facilitate the establishment of input manufacturing industries in virtually every county with high agricultural potential. This will reduce input costs enabling increased input usage and high agricultural productivity and food security. Food prices will also reduce due to a reduction of transaction costs leading to vibrant development of agribusiness enterprises benefiting women and youth through employment creation and income generation in the rural areas.

5.1.4 Government divestiture from Agricultural Productivity

● Empirical evidence has shown that mega stand -alone -public sector agricultural investments have failed to increase agricultural productivity, reduce poverty and food insecurity and create employment, especially in developing countries. Cognizant of the aforementioned realities, the government of Kenya should review its undertaking in the multi-billion Galana-Kulalu food production program and instead facilitate the private sector, through smallholder land rentals. The smallholder farmers should then form Cooperatives that will ensure economies of scale in the production process and stronger bargaining power for value added products in the market. This initiative will greatly improve agricultural productivity, food security, employment generation and poverty reduction.

5.1.5 Reducing the distance between the farmer and the consumer

● The government should ensure that smallholder farmer groups and Cooperatives manage virtually the entire supply and value chain to eliminate brokers and middlemen currently dominating the supply/value chain in terms

of benefits. With stronger farmer associations and cooperatives, there will be better prices for the famers and stable low prices for the consumers. For example the current maize shortage in Kenya seems to be manmade. Through the subsidy program the government is willing to pay maize importers kshs 4,300 per 90 kg bag, while insisting on paying local farmers Kenya shillings 3,600. This scenario can only be explained by the existence of powerful brokers in the value chain. To achieve this, the government should enhance governance structures to ensure transparency and accountability in the public service and that political brokers are eliminated completely from the agricultural value chains.

5.1.6 Empowering Farmer Associations and Cooperatives

● Through regulatory environment, the government should strive to eliminate brokers and middlemen in the agricultural value chain to reduce the distance between the producers and consumers. The farmer associations and cooperatives should be empowered through legislation to engage in input supplies, credit provision by converting the Agricultural Finance Corporation (AFC) into a farmer bank owned by farmers, analogous to Rabobank of the Netherlands. These farmer associations or Cooperatives should also be the only entities, bestowed with the responsibility of processing, distributing and marketing of agri-food products in the local and international markets. In this way the brokers who artificially create a long chain in the value chain will be eliminated and more profits will accrue to the farmers, whilst the consumers will be benefit from low commodity prices of high quality.

5.1.7 Adoption of Science and Knowledge brokerage through the 'Golden Triangle' Concept

● The Golden Triangle is an innovative collaborative partnership between the research and universities and the government and farmer groups, representing the private sector. The government provides enabling environment, rules and regulations and equity finance in collaborative research carried out by the research institutions for agricultural productivity by the private sector (farmer groups). The government should promote the application of the "**Golden Triangle**" which is the intensive cooperation between the government, the business sector and science (academia). For instance the Dutch government is currently propagating new horticulture varieties, especially strawberries and tomatoes through collaboration with the private sector (Delphy), the Government and Wageningen University and Research at a cost of 290,000 Euros, per annum with government contributing at least 40 percent of the research costs. This is a complex mechanized system of glasshouse agriculture on approximately 8 acres with seamless economic supply of factor inputs (water, Carbon dioxide and nutrients). The government should prioritize action research as a versed to academic research by using locally available resources such as cheap labour and energy. In Kenya cheap plastic greenhouses for horticulture should be encouraged to spur agri-food productivity for high value crops.

5.1.8 Institutional Governance and Sound Macroeconomic Policies

● Transparent and accountable political governance that is consistent with the promotion of the rule of law and inclusive development will enhance agricultural infrastructure development targeting all regions and groups in the society. The government should adhere to its fiscal policy objective of reduced budget deficits and more budgetary resource allocation to the agricultural and allied sectors. With prudent fiscal management, inflation and interest rates will go down and the private sector will have access to cheap and more credit for increased agricultural investments targeting the smallholder farmers. The government should also identify its top ten leading sectors in terms of economic development and job creation and allocate more resources on a pro rata basis.

5.1.9 Establishment of Metropolitan Food Clusters in the 47 Counties

● Through County planning strategy, the government should identify and establish agricultural commercialization clusters popularly known as metropolitan food clusters (MFCs) in every County. Metropolitan food clusters is a not a blueprint but a design concept for agricultural transformation. The establishment of metropolitan food clusters in every County will be accompanied by massive agricultural investments in road network, distribution, storage and factor inputs supplies, such as water harvesting and storage through construction of canals, dams to foster irrigation farming. Metropolitan food clusters should be designed within the principle and theory of comparative advantage within the Counties. For instance the Netherlands government is helping the Chinese Government to build 1,000 hectares Agro Park in Beijing. These metropolitan food clusters will increase gri-food productivity, reduce food insecurity, create more rural and urban employment thereby reducing poverty and raising poor people's income.

● Metropolitan food clusters essentially involves the establishment of a designated region for food production to supply agri-food to the adjacent urban population. The incentives and infrastructure to promote agri-food chain development are created in that particular area, such that factories for producing factor inputs, agri-food farms, processing are centrally located and served with impeccable logistics and distribution networks for market access. The strategy of metropolitan food clusters will drastically reduce agri-food transaction costs, increase productivity and enhance market access for agricultural products. It also leads to job creation through decentralization of industries from the urban to rural areas further maximizing the employment and utilization of factors of production.

5.10 Social Protection Programme for Agricultural productivity

●Currently the government of Kenya is providing Kenya shillings 24,000 annually and translating to Kenya shillings 360,000 in fifteen years as social protection to every the old citizen aged over 70 years, irrespective of their poverty status. The government should redesign its social protection strategy to ensure that it targets the absolute and chronically poor, who can then acquire assets and enhance agricultural productivity, food security and poverty reduction and employment creation.

5.11 Institutional and Land Reforms

● Land reforms should be undertaken to enhance land registration and consolidation for agricultural productivity. Agricultural land sub-division especially in high potential areas should be restricted to land below 3 hectares. Currently smallholder farming in high potential areas is on farm lands between 0.2 to 3 hectares producing 75 percent of total agricultural output in the Country. This initiative should be accompanied by a paradigm shift in traditional and cultural values of land inheritance that requires sub-division of family farms to individual members. Netherlands has successfully implemented land consolidation strategy and this has enhanced its productivity through mechanization. Surely, rural development and job creation in the agricultural value chain will require more consolidation of farms into greater sizes and create agribusiness entities that are more productive and sustainable. Local and international market access is enhanced when there is guaranteed continuous supply of agri-food products throughout the year.

● Through incentives for agricultural commercialization and entrepreneurship, agriculture can become an attractive entrepreneurial undertaking, reducing drudgery, unemployment and providing more women and youth decent and fulfilling work. Increased value addition and processing of agri-food products through the establishment localized cottage industries and use of information technology in the entire value chain management, will further encourage more skilled and educated youth into agriculture.

● Through land reforms, the government the government should provide laws and regulations for optimized land rentals for agricultural productivity. This will enhance opportunities for the absolute and chronically poor in the social protection programme and with social capital to
acquire assets for agricultural production, thereby enhancing food security, wealth creation and poverty reduction in Kenya.

5.12 Mandatory Institutional Purchase of Smallholder Agri-Food Products and Universal School Feeding Programme.

● The government should consider strengthening through appropriate legislation establishment of farmer/producer associations and cooperatives for the benefit of all smallholder farmers. Legislation should be enacted to make mandatory institutional purchase of at least 50 percent of agri-food products from organized smallholder farmer groups. To enhance market access for the smallholder farmers, the government should expand school feeding progarmme and ensure that all primary and secondary schools provide meals to their students. These schools and local institutions should purchase agri-food products from the farmer groups within proximate geographical jurisdictions. These institutional purchases should target all hospitals, military establishments and enforced through contract farming. The universal school feeding progarmme will improve school enrolment and enhance education levels, reduce maternal and child mortality and morbidity rates.

Tables and Figures

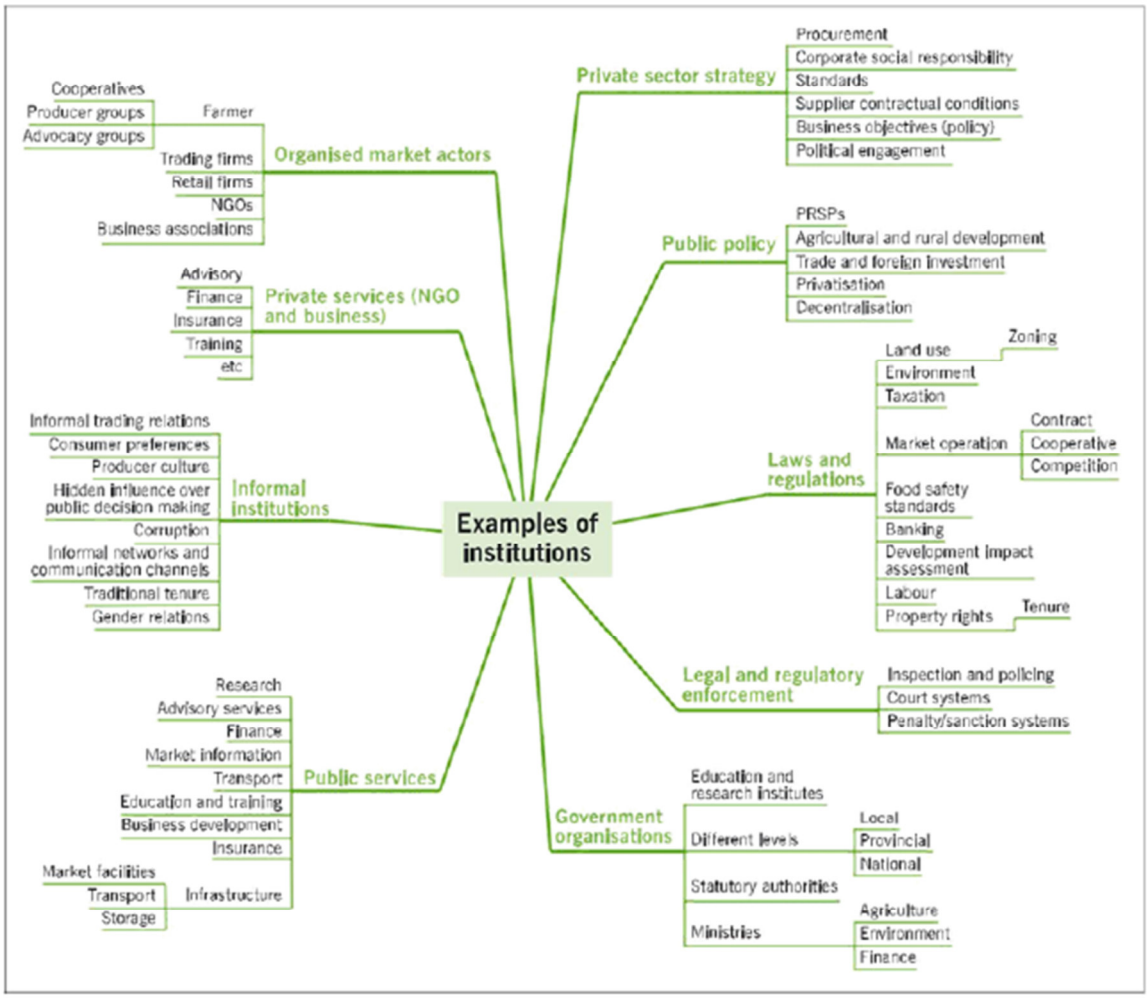


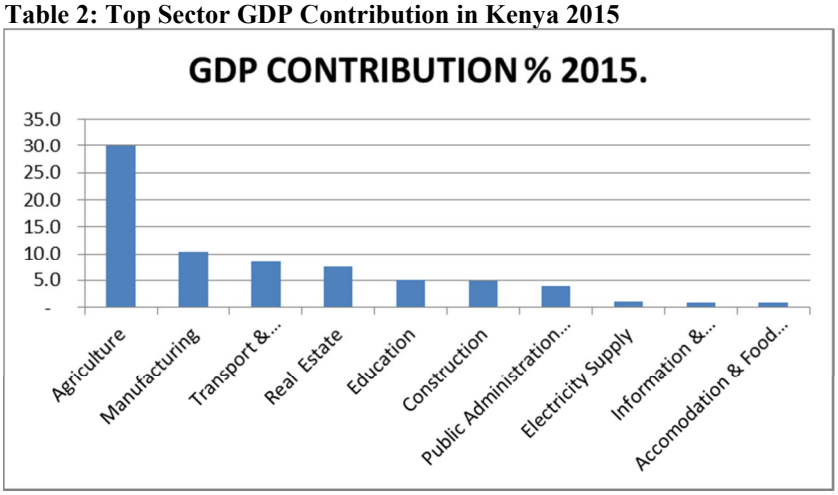
Figure 1: Key Institutions Involved in Agri-food smallholder Productivity; Adopted from*:* Birner, 2006

Table 1: SWOT Analysis of Smallholder Farming In Kenya

Strengths	Weaknesses
1. Availability of skilled human resource base 2. Enabling policy and legal framework e.g proper land and property rights, Public Private Partnership Act 3. Existence of a vibrant private sector investment in agriculture 4. Availability of basic infrastructure e,g roads, connecting major towns and cities 5. Availability of solar energy 6. Expanding Gross Domestic Product and especially agricultural GDP 7. Availability of cheap agricultural labour 8. Centrally located and gate way to East and Central Africa 9. Member of East African Community and access to a large regional market 10. Expanding population of international community with sophisticated dietary intake and lifestyle 11. Highly developed internet and telecommunications industry for digital transactions	**1.** Inadequate funding and budgetary allocation **2.** Inadequate agricultural extension services **3.** Weak information and data management **4.** Over-reliance on rain feed agriculture **5.** Poor governance e.g corruption, mismanagement of public resources **6.** Low agricultural productivity e.g low yield gaps **7.** Low total factor productivity **8.** Low uptake of agricultural inputs e.g certified seeds, fertilizers, water, mechanization **9.** Low value addition of agricultural products **10.** Poor rural infrastructure e.g rail and road network, electricity, storage, warehousing and established physical markets **11.** Low uptake of modern agricultural technologies **12.** Lack of diversification in dietary intake leading to over-reliance on maize as a staple food. **13.** Availability of numerous legislations and policies affecting agricultural production, processing, marketing and trade. **14.** Lack of organized and effective smallholder farmers and producers organizations. **15.** Lack of inclusive economic growth **16.** Unstable macroeconomic environment e.g inflation, budget deficits etc
Opportunities	**Threats**
1. Availability of natural resources for expansion of agriculture e.g land , water, fertile soils 2. Ready market for agri-food products 3. Supportive development partners 4. Existence and adoption of new technologies 5. Existence of collaborating institutions 6. Maturing and stable democracy 7. Urbanization and increasing middle class with purchasing power. 8. Discovery and exploitation of oil in Turkana, with the first oil export expected in June 2017.	**1.** Climate change and environmental degradation **2.** Continued sub-division of family land **3.** High and rising poverty levels **4.** Rampant insecurity **5.** High costs of inputs **6.** Trade liberalization and economic treaties e,g EPA agreements, 7. Rising food insecurity 8. Increasing rural urban migration 9. High prevalence of HIV/Aids, and other disease burdens 10. High dependency ratio and increasing youth population with no employment.

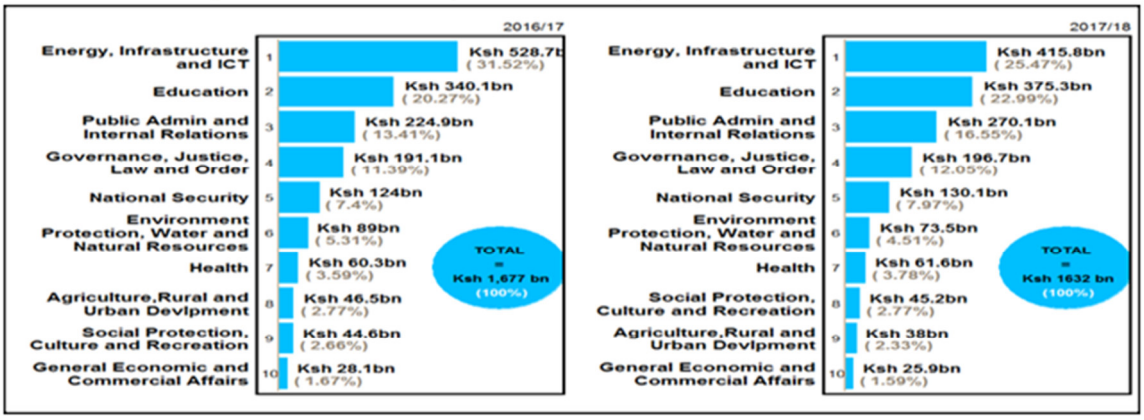
Source: **Modified from Ministry of Agriculture, Livestock and Fisheries - Strategic Plan 2013 - 2017 (Revised 2015) GoK**

Table 2: Top Sector GDP Contribution in Kenya 2015



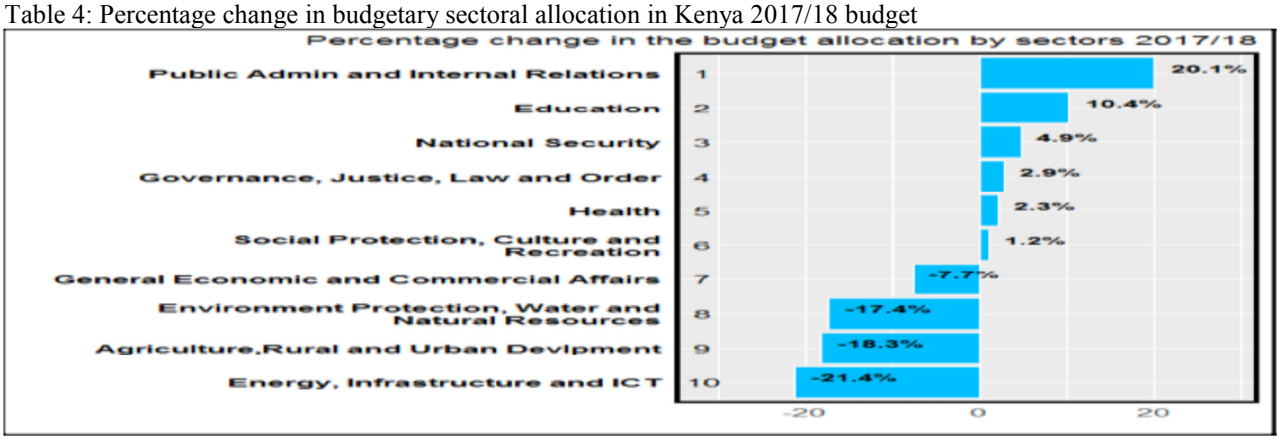
Source: Authors computation from Government of Kenya Economic Survey 2016.

Table 3: Total budget share allocation by Sectors in Kenya 2016/2017 and 2017/2018



Source: Institute of Economic Affairs, Kenya Budget Analysis March 2017

Table 4: Percentage change in budgetary sectoral allocation in Kenya 2017/18 budget



Source: Institute of Economic Affairs, Kenya budget analysis, March 2017.

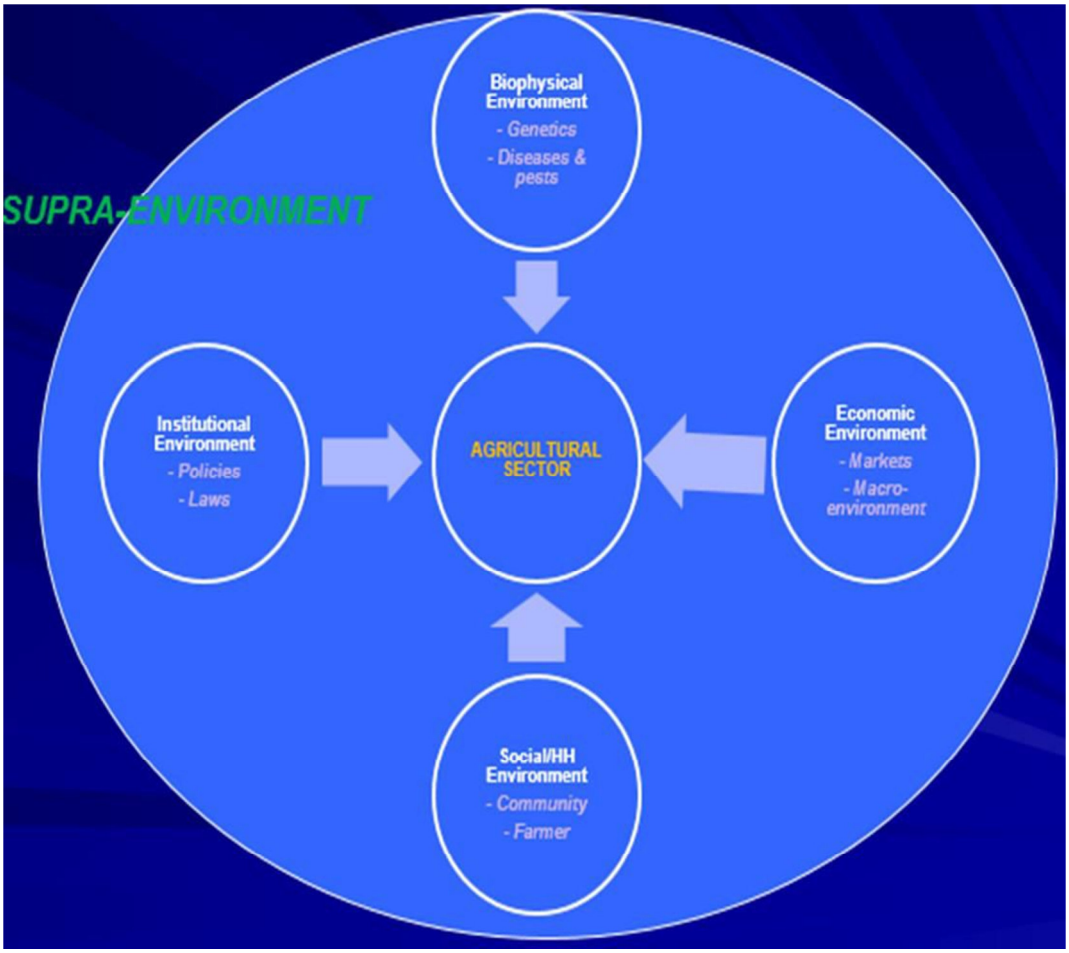


Figure 2: Drivers of Agricultural Sector Performance in Kenya;Adopted from Kosura 2016.

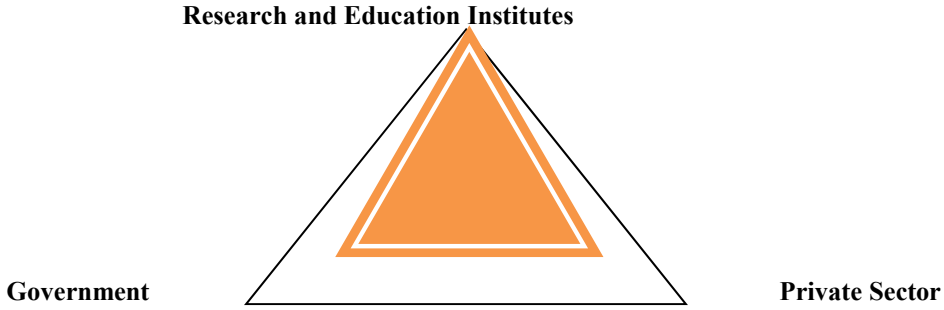
Table 5. Annual growth in agricultural value added and total factor productivity, 2005–2012, selected African countries

	Agricultural value added, annual % growth (2005–2012)	Agricultural total factor productivity, annual % growth (2005–2012)
Burkina Faso	6.0	-0.08
Côte d'Ivoire	-1.75	3.06
DR Congo	3.13	-1.17
Ethiopia	8.35	2.68
Ghana	3.56	1.44
Kenya	2.72	0.56
Malawi	3.30	2.93
Mali	6.34	2.17
Mozambique	6.31	2.18
Nigeria	6.15	-0.47
Rwanda	5.26	6.19
South Africa	1.95	3.15
Tanzania	3.97	1.46
Uganda	1.40	-2.68
Zambia	0.33	3.14

Source: *World Bank, (2015); USDA, Economic Research Service Total Factor Productivity Database compiled by Keith*

Table 6: Summary Success Factors in Dutch Agriculture

1. Extensive cooperation between growers in working, learning and benefiting together
2. Mild climate and fertile soils
3. Close to highly populated areas (European Union with approximately 500 million consumers
4. Good infrastructure: air, roads sea and rail
5. Developed educational systems (all levels), and extension
6. High level research environment (Wageningen) providing the Golden Triangle



7. Availability of water resources. Netherlands is endowed with numerous fresh water lakes and rivers enhancing irrigation agriculture.
8. Availability of natural resources for cheap production of fertilizers and other inputs

Source; Botden (MAFS, 2017). Market Access for Food Security Course Lecture Series in Netherlands.

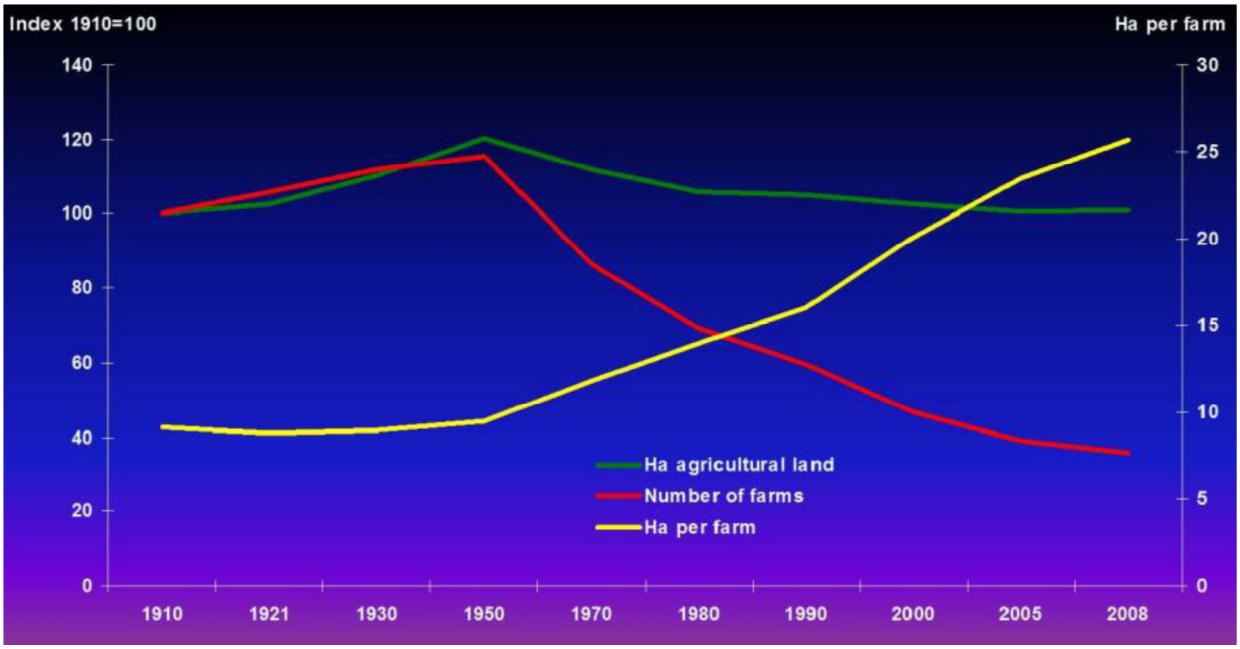
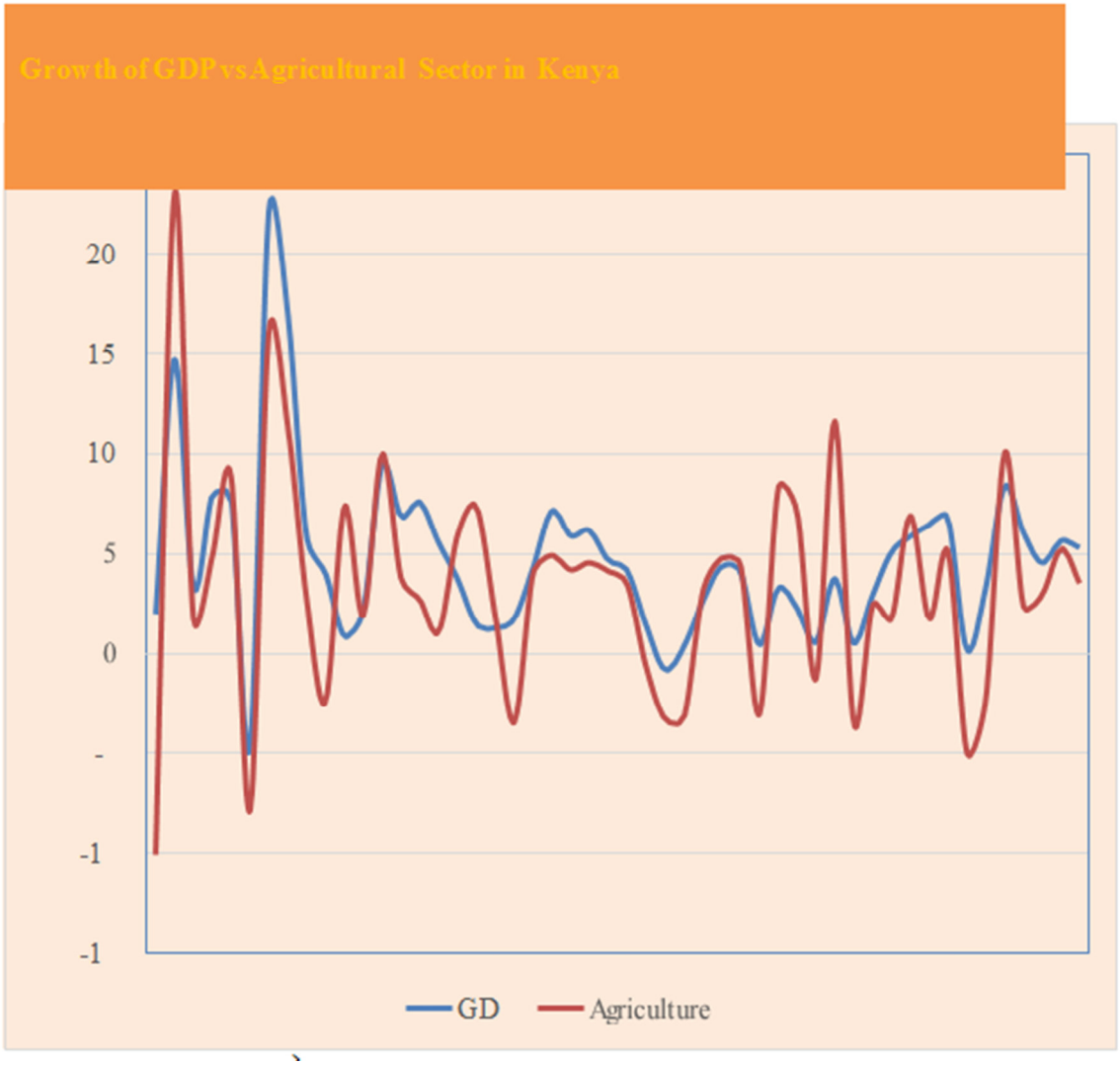


Figure 3: Structural Change in Dutch Agriculture, adopted from Botden (MAFS, 2017). Market Access Food Security Course Lecture Series in the Netherlands.



World Bank data (2016)

Figure 4: Relationship Between Kenya's Economic Growth and Agricultural Growth Between 1965-2013, adopted from Kosura 2016.

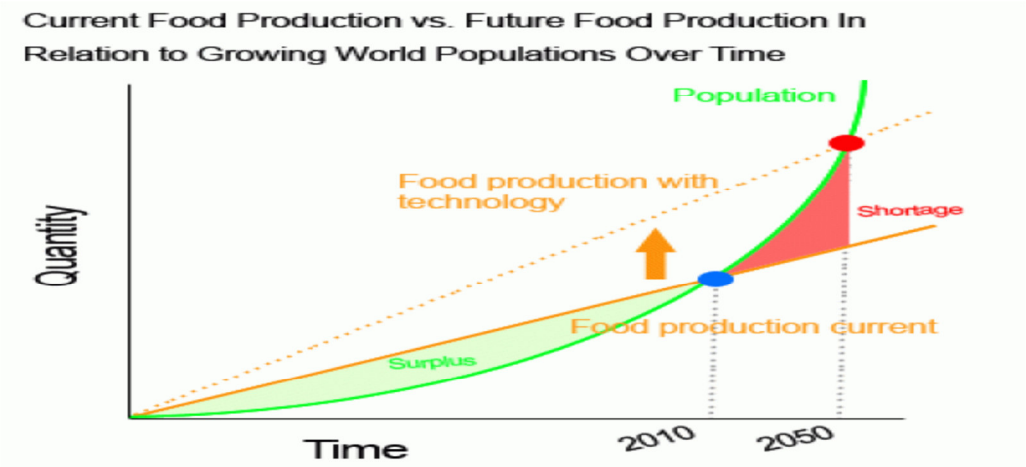


Figure 5: Showing increasing demand for food production innovation adopted from Botden (MAFS,2017)

Table 7: Top 20 Dutch Agricultural Cooperatives

Rank	Name of Cooperative	Sector/Activity	Turnover 2012 (million €)	Members
1	FrieslandCampina	Dairy	10309	14132
2	ForFarmers	Supply / Feed	6562	6300
3	FloraHolland	Ornamentals	4398	4672
4	Agrifirm	Supply / Feed	2436	18000
5	Royal Cosun	Sugar	1945	9524
6	Coforta/The Greenery	Vegetables and Fruit	1397	720
7	FresQ	Vegetables	849	128
8	Avebe	Starch Potatoes	554	2633
9	DOC Kaas	Dairy	456	1078
10	CZAV	Supply / Feed	420	3057
11	ZON fruit & vegetables	Vegetables and Fruit	353	330
12	AgruniekRijnvallei	Supply / Feed	293	2358
13	CNB	Flower bulbs	284	1364
14	Boerenbond Deurne	Supply / Feed	269	469
15	Best of Four	Vegetables and Fruit	282	182
16	Van Nature	Vegetables	259	105
17	CNC	Mushrooms / Compost	226	176
18	Agrico	Seed Potatoes	209	897
19	Horticoop	Supply to horticulture	191	1593
20	Fruitmasters	Fruit	189	471

Source: adopted from Botden (MAFS 2017): Market Access for Food Security Course Lecture Series in Netherlands

Table 8: Market shares of Dutch Cooperatives

	Agricultural Cooperatives (N°)		Market Share (%)		Farmer Members (only in NL)	
	2000	*2010*	*2000*	*2010*	*2000*	*2010*
Sugar	3	2	63	100	13.700	9.940
Cereals	3	3	n.a.	>55	n.a.	n.a.
Dairy (processing)	5	5	83	86	21.600	15.200
Pig meat	3	0	34	0	10.000	0
Wine	0	1	0	n.a.	0	12
Fruit & Vegetables	15	19	71	95	9.000	4.500
Potato starch	1	1	100	100	4.800	1.600
Seed and Ware Potatoes	7	6	n.a.	n.a.	3.900	1.500
Mushrooms	2	3	>50	>80	470	200
Flowers	6	3	95	95	9.400	5.300
Pig breeding	1	1	n.a.	85	n.a.	2.300
Cattle breeding	1	1	90	80-90	34.750	18.000
Farm inputs O.w. animal feed	25 20	15 13	n.a 53	n.a. 55	50.000 ?	35.000 28.000

Source: adopted from Botden (MAFS 2017); Market Access for Food Security Lecture Series in Netherlands

Table 9: Transformation of Marketing Mix Strategy from 4Ps to 4Es

From Product	to	Experience	(discovery)
From Place	to	Everyplace	(digital)
From Price	to	Exchange	(value)
From Promotion	to	Engagement	(Passion)

Source: adopted from Botden (MAFS 2017); Market Access for Food Security Lecture Series in Netherlands

Table 10: Comparison between Kenya and Netherlands Agricultural Statistics 2014

Description	Netherlands	Kenya
Employment in Agriculture %	2.5	**61**
Employment in Agriculture, Female %	1.5	68
Fertilizers, Nitrogen (Kg of nutrients per ha)	274.5	20.3
Fertilizers, Phosphates (Kg of nutrients per ha)	14.8	18.3
Fertilizers, Potash (kg of nutrients per ha)	20.8	5.7
Agriculture value added per worker (constant US$)	70,859	396
Food Exports (Mln US$)	56,768	382
Food imports(Mln US$)	41,002	1,216
Population (Million)	17	46
Land Area km^2	45,000	587,000

Source: FAO 2015

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