

AGRICULTURAL DEVELOPMENT AND FOOD SECURITY IN KENYA

Building a Case for more Support

**A paper prepared for
Food and Agriculture Organization (FAO)**

By

Kang'ethe W. Gitu

September 2004.

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	5
ACRONYMS	11
CHAPTER 1	
1.0 INTRODUCTION AND BACKGROUND	13
1.1 Study Objectives	14
1.2 Data and Methodology	15
1.3 Study Organization	15
CHAPTER 2	
2.0 DESCRIPTION AND ANALYSIS OF FOOD SECURITY IN KENYA	16
2.1 Food Supply and Demand	16
2.1.1 Food Supply	17
2.1.2 Sources of Available Food	17
2.1.3 Food Crops	18
2.2 Food Imports and Aid	19
2.2.1 Food Insecurity	22
2.2.2 The State of Nutrition	23
2.2.3 Poverty and Vulnerability	24
2.2.4 Domestic Food Requirements	26
2.2.5 Livestock Products	28
2.3 Internal Food Transfer	28
2.4 Food Security and Strategies and Safety Nets	28
CHAPTER 3	
3.0 SUPPORT FOR AGRICULTURE:	
Magnitude, Evolution and Trends	30
3.1 Importance of the Agriculture Sector	30
3.2 Nature of Kenyan Agriculture	30
3.3 Agriculture Growth Trends and Sector Analysis	31
3.4 Challenges, Constraints and Opportunities	35
3.4.1 Challenges	35
3.4.2 Constraints	35
3.4.3 Opportunities for Growth and Development in Agriculture	38
3.4.3.1 The Tea Sub-sector	38
3.4.3.2 Horticulture Sub-sector	39
3.4.3.3 Dairy Production	40
3.5 Agriculture Policies Expenditure and Support Services	41
3.5.1 Market Liberalization	42
3.5.2 Comparison of Agriculture Support with Education and Health	43
3.5.3 Agriculture Recurrent and Development Expenditure	45
3.5.4 Disaggregated Public Expenditure in Agriculture	47
3.5.5 Agriculture Production Services	48
3.6 Development Strategies and Programmes in Agriculture	50
3.6.1 The Economic Recovery Strategy (PRSP), 2001-2004	50
3.6.2 The Economic Recovery Strategy for Wealth and Employment	

Creation 2003-2007 (ERSWEC).....	51
3.6.3 Ministry of Livestock and Fisheries Development Strategic Plan (2003-2007).....	51
3.6.4 Strategy for Revitalizing Agriculture, 2002-2004.....	51
3.6.5 The National Development Plan (NDP) 2002-2008.....	52
3.6.6 The Kenya Rural Development Strategy (KRDS) 2002-2015.....	52
CHAPTER 4	
4.0 IMPACT OF FOOD IMPORT/AID.....	53
4.1 Impact of Food Import/Aid on Food Security and Nutrition Situation.....	53
4.2 Impact on Prices and Domestic Production.....	53
4.3 Impact on Budgetary Support/Counterpart Funds.....	54
4.4 Impact on Foreign Exchange/ Balance of Payments.....	55
4.5 Impact on Transaction Costs	58
4.6 Some Social Impacts on Food Aid.....	59
CHAPTER 5	
5.0 MAKING KENYA FOOD SECURE ON SUSTAINABLE BASIS	60
5.1 Macroeconomic and Regulatory Environment.....	61
5.2 Development of Infrastructure	61
5.3 Rural Financial and Credit Facilities.....	62
5.4 Agriculture Research and Extension Services.....	62
5.5 Human Resource Development	62
5.6 The Need for Activity- Specific Strategies.....	63
5.7 Investment Programme To Revitalize Agriculture and Food Sector.....	64
5.8 Implications for The WTO Agreement on Agriculture	67
5.8.1 Sanitary and Phytosanitary Services.....	67
5.8.2 Support Measures for Enhancing External Competitiveness.....	68
5.8.2.1 Freight and Road Transport Subsidy.....	68
5.8.2.2 Raising Tariffs to Protect Local Industry.....	68
5.8.2.3 Export Subsidies for Strategic Commodities.....	69
CHAPTER 6	
6.0 Conclusions and Recommendations	71
6.1 Conclusions	71
6.2 Recommendations	72
6.2.1 Physical Infrastructure	73
6.2.2 Rural Financial Services	73
6.2.3 Human Resource Development	73
6.2.4 Research Programmes	73
6.2.5 Agricultural Extension Policy	73
6.2.6 Information Data Bank	73
6.2.7 Capacity Building In Private Sector	73
6.2.8 Legal and Regulatory Framework	73
6.2.9 Food Security Policy	73
6.2.10 Enabling Environment	74
6.2.11 Commodity Diversification Programme	74
6.2.12 Livestock Production Policy	74
6.2.13 National Land Policy	74
6.2.14 Transfer of Technology	74

6.2.15 Implementation Costs	74
References	75
Index of Tables	79
Index of Figures	80
Annex 1 Performance and Constraints of Major Agricultural Products In Kenya... ..	91
1.1 Maize Production	91
1.2 Wheat Production	91
1.3 Rice Production	92
1.4 Horticultural Production	92
1.5 Traditional Food Crops	92
1.6 Oil Crops Production	93
1.7 Tea Production	93
1.8 Coffee Production	93
1.9 Cotton Production	94
1.10 Pyrethrum	94
1.11 Livestock Production	94
1.12 Poultry Production	96
1.13 Fish Industry	96
1.14 Forestry and Logging	96

EXECUTIVE SUMMARY

This paper has been prepared with the main objective of building a case for more support to agriculture production and food security in Kenya. It is presented in five chapters. It highlights the pattern of meeting domestic food requirements from domestic production as well as food aid and commercial food imports. The issues discussed include: a description and analysis of food security in Kenya, support for agriculture, the impact of food import/Aid and making Kenya food secure on a sustainable basis. The following is a chapter by chapter summary of the study:

Chapter One introduces the study and provides study objectives, methodology and organisation. Kenya like other developing countries is faced with hunger and poverty and these problems are getting worse by the day. A number of factors contribute to this situation but poor agriculture performance lies at the heart of the problem. Despite the importance of the agriculture sector in its contribution to: employment, government revenue, GDP and raw materials for the industrial sector, its performance has been poor owing to: misallocation and under investment in the sector, disengagement of the government support to agriculture, poor infrastructure, limited access to credit, high cost of farm inputs, lack of land policy and framework among others. The current and the previous governments have been accused of under-investing in agriculture and food production especially after the advent of the liberalization. The accusations include: failure to promote and enhance important ingredients for agriculture development such as rural infrastructure and services, agriculture research and extension among others. Kenya's decreasing support to agriculture has resulted in an increasing dependence on food imports and food aid. The per capita supply of main staples has been declining since the early 1980s. While it is accepted that Kenya is food insecure, there is a general consensus that it has the potential to produce more than its food needs. The goal of the government has been to attain self-sufficiency in food needs in addition to the expansion of exports.

Chapter Two describes and analyzes the food security situation in Kenya. The policy on agriculture has been to pursue the goal of attaining self-sufficiency in key food commodities that include maize, wheat, rice, milk and meat. While this has been the objective, it has not been attained except in the 1970s when maize production was so high to the extent that some was exported. In 1986, there was a shift from a food sufficiency goal to an outward strategy which identified seven commodities that form the core of the current food and agricultural policy: maize, wheat, meat, milk and horticulture crops for both home consumption and export and coffee and tea for raising farm income and earning foreign exchange.

In the year 2000, the food available for Kenyans was 1965 calories per capita per day, which was below the recommended 2250 calories per day. The source of calories comes mainly from maize, which accounts for 36 percent while sugar, wheat, palm oil, and milk together account for the remaining 64 percent. The food availability has been declining largely because maize production was down by 44 percent on per capita basis in 2000 compared to 30 years before. The per capita food decline has been because local staple food production has been outstripped by a relatively high rate of population growth and increased life expectancy. Chronic under-nutrition is the most common form of malnutrition and is mainly associated with insufficient dietary intake because households lack enough income to secure their basic food requirements.

The major cereal produced are maize, wheat, and to a limited extent rice. Other food crops produced include the traditional food crops like sorghum, millet, cassava, vegetables, and fruits. However, the production cost of these crops is high due to: low mechanization, escalated input costs, inefficient production methods and high transport costs occasioned by poor infrastructure.

Kenya has not been able to produce enough of her food needs and as a way of meeting the food deficiency, has increasingly depended on food import/Aid, which contradicts her policy of self-sufficiency. Among the imported food items are: wheat, rice, maize, powder milk and sugar.

Kenya has been food insecure for a long time in both urban and rural areas as well as in both high potential and Arid and Semi Arid Lands (ASAL) areas. Food insecurity has been viewed as a question where not all can have a fair share of the food available or produced. The food insecurity can be attributed to many factors including: decline in agriculture productivity, climatic changes, inefficient food distribution systems, HIV/AIDS and land fragmentation. The food per capita has been declining despite the success in expansion of export crops. Chronic malnutrition associated with insufficient dietary intake occurs because of household's lack of income to secure basic food requirement and is paradoxically most serious in high and medium agricultural potential areas because of the high population density and small size of farms per family.

The intensity and prevalence of poverty in Kenya varies across different regions with 56 percent of the total population living below the poverty line. The poverty levels are in both urban and rural areas and are closely connected to agriculture and land and its dependence on means of generating income. The ASAL areas in Coast, North Eastern and Eastern Provinces and the densely populated areas of Western, Nyanza, Rift Valley and Central Provinces have the highest levels of poverty. The contributing factors to poverty include: unemployment and low wages, low agricultural productivity and poor marketing, inaccessibility to productive assets particularly land, poor infrastructure, high cost of social services, bad governance and HIV/AIDS among others. There has also been food insecurity occasioned by lack of proper food distribution where areas neighbouring food surplus districts have had people starving and even others dying for lack of food. The food insecurity also occurs in high potential areas due to the combination of lack of information and failed infrastructure.

Food insecurity has also been caused by poor food distribution and marketing within the country. Lack of information on the areas with surplus/ deficits make people to starve while food is available in some other parts of the country. The Ministry of Agriculture has developed a Special Programme for food security to facilitate national early warning system and food distribution system, maintain a national strategic reserve but encourage the private sector to get involved in the international grain trade through a more predictable policy and tariff regime. The programme aims to reduce the number of food insecure by half. The programme is participatory where the districts prioritize their food production activities. Under the programme, the Ministry has conducted synthetization workshops for key stakeholders at national, provincial and district levels.

Chapter Three addresses support for agriculture including: the importance of agriculture, agriculture growth trends and sector analysis, challenges and constraints, opportunities for growth and development in agriculture, agriculture policies, expenditure and support services, and development strategies and programmes in agriculture. The agricultural sector employs about 75% of the country's labor force, provides raw materials for the agro based manufacturing industries and accounts for 45% of the government revenue. The fisheries subsector contributes about 3% of the GDP and 3% of the total export earnings. The agriculture sector is dominated by primary production of a few commodities namely cereals (maize, wheat and rice), traditional food crops, industrial crops, export crops and livestock (beef, dairy, poultry and eggs, pigs and small stock). Smallholders farm account for over 65% of the total agricultural output while pastoralism is the main form of production in the ASAL areas.

There exists a close correlation between the growth of agriculture and that of the entire economy with the result that the performance of agriculture affects the entire economy. A number of factors have been associated with the mixed trend in production, which includes area expansion or contraction, climatic, technological and price changes. The major factor however, has been policy related. The trend has shown a general increase in the area under food and cash crops while there has been a decline in the area under industrial crops. In addition to these trends of the area under the crops, there have been changes in yields where there has been stagnation or the decline in the yields per hectare under the respective crops. The production of livestock and livestock products has been affected by inefficient disease control, which has hampered exports of livestock products especially beef.

The greatest challenge that faces the agricultural sector is the worsening poverty levels, the declining financial and natural resource base, HIV/AIDS pandemic, insecurity and the competition in the world market. Kenya has to increase her agricultural exports by diversifying the number of agricultural export crops. There are both economic and non-economic constraints that have affected Kenya agriculture and food sector. These include: institution weaknesses, collapsed infrastructure, lack of effective land policy, poor research and extension linkages, increased prevalence of HIV/AIDS and other diseases and poor agrarian leadership. The Kenyan agriculture is predominantly rain fed and the production is therefore heavily influenced by the variability of rainfall. The high taxation especially on inputs including machineries, fuel, fertilizers and spare parts make Kenyan agriculture less competitive. Other constraints include lack of storage, post-harvest technologies, poor marketing information and lack of capacity in the private sector institutions that should promote policy formulation, implementation and monitoring. There existed strong credit and marketing institutions that supported agriculture in the first decade of independence, which included Agriculture Finance Institution for credit, National Cereals and Produce Board (NCPB), Kenya Meat Commission, Kenya Cooperative Creameries and Kenya Sugar Authority for marketing of maize, wheat and other cereals, meat, milk and sugar respectively. While these institutions functioned well in the first two decades, they have failed to provide the services to the farmers today for diverse reasons. The government has to increase productivity through the removal of constraints in agriculture for the economy to grow speedily. Among the constraints to be removed are poor agrarian leadership, lack of capital, dependency on rain fed agriculture, globalization, narrow range of primary agricultural products for exports, lack of an effective land policy, low political support, high taxation, poor research and extension linkages, HIV/AIDS infections and poor integration and coordination of activities by major agricultural stakeholders and high input costs among others.

The government policy as stipulated in a number of policy papers emphasizes self-sufficiency in domestic production of the food crops as well as the generation of foreign exchange as a means of achieving food security. It has been established that given adequate support and non-interference in the production and marketing of the various crops, Kenya is capable of increasing both production and productivity in agriculture as has been demonstrated in the remarkable success in tea, horticulture and dairy sub-sectors. The success in these sub-sectors is attributable to a combination of a number of factors including favorable weather conditions, emerging market opportunities, government sponsored credit schemes, research, extension services, training and monitoring among others. Kenya is the third major tea producer in the world after India and Sri-Lanka while her horticultural and dairy sub-sectors expansion have created both employment and income in the rural areas.

The combined government assistance and restraint from interference in the industry helped in the rapid expansion of the sub-sectors. The measures adopted by the government in the first two decades after independence which covered monetary, fiscal, exchange rates, trade policies and

appropriate budgetary allocations had a profound impact on the profitability of the agriculture sector and the welfare of farmers. The involvement of the government was viewed as the prime mover if not the panacea of growth of the rural economy and agriculture in particular. A reversal of this thinking saw the beginning of the liberalization in the third decade of independence as the government involvement was seen as having a negative impact in agriculture. The new thinking saw the government reduce its investment support in the sector and the start of the Structural Adjustment Programmes.

The liberalisation measures had been expected to bring about faster growth and ensure food availability to all people and at all times. There were therefore great expectations on the liberalisation, which were however not realized because the liberalization was fast, broad and far reaching, poorly sequenced and not synchronized with other policies, policy instability which reduced investor confidence and poor harmonization and coordination in the implementation of the policies. There is therefore a need to rethink and make a shift in development paradigm and policy making in agriculture development and food security strategies if Kenya is to reverse the declining trends in agricultural output and productivity.

The government should increase budgetary allocation to agriculture in view of its contribution to the economy and its multiplier effect as compared to other sectors. The current allocation is low when you compare it with the allocations to education and health. For example, between 1980 and 2000, budget allocation to agriculture averaged only 6.6 percent when compared to Education and Health at 15 percent and 12.6 percent respectively. In the first decade after independence agriculture was allocated over 10 percent of the total budget, which is the reason why the productivity was high in those years. The allocation to agriculture has been spent on recurrent expenditure, which is dominated by salaries. There has however been an increased allocation of development expenditure on support services such as market and research and seed inspection as opposed to direct domestic production support measures such as artificial insemination, tractor hire, aerial spraying, veterinary services and farm planning, which are allowed under the Special and Differential Treatment Clause (SDT) as stipulated in the WTO Agreement on Agriculture (AoA).

Realizing the poor performance of the agriculture sector and its importance in the economic development of the country the government has put in place a number of development strategies and programmes that will influence the level and stability of input and output prices, private investment, costs and revenues, and allocation of research and development funds to improve farming and agriculture related processing technologies. Some of these policies are specifically designed to influence the productivity and the marketing of specific crops. The policies would further influence investment decisions in the provision of research and development, education, health, transport, marketing infrastructure and institutions that have a broad impact on agriculture sector productivity. A number of policy documents have been prepared in this regard and include: the Poverty Reduction Strategy Paper 2004 (PRSP), The Economic Recovery Strategy for Wealth and Employment Creation, The Ministry of Livestock and Fisheries Development Strategy 2003-2007, The National Development Plan and The Kenya Rural Development Strategy 2002-2017.

Chapter Four analyzes the various impacts on food imports and food aid. As a result of the poor performance in agriculture production and productivity, Kenya has relied on food imports and food aid. Food imports have both positive and negative impacts on various economic and social aspects of development including: food security and nutrition, prices and domestic production, budgetary support, counterpart funds, the budget, foreign exchange/balance of payments and transaction costs. It has been an important transitory food security for vulnerable groups

especially in the ASAL areas where droughts and crop failure has been frequent. It is also a source of human capital formation, which in turn would improve agricultural production. Food imports have been shown to reduce food prices, stifle domestic food production as the prices of imported foodstuffs enter the country at low prices. The imports are mainly from producer countries that subsidize their farmers making their exports to be cheaper than the production cost of the recipient country. The local farmers and workers are left without a source of income.

The import also distorts the labor markets especially in countries like Kenya, which are agriculture dependent for employment creation. The importing countries have used the counterpart funds for budgetary support through the sale of the imported/aid food. One of the results of this is that the countries have preferred not to develop the agriculture sector because they know they will get some budgetary support. The food aid substitutes for commercial food imports thereby providing a net foreign exchange transfer which could be used for capital development through the utilisation of counterpart fund generated from the local sale of the programme food aid. The capital development could include infrastructure, agriculture research and extension of rural health and education facilities. The food import could result in releasing the land under food production for cash crops, which is a worthy venture for developing countries like Kenya.

The food aid commodities are often viewed by consumers in recipient countries as being inferior to those domestically produced. Food imports have been shown to reduce domestic food price creating disincentive to farmers and hence reduction in food production. The cheap imports shifts demand towards imported foodstuffs instead of non-traditional foodstuffs because tastes and preferences change as they get used to imported foods. The volume of imported food items has been growing rapidly. This trend is dangerous especially in drought years considering that Kenya is dependant on agricultural exports that finance the imports. It would be better if the foreign exchange being used to import food were used in the building the institutional and technological capacity of food producers rather than using the proceeds for the imports. The food aid make people lazy to produce for their own consumption needs since they keep on postponing production decision-making process to benefit from the free food.

Chapter Five looks at ways and means of making Kenya food secure on a sustainable basis through macro economic and regulatory measures, development of infrastructure, rural financial credit facilities, agricultural research and extension services, human resource development and the need for activity-specific strategies. It also looks at the investment programme required to revitalize food and agricultural sector and proposes an implementation budget. At the micro economic and regulatory environment, there was an impressive performance of the agricultural sector immediately after independence, which was attributable to a combination of factors including stable fiscal and monetary policies, the maintenance of good macro economic management and availability of expansion of land under cultivation. This good performance has however declined and there is need to put in place strategies that will revitalize the sector. Some of the strategies could include: diversifying the agriculture sector, restoring support for extension services and maintaining a realistic exchange rate.

The development of infrastructure is vital for agriculture development. There is therefore need to rehabilitate and expand rural infrastructure especially roads, provide electricity to the market centres, construction and maintenance of water supplies and dams, rehabilitate existing and construct new cooling facilities and irrigation schemes. The rural financial and credit facilities should be enhanced to improve production and productivity. The agricultural cooperative societies management should be stream lined while incentives should be given to those offering

credit in the agriculture sector particularly for small-scale producers. This support should include reduction of taxes or an insurance scheme to cover the borrowers. A National Research Extension Advisory Board should be established to coordinate the linkages between research and extension. The need for human resource development cannot be over-emphasized, as the agriculture sector is labor intensive. To improve the human resource base, we have to upgrade the capacities of agriculture training institutes, evaluate the needs of agriculture sector and tailor the training to meet those needs, streamline legal and regulatory framework to meet the human resource needs and strengthen the linkages between the College of Veterinary Medicine, Faculty of Agriculture and the government ministries concerned with issues of agriculture.

The study has identified a number of constraints that need to be addressed if Kenya has to stop being food import/aid dependent. A summary of the constraints and proposed specific strategies/measures to promote production and productivity is shown on table 21. An investment programme to implement the strategies is shown in table 22 and emphasizes the constraints of physical infrastructure development, financial services, human resource development, research and extension, information, legal and regulatory framework, food security strategy, production and export strategy, agriculture subsidy and land policy. The programme would be for a duration of five years and will cost approximately US\$ 1,650 million. The expected impact of the support measures would include increased product competitiveness, expansion of markets, creation of jobs, high investment and savings, increased foreign exchange earnings, reduced food insecurity, reduction in poverty levels, increased Gross Domestic Product contribution, and less reliance on food import/aid. The recommended strategies/measures have been made after taking the WTO Agreement on Agriculture (AOA) into account and are therefore compatible with the same and have no distorting effect under the “Green Box” or De minimis exemption or the Special and Differential Treatment (SDT). The government has to support the implementation of the Sanitary and Phytosanitary Services under the WTO Agreement on Agriculture, put up support measures for enhancing external competitiveness, invoke the “Green Box” provision of the agreement on agriculture to support the competitiveness of the export sector through freight and local transport subsidies in addition to putting in place export subsidies for strategic commodities and raising tariffs to protect the local industry.

ACRONYMS

ACP-EU:	African Caribbean and Pacific-European Union Partnership
AFC:	Agriculture Finance Corporation
AGOA:	African Growth and Opportunities Act
AI:	Artificial Insemination
AIA:	Appropriation In Aid
AIE:	Authority to Incur Expenditure
AoA:	Agreement on Agriculture
ARD:	Agriculture and Rural Development
ASAL:	Arid and Semi Arid Land
BMD:	Budget Management Department
CBO:	Community Based Organization
COMESA:	Common Market for Eastern and Southern African Countries
EAC:	East African Community
EEC:	European Economic Community
EPC:	Export Promotion Council
EPZ:	Export Processing Zone
EU:	European Union
FAO:	Food Agriculture Organization
FAOSTAT:	Food Agriculture Organization Statistics
GDP:	Gross Domestic Product
GFCF:	Gross Fixed Capital Formation
Gm:	Grams
GMR:	Guaranteed Minimum Return
GoK:	Government of Kenya
Ha:	Hectares
HCDA:	Horticulture Crop Development Authority
HIV/AIDS:	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IDEAA:	Initiative for Development of African Agriculture
IGAD:	Inter-Governmental Authority on Development
IMF:	International Monetary Fund
K£:	Kenya Pound
KEAS:	Kenya Exporter Assistance Scheme
KEPHIS:	Kenya Plant Health Inspectorate Services
KETRI:	Kenya Trypanomiasis Research Institute
KEVEVAPI:	Kenya Veterinary Vaccine Production Institute
KFMP:	Kenya Forestry Master Plan
Kg:	Kilogram
KRDS:	Kenya Rural Development Strategy
KSA:	Kenya Sugar Authority
Kshs:	Kenya Shillings
KTDA:	Kenya Tea Development Agency

MoA:	Ministry of Agriculture
MoCDM:	Ministry of Cooperative Development and Marketing
MoLDF:	Ministry of Livestock Development and Fisheries
MRL:	Maximum Residue Level
MT:	Metric Tonnes
MUB:	Manufacturing Under Bond
NCPD:	National Cereals and Produce Board
NGO:	Non-Governmental Organization
NIB:	National Irrigation Board
OPEC:	Organization of Petroleum Exporting Countries
PBK:	Pyrethrum Board of Kenya
PRSP:	Poverty Reduction Strategy Paper
SDT:	Special and Differential Treatment
SPS:	Sanitary and Phytosanitary services
SRA:	Strategy for Revitalizing Agriculture
TBK:	Tea Board of Kenya
US \$:	United States Dollar
USA:	United States of America
USAID:	United States of America International Development
VAT:	Value Added Tax
WTO:	World Trade Organization
YR:	Year

CHAPTER 1

1.0 INTRODUCTION AND BACKGROUND

Kenya like other African countries is faced with hunger and poverty and these problems are getting worse. It is estimated that more than 14.3 million people or 52.3 percent of the population live below the poverty line¹. About 52.9 percent of the population in the rural areas and about 34.8 percent of the urban areas are poor. It is also estimated that about 34.8 percent of the rural population and 7.6 percent of the urban live in extreme poverty, so much that they cannot meet their food needs even their with entire resources devoted to food.

Although a number of development problems have been identified to cause poverty including lack of education, sickness prevalence, declining level of attending school, inadequate access to land and capital and vulnerability (women), the poor performance of the agricultural sector lies at the heart of the problem. Agriculture accounts for 70 percent of the labor force, 25 percent of the total GDP, 60 percent of export earnings, 75 percent of raw materials for the industrial sector and 45 percent of government revenue. Even with a relatively liberalized agricultural sector, recent statistics indicate that Kenya's agricultural production and productivity remain inadequate and have not made any progress on the food security front. Yields have not improved and as a consequence, Kenya remains food insecure and is increasingly relying on emergency food supplies and commercial food imports for a significant portion of her domestic food requirements.

Despite the importance of the agricultural sector, its full potential has not been realized. The sector offers opportunities for economic growth both in the medium and high potential as well as the Arid and Semi Arid Land (ASAL) areas. In particular, livestock industry offers vast opportunities for economic growth especially in ASAL areas, which have over 50 percent of the livestock. A number of reasons have been given as the root causes of poor agricultural performance including: misallocation and under investment in agriculture, disengagement of government from support to agriculture, poor infrastructure, limited access to credit, high cost of farm inputs, among others. The sector is also subject to lags in policy and legal framework, which are not in line with a liberalized economy.

The current and previous governments have been accused of neglecting agriculture and food production and especially after the advent of structural adjustment programs. Kenya has invested very little in order to promote and enhance important ingredients for agricultural developments including rural infrastructure and services, agricultural research and extension, and in the institutions that shape the governance of agriculture. Kenya has over- taxed farmers and subsidized urban consumers while at the same time under invested in rural areas. Kenya's growth of the nation's capital stock fell to 2.7 percent in 1980's compared to an average of 7.1 percent in the 1970's. By early 1990's, the growth of gross investment was just sufficient to maintain capital stock at constant level. Gross Fixed Capital Formation (GFCF) still remain low at annual average of 17 percent of GDP in the 1990's compared to 31 percent and 21 percent in the 1970's and 1980's respectively. If Kenya is to achieve sustainable levels of development, an increase in both investment and savings will be required and the level of investment which should be in the region of 25 to 30 percent of GDP [GoK, 1997].

¹ Poverty Line is an arbitrary international real income measure usually expressed in constant dollars (e.g. \$270), used as a basis for estimating the proportion of the world's population that exists at bare levels of subsistence.

Kenya's decreasing level of support to agriculture is correlated to increasing dependence on food imports and food aid. This is despite the fact that Kenya has the capacity to produce enough to meet her food needs. She is becoming increasingly dependant on commercial food imports. Per capita supply of the main staples has been declining since the early 1980's, and per capita supply of cereals that provide most of the calories declined from 140.9 kg per year during 1979-1981 to 115.7 kg per year in 1992-1994 periods. The food production and demand projections indicate that Kenya will continue to experience serious food deficits unless greater efforts are made to address the food security situation. The debate increases, of course, as to whether these food requirements are better met by increased financial aid rather than food aid. It is thus worth asking whether food import/aid flows could make a positive contribution to agricultural development in Kenya.

One of the main defenses in favor of food aid has been that it is more likely to succeed in reaching the very poor and food insecure segment of the population. This argument however concentrates on the immediate effects and does not consider the long-term disincentive effects on local production, prices, market, employment and allocation of scarce foreign exchange. As one can see from the arguments, food imports/aid is a complex topic and its effects on agriculture are not yet clear, and evidence in favor of or against food import/aid impacts on agricultural sector development is uneven and inconclusive. Unless these effects are assessed and quantified it is difficult to give conclusive policy advises regarding this issue.

Despite the fact that Kenya is food insecure, there is a general consensus that it can feed itself. However, even if it has the potential to produce more than its food needs, it has implicitly adopted strategies of increasingly relying on commercial imports and food aid to the extent that it has become perpetually food import/aid dependant. Parallel to this is the observed trends of low declining levels of support to agriculture and food sector. Three key questions are necessary for investigating and explaining this trend. These are:

1. Why does this trend exist? In other words: why did Kenya implicitly adopt the strategy of relying on food import/aid? Why has Kenya reduced efforts and support to promote sustainable food security and agricultural development? Why is agriculture not attracting support despite its significance? And what are the policy (and other) constraints restricting these efforts from happening?
2. Having seen that Kenya is increasingly relying on food import/aid, what are the impacts of this dependence on Kenya's long-term food security, agricultural development and economic growth? What is the opportunity cost of food import/aid? In other words: would the cost of government support, if extended, be cheaper than the penalty being paid now for food imports and for the dependence on food aid?
3. What are the possible exit options to ensure sustainable food security, agricultural development and economic growth in Kenya? What will roughly be the costs and benefits of possible directions? And what would be the implications and impacts on WTO and other trade agreements?

1.1 Study Objectives

The objective of the study is five-fold. First, to analyze the agricultural production and food security situation in Kenya, highlighting the pattern of meeting domestic food requirement from domestic production, food aid and commercial imports, and identifying the constraints hindering the increase of agricultural production and productivity of food crops in Kenya. Second, to analyze the evolution and trends of the support provided to the development of the food and

agricultural sector in the country. Third, assess the impact of food import/aid dependence on the country food security and agricultural development. Fourth, evaluate the policy and investment support needed in order to propel Kenya's agricultural sector on sustainable path and ensure national and household food security and economic development. Fifth, propose feasible recommendations to take the country out from food insecurity and food aid dependence to a food secure situation with a healthy food and agriculture sector.

1.2 Data and Methodology

The study utilizes time series trend analysis. Time period varied according to the available data. The focus has been primarily national but where data allow household, districts and regional (provinces) data have been used.

1.3 Study Organization

The paper will be presented in five chapters. Chapter Two describes the food supply and demand as well as the nutritional needs. Other issues described in this chapter include: the analysis of the structure and trend of food imports in terms of food aid versus commercial imports and type of food imports; domestic food requirements from commercial imports in terms of provision of foreign exchange and logistics, and transaction costs of food imports/Aid. Chapter Three provides an overview of the importance of agriculture to the economy. Challenges, constraints and opportunities for improved agricultural development in the country; analysis of the evolution of, trend in, public support provided to the development of the food and agriculture sector; and a comparative analysis of expenditure allocated to agriculture relative to that allocated to education and health sectors is provided. Chapter Four presents an assessment of the impacts of food imports/Aid dependence focusing on the impact on: food security and nutrition; domestic food production; prices and domestic production; impact of budgetary support; impact of delayed arrival; budget foreign exchange/balance of payments, and human and psychological impact. Chapter Five identifies promising agricultural development opportunities including food and cash crops, livestock, fisheries and forestry as well as the policy orientation and investment requirements to realize the identified opportunities. Other issues discussed in this chapter include: an analysis of the external environment affecting domestic agricultural development and suggested strategies to improve the country's competitiveness in the external market; an evaluation of the implication of the measure in terms of the WTO Agreement on Agriculture and in particular if they are compatible with those measures, stipulated under Special and Differential Treatment (SDT), Green Box and/or De minimis exemption under the WTO agreement; estimation of the cost and the expected budgetary allocation for proposed strategies and assessing the country capacity to meet the budgetary outlay from own resources as well as external development assistance; provision of an indication of the returns to investments in terms of increased domestic production, decreased commercial imports, foreign exchange generation or saved, increased household food security and income; and finally, supporting measures. Chapter Six provides conclusions and recommendations.

CHAPTER 2

2.0 DESCRIPTIONS AND ANALYSIS OF FOOD SECURITY IN KENYA

2.1 Food Supply and Demand

Food security is defined as “Access by all people at all times to enough food for an active healthy life” (Ellis, 1992). The World Food Summit in 1996 reaffirmed that food security can only exist when all people, 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. At the macro level, it implies that adequate supplies of food are available through domestic production or through imports to meet the consumption needs of all people in a country. At the micro level (household or individual), food security depends on a number of factors which are related for most part to various forms of entitlements to income and food producing assets as well as the links between domestic and external markets and the transmission effects, from the latter, on small, low income and resource poor producers and consumers. Food security is not just a supply issue but also a function of income and purchasing power and hence its strong relationship with poverty.

Kenya for a long period pursued the goal of attaining self-sufficiency in key food commodities that included maize, wheat, rice, milk and meat. Self-sufficiency in maize was achieved in very few years during the 1970's when production was high to the extent that some was exported. Unfortunately, attainment of self-sufficiency did not automatically imply that household food security was achieved. Evidence shows that solving the food security issue from the production (supply side) point of view, which overlooks the demand side, does not solve the food security problem particularly the access of vulnerable groups to enough food.

In 1986, Kenya shifted from a food self sufficiency goal to an outward strategy by identifying seven commodities that form the core of its current food and agricultural policy: maize, wheat, meat, milk and horticultural crops for both home consumption and for export markets and coffee and tea for raising farm income and earning foreign exchange. The strategy was aimed at achieving multiple objectives, including family and national food security, foreign exchange, government revenue, employment, regional balance and generating new incomes streams for the rural people, [GoK 1986, Eicher]. This strategy continues to be valid. It can thus be concluded that self-sufficiency and expansions of exports are the main objectives of the government in agricultural sector.

On the average 30% of the food consumed by rural households is purchased while 70% is derived from own farm production. On the other hand, 98% of the food consumed in urban areas is purchased while about 2% is own production. The main sources of farm incomes are the crops and livestock products that are sold by households. About 50 percent of the rural farming households are involved in off-farm income generating activities and about 36 percent have at least one salary earner living away from the farm (GoK, 2002). Furthermore, a third of the households receive remittances. Most rural people depend on non-farm activities for a significant portion of their incomes. On the average 30% of the rural incomes for households are derived from farm incomes while 70% is derived from off-farm incomes, which includes remittances. However, these ratios vary from region to region with farm incomes forming a low proportion (18%) in Eastern Province and a high proportion 60% for Rift Valley Province.

2.1.1 Food Supply

Food available for Kenyans was 1,965 calories per capita per day in 2000,² 13 percent below the recommended 2,250 calories per day. The calories come from a wide variety of sources but are dominated by maize which accounts for 36percent, sugar, wheat, palm oil and milk that together constitute 64 percent of total calories (Table 1).

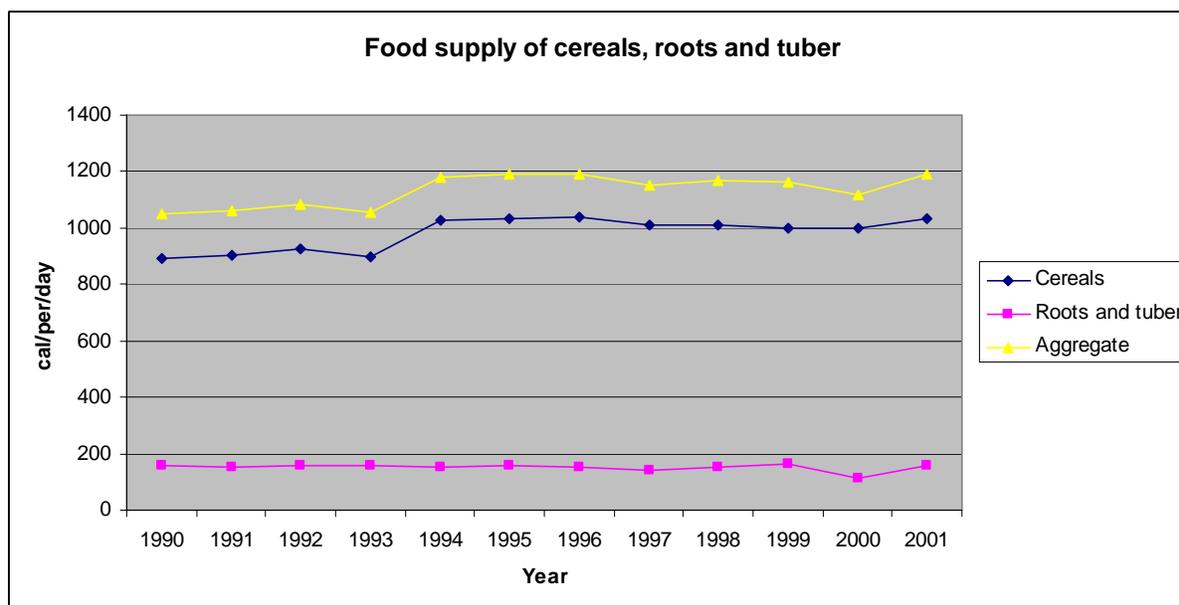
Table 1: Per Capita Per Day Food and Nutrient Availability

	Total Calories	Protein (gm)	Veg Protein	Fat (gm)	Veg Fat	Source of Veg. Fat	
						Palm Oil	Maize
1970	2,211	64.9	50.1	34.0	20.3	1.2	10.9
1980	2,185	57.4	42.3	41.7	27.5	10.0	10.6
1990	1,889	51.5	32.8	45.1	27.9	14.5	7.8
2000	1,965	50.5	35.3	46.9	32.3	16.9	7.6

Source: FAOSTAT Food Balance Sheet <http://www.Fao.org>

Per capita supply of cereals increased in the early 1990s but tended to decline after 1994. The supply of cheaper traditional crops, i.e. roots and tubers, remained not only low (below 200 Cal/per/day) but also tended to decline throughout the 1990s (Figure 1).

Figure 1: Food supply of cereals, roots and tuber (Cal/ per/ day)



2.1.2 Sources of Available Food

Per capita food availability has been declining in Kenya largely because maize production was down by 44% on per capita basis in 2000 compared to 30 years before. As shown in Table 2, maize production fell from 129 kg per capita in 1970 to an average of 77 kg in the last 5 years of the 1990's. In 2000, per capita production was down to only 72 kilograms³.

² FAOSTAT Food Balance Sheet <http://atps.fao.org>

³ FAO, Kenya Agriculture Sector Brief, April 2004

Table 2: Maize Situation Trends

Year	Maize Kg Per Capita Per		
	Production	Availability	Utilisation
1970	129	131	130
1980	99	119	125
1990	97	97	93
2000	72	85	98

Availability is Production plus imports

Utilization is Availability (+/-) changes in Stocks

Despite the impressive rates of growth in the 1970's and early '80's, there was a fall in agricultural output from 1993 to 1998 and particularly from 1998 to 2001. Inappropriate macro-economic policies, especially an over-valued exchange rate (until 1994), the ineffectiveness of agricultural support services including parastatal marketing and credit agencies resulting in much delayed payments to farmers, limited availability of good agricultural land, and a slow-down in the flow of new technologies were among the major factors behind the poor performance. These problems were exacerbated by the effects of several extreme droughts and the short-term negative side effects of fundamental policy adjustments⁴.

2.1.3 Food Crops

The major cereal staples produced are maize, wheat and to a limited extent, rice. Other important food crops include: Irish potatoes, bananas, sorghum, millet, cassava, sweet potatoes, vegetables and fruits.⁵ In normal rainfall years, the country produces about 2.7 million tons of maize, 270,000 tons of wheat, and 50,000 tons of rice. Production levels of cash crops that attribute to food security are coffee, tea, sugar and cotton. Annual production for these commodities is 100,000 metric tons of clean coffee, 294,000 metric tons of processed tea, 420,000 tons of sugar and 40,000 of cotton lint.

Production cost of most of these crops is high due to escalated input costs, low level of mechanization and high transport costs brought about by poor infrastructure. This implicit taxation of agricultural sector, coupled with other inefficiencies makes the cost of production of food crops in Kenya higher than other parts of the world. Food production has therefore lagged behind consumption and thus creating deficits.

Maize is Kenya's most important staple food crop, but its production has fallen short of demand. The area under maize has stabilized at around 1.5 million hectares and the potential for further expansion is limited, given the competition from other crops. Maize production during the long rains ranges from 26 to 30 million 90 kg bags out of which smallholder farms produce 75 percent. The average maize yield is 2 metric tonnes per hectare, but potential exists to increase yield to over 6 metric tonnes per hectare. Wheat production has stagnated at just 270,000 tonnes against a rising demand currently estimated at 720,000 tonnes. Rice production is mainly through irrigation in irrigation schemes (Mwea, Ahero, West Kano and Bunyala) that are managed by the National Irrigation Board. A small amount (13 percent) is from rain-fed paddies. The average annual production, estimated at 52,000 tonnes, is only about 34 percent of national consumption. In spite of the different efforts in developing sorghum and millet, mainly because of their significance in drought prone areas, there has been a notable decrease in hectareage over the last

⁴ FAO, Kenya Agriculture Sector Brief, April 2004

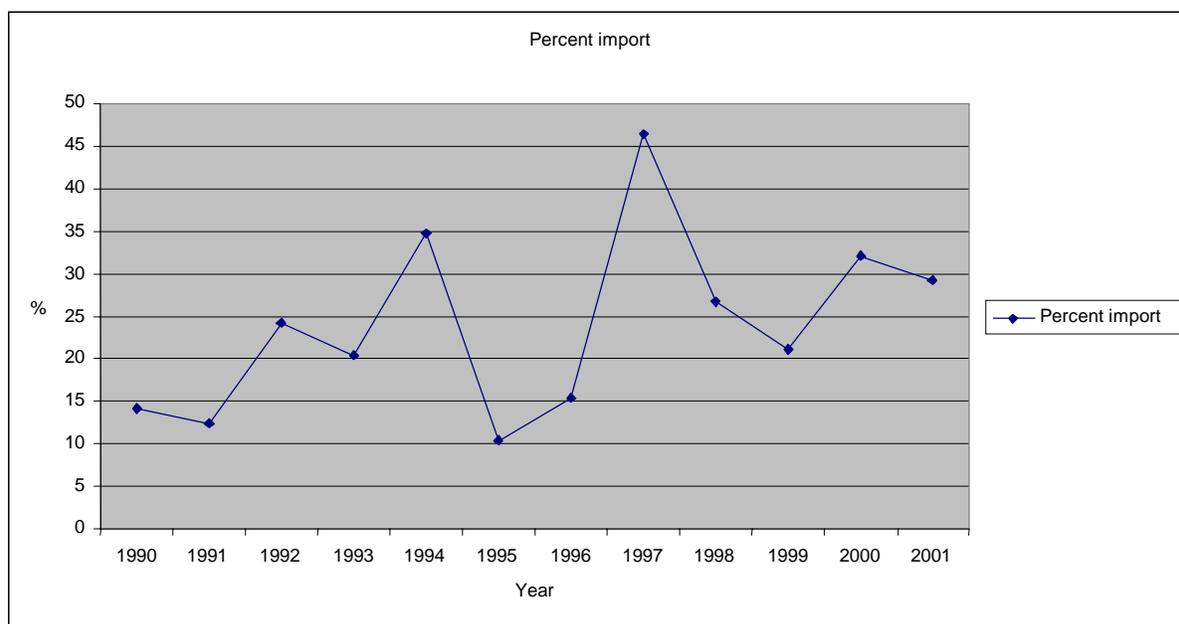
⁵ See Annex I for further details about the major agricultural products in Kenya.

few years from 300,000 hectares in 1996 to 260,000 hectares in 2000. Pulses, a cheap source of protein, are planted in most parts of the country. Their performance has been mixed, but has generally shown a declining trend, because of bad weather, low quality seeds, high cost of inputs and lack of suitable varieties for marginal areas. Roots and tubers⁶, high in calorific value, are important food security crops but their production have been constrained by lack of clean planting materials.⁷

2.2 Food Imports and Aid

Food imports/aid have been used in Kenya for a long time with trends showing a tendency towards increased dependence on it in the recent past. This contravenes the government's objective of food self-sufficiency. The share of cereal import (both commercial import and food aid) in total cereal supply rose to over 45% in 1997 after declining to 10% in 1995 and 16% in 1996. Cereal import has fluctuated between 20 and 33% during the period 1998 and 2001 (Figure 2).

Figure 2: Share of cereal import in total cereal supply



This requires a ready foreign exchange reserve so that food imports can be made when they are needed. However, Kenya like other developing countries is constrained by the level of foreign exchange reserves, mainly due to the nature of her export commodities, which are basically primary products and are subject to fluctuating world prices. Thus, *food importation is dependent on foreign exchange reserve availability*. The ability to import is also constrained by the nature of imported food, which may not be acceptable to Kenyan consumers. For example, many Kenyans do not like yellow maize and for whatever reason, have continued to regard yellow maize as 'animal food' [Gitu and Kanyua, 1993]⁸. To most Kenyans, food security is tantamount

⁶ Roots and tubers include cassava, sweet potatoes, Irish potatoes, arrowroots and yams.

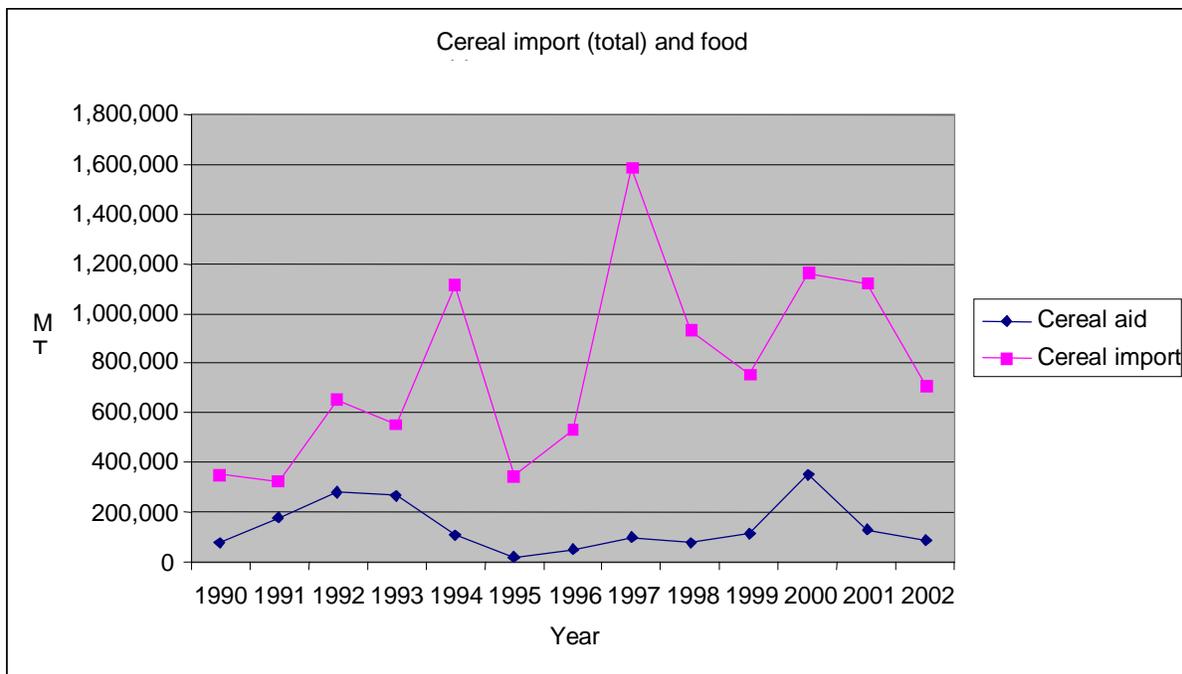
⁷ FAO, Kenya Agriculture Sector Brief, April 2004

⁸ Yellow maize is seen as uncommon food and has been referred to as "chakula cha farasi" or rather food for horses.

to having ‘Ugali’ made of white maize flour on their table⁹. On the other hand, food insecurity is synonymous with eating ‘Ugali’ made of yellow maize flour.

Currently, the country imports wheat, rice, maize, powder milk and sugar and receives food aid from various donor agencies mainly from the USA and EU as a form of development assistance and at times as relief for emergencies during short falls of production (Kilungo, 1992). Table 3 presents Kenya’s food imports for the period 1980 to 2000. The level of food imports for most commodities was relatively low between 1987 and 1991 (Figure 3) because of food availability from domestic production. However, from 1992 imports have been high (with the exception of 1994 and 1995) because of the decline in domestic production. The fluctuations in imports levels are a reflection of the fluctuations in domestic production. The largest amounts of food imports are from the developed countries (EU, USA and Australia). These are countries where food production is highly subsidized which pose a threat to domestic production of food commodities. Wheat imports increased from 48.5 thousand tons in 1980 to 636 thousand tons in 2000. Rice and sugar imports increased from 1.2 thousand tons and 3.1 thousand tons to 105.8 thousand tons and 91.6 thousand tons respectively. Dry milk on the other hand indicates a downward trend from 12,888 tons in 1980 to 1,749 tons in 2000. Importation of maize has not been as consistent as that of the other foodstuffs. For example, no maize was imported in 1983 and for the period 1987 to 1991. Imports of maize were high in 1984 drought year, 1992, 1994, 1997 and year 2000.

Figure 3:Quantity of total cereal import and food aid



⁹ Ugali is type of a Kenyan dish made of white maize flour. In fact, to most Kenyans this dish is what they refer to as food. Therefore, if there is no white maize, then it implies that there is food insecurity.

Table 3: Imports of major food commodities 1980-2000 in '000' tonnes

Year	Maize	Wheat	Rice	Sugar	Dry Milk
1980	323	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	42.0	82
1989	0.0	123.5	30	80.0	15
1990	0.0	322.6	28	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	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	478.9	62.8	186.5	2,500
1999	73.5	579	53.4	55.6	2,694
2000	409.4	636	105.8	91.6	1,749
Average	213.3	251.5	40.3	83.9	3122.7

Source: Kenya Statistical Abstracts (Various years)

Over the past years, Kenya has continued to benefit from various donor agencies. Major organizations involved in food aid include the World Food Programme (WFP) and the United States Agency for International Development (USAID). The importation of wheat, which is the major food aid commodity, is normally on concessional terms with an initial down payment of 5%, a grace period of 10 years and repayment over the successive 30 years (Kilungo, 1992). The interest rate charges are at a rate of 2% per annum for the first 10 years and 3% for the remaining years.

Food aid is mainly linked to emergency and usually targets vulnerable groups and is executed in three different ways: general ration; supplementary feeding; and therapeutic feeding¹⁰, [Gillis et al, and Kiio and Upadhyaya, 2002]. Kenya receives food aid in the form of cereals, pulses, oil/fats and various blends. Table 4 indicates the amount of food aid received for the period 2000-2003.

Table 4: Food Aid 2001-2003 (MT)

Year	Processed					Total
	Cereals	cereals	Pulses	Oil/fats	Blends	
2001	228,961.626	7,532.206	24,306.175	14,431.871	27,171.909	306,643.102
2002	13,355.690	9,850.941	14,676.239	2,775.051	1,917.086	42,575.006
2003	24,491.630	4,969.368	1,965.694	815.563	2,409.806	34,781.451
Average	88,936.32	7,450.84	13,649.37	6,007.50	10,449.60	127,999.85

Source: World Food Program.

¹⁰ General ration is provided as a complete basket of food commodities in quantities; supplementary feeding specifically target groups at risk of malnutrition, such as pregnant women and children; therapeutic feeding is usually in feeding centres or clinics, to people suffering from nutrition.

2.2.1 Food Insecurity

Food insecurity in Kenya occurs both in urban and rural areas and in both high potential and the Arid and Semi Arid Lands (ASAL) areas. About 51% and 38% of the rural and urban populations respectively are food insecure. The insecurity has been attributed to many factors including: decline in agricultural productivity; inefficient food distribution system; population growth; unemployment; access to income and high incidence of HIV/AIDs among others. Food insecurity in Kenya has been classified as either chronic or transitory¹¹. Chronic food security results from a continuous inadequate access to food and is caused by the chronic inability of households to either produce or purchase sufficient food, whereas transitory food insecurity is the inadequate access to food due to instability in food production, food supplies and income. Food problem in Kenya is mainly of transitory nature. This has been exemplified by: periodic droughts over the years, institutional failure and poor policies which causes food crop and livestock production to decline forcing the country to import substantial food stuffs. While food crisis in the ASAL has always been attributed to climatic and environmental conditions other equally important factors have been documented. These include limited alternative sources of income, exploitative cereal marketing channels, unavailability of drought and disease resistant crop varieties, low limited crop diversification, poor storage methods, lack of credit services, inaccessibility to agricultural services, illiteracy and poverty, [Mayanga et al, 2003].

Food insecurity has also been viewed as a question of entitlements where, not all can have a fair share of the food available or produced. Sen argues that some people are deprived of food due to a breakdown in the 'means' of accessing food. As evident in Kenya, food insecurity has occurred without any decline in the general supply of food. In other words, food production per person can increase and yet more people still go hungry. This is basically due to the other intervening variables like food distribution patterns as well as national policies and subsidies. Furthermore, food shortages are not experienced uniformly even in the same food deficit zone, [Sen A.1981].

Recurrent food shortages especially before grain marketing was liberalized in Kenya have been blamed on the abandonment of indigenous drought resistant crops and soil conservation methods. However, initiatives being made to assist rural communities to revert to these practices are beset with obvious inherent contradictions. Apart from changes in feeding habits and tastes over time, the market has not been overly receptive to these changes particularly with regard to indigenous crop varieties like millet, cassava, sorghum and cowpeas. It has also become increasingly difficult to convince consumers that their traditional crops and vegetables are not only well suited to the local climatic conditions but they are also nutritious. As a result, there is dire need for a concerted and a participatory effort aimed at sustainable co-existence between 'new' technologies in agriculture and the traditional farming practices.

Food insecurity has also been caused by land fragmentation, as most of the original large-scale farms have been sub divided beyond economically sustainable production capacity. As a result of the fragmentations, some 89 percent of the households in Kenya are living in less than 3 ha while more striking is that 47 percent live on farms of less than 0.6 ha (1.5 acres) therefore the country is predominantly made of small farms: 10 percent of the holdings or 575,000 households are above 3 ha (7.5 acres). One third of these are in the large farm areas of the Rift Valley Province and another one third in the marginal areas of Eastern Province (Kitui and Machakos) and

¹¹ Mayanga et al defines transitory food insecurity as a temporary decline in household's access to sufficient food supplies. The transitory food insecurity households are those that, under normal circumstances are able to produce enough stock, but are vulnerable to supply problems when external shocks affect their food production systems or distribution chains for a limited period of time.

Nyanza Province (Homabay and Migori). The balance are small pockets of large farms in all areas of the country.¹²

Despite the rental market, Kenya is faced with landlessness when large chunks of idle land owned by the state or individuals still exist. There is a need to revise the existing land laws, land tenure system and land distribution so that land that is idle can be put into productive use. Other bottlenecks to food security include farmers' inability to access food crop research findings, demotivated extension workers, tribal clashes and displacement, illiteracy and rudimentary farming methods.

2.2.2 The State of Nutrition

While Kenya has been successful in expanding its agricultural exports, per capita food has declined from 2,150 Kcal per day in 1979-81 to 1,910 in 1992-94. This fall is largely because local staple food production has been outstripped by a relatively high rate of population growth, caused by increases in life expectancy offsetting the decline in fertility, which has resulted from a successful family planning programme. With about 44% of the population chronically under-nourished, it is evident that current demand falls far short of real needs, reflecting the low prevailing per capita and a skewed distribution of income, which limits access to food. Apart from low energy intake, there is widespread incidence of iron deficiency induced anemia, endemic goiter and vitamin A deficiency as well as of nutritional problems induced by lack of clean water and poor hygiene. (Horizon, 2015)

Poverty is most serious in areas of high and medium agricultural potential lands. This is because of the very high density of population, which in turn implies small farm size per family. Wide income disparities characterize the Kenyan society. The poorest 20 percent of the population controls about 3.5 percent of the rural income and 5.4 percent of the urban income. On the other hand, the richest 20 percent of the population controls 61 percent of the rural and 51 percent of urban income (Horizon, 2015).

The incidence and intensity of hunger and malnutrition has increased significantly and per capita supply of the main staples has been declining since the early 1980s. Chronic under-nutrition is the most common form of malnutrition in Kenya and is mainly associated with insufficient dietary intake because households lack adequate resources (income) to secure basic food requirements¹³. From 1982 to 1994, the nutritional status of children showed an uneven trend, although there was marginal improvement at the national level. The rates of chronic under-nutrition measured by retarded growth appeared to be declining at a rate of one percent a year between 1982 and 1987. However, this trend reversed thereafter and the nutritional status deteriorated. In 1994, the prevalence of chronic under-nutrition among children under five years had risen to 34 percent a level that is 15 times higher than that expected in a healthy, well-nourished population. The observed trend of under-nutrition at the national level corresponds with the decline in per capita food availability, declining economic performance especially in small-scale agriculture, and rising levels of poverty. Chronic under-nutrition does not affect all children uniformly in the country and the national estimates shows regional variations.

Children in Kwale and Kilifi in Coast Province and Makueni, Kitui and Machakos in Eastern Province were the most vulnerable with half of the children suffering from chronic under-nutrition. Other districts with high under-nutrition are also found in Western, Nyanza and Rift valley Provinces. Increasing poverty and declining access to basic health care are the main

¹² FAO, Kenya Agriculture Sector Brief, April 2004

¹³ Undernourished in the context of world food summit 1996 refers to person whose food consumption level is inadequate in terms of calories consumed relative to requirements on a continuing basis.

causes of this situation. The prevalence of stunting among children remained high in Coast, Eastern, Nyanza and Western provinces, [UNON, 1999].

2.2.3 Poverty and Vulnerability

Table 5 indicates poverty incidence estimates in Kenya. The intensity and prevalence of poverty in Kenya varies across different regions. On a national scale, it is estimated that about 56% of the population live below the poverty line. Rural poverty is marked by its common connection to agriculture and land whereas urban poverty is more marked on heterogeneous and dependence on means of generating income.

Table 5: Poverty Incidence Estimates in Kenya 1981-2000

Region	1981/82	1992	1994	1997	2000
Central	25.7	35.9	31.9	31.4	35.32
Coast	54.6	43.5	55.6	62.1	69.88
Eastern	47.7	42.2	57.8	58.6	65.90
Rift Valley	51.1	51.1	42.9	50.1	56.38
North Eastern	NA	NA	58.0	65.48	73.06
Nyanza	57.9	47.4	42.2	63.1	70.95
Western	53.8	54.2	53.8	58.8	66.11
Nairobi	NA	26.5	25.9	50.2	52.56
Rural	48.8	46.3	46.8	52.9	59.56
Urban	NA	29.3	28.9	49.3	51.48
National	46.8	46.3	46.8	52.3	56.78

NA = Not Available. Source: GOK, Economic Surveys, Kenya PRSP (2002)

The distribution of the poor according to regions in Kenya shown in Table 5 indicates that poverty levels are highest in ASALs in Coast, North Eastern and Eastern Provinces and in the highly populated regions of Western, Nyanza, Rift Valley and Central Provinces. These areas have fewer agricultural opportunities due to climatic conditions or have been over exploited due to population pressure in the case of high agricultural potential areas. Many factors are considered to be the cause of poverty in Kenya. They include: low agricultural productivity and poor marketing; unemployment and low wages; inaccessibility to productive assets, particularly land; poor infrastructure; gender imbalance; high costs of social services; bad governance and HIV/AIDS (Kenya, PRSP, 2001). The country's strategies to address poverty is to implement pro-poor policies. These include policies that address agricultural growth, food security, employment generation and equal income distribution.

The poor in rural Kenya are approximately 12 million people in 2.1 million rural households, plus another 2 million individuals in 500,000 urban households. Table 6 indicates that the absolute number of poor individuals is highest in Rift Valley, Nyanza and Eastern Provinces respectively. There are also more poor people in urban areas than in all of Central and Coast Provinces put together, with Nairobi alone having 1 million individuals living in poverty. The poor are all over the country and poverty is as much a rural as an urban problem.

Table 6: The Poor In Kenya

	% Poor	% Of Rural Poor	Individuals	Households	HH Size
Rural					
Rift Valley	51	0.23	2,691,909	485,182	5.5
Nyanza	63	0.23	2,678,518	507,720	5.3
Eastern	61	0.19	2,280,334	382,037	6.0
Western	57	0.15	1,739,131	315,074	5.5
Central	32	0.10	1,126,826	216,047	5.2
Coast	62	0.08	883,667	138,691	6.4
North Eastern	68	0.03	369,684	60,604	6.1
	53	0.86	11,770,069	2,105,355	
Urban					
Nairobi			959,973	238,328	4.0
Other Urban			1,033,929	254,117	4.1
		.14	1,993,902	492,445	
Total			13,763,971	2,597,800	

Source: GOK 2001. The Poverty Reduction Strategy Paper

The poor and the rich live side by side in Kenya in both rural and urban areas. Attempts to show whole districts or sub-locations as being a particular percent poor could mask the fact that income inequality and diversity within even single villages is greater than the diversity across districts or regions. There are poor people in the richest areas, and rich households in the poorest areas, villages and neighborhoods¹⁴.

Kenya is characterized by a highly diverse climate that varies from a tropical hot and humid coastline to a temperate climate inland and further to a dry climate in the north. Recurrent drought is widespread and it is one of the major causes of vulnerability at the household level. Over 70% of the country is arid, receiving less than 510 mm of annual precipitation. Only 12% of the total land area is classified as high and medium potential, while the rest 88% is classified as low potential or Arid and Semi-arid Lands (ASALs). Rainfall is highly unreliable and unpredictable and the country experienced severe drought in the years 1974, 1984, 1994 and 1999, resulting in significant decline in production. In the marginal areas (mainly in the eastern parts and the lake basin) with 30 percent of the national area under maize, yields range from 0 to 8 bags per acre depending on weather conditions. The average yield of maize is 1.7 tons per ha. (Oluoch-Kosura and Karugia, 2004).

The rapid spread of the HIV/AIDS pandemic poses grave health problems and has damaging macroeconomic consequences such as reduced savings, falling labour productivity and loss of experienced workers. Around 700 people die daily in Kenya from HIV/AIDS, and the disease has been declared a national disaster and accounts for the majority of in-patients in the country's hospitals. About 2.2m people are infected and 700,000 of these have full-blown AIDS and require urgent treatment in public healthcare facilities. The number of HIV/AIDS orphans is estimated to have reached 1.1 million, making Kenya the third worst affected country in the world. The high rate of sexual transmission among 15-24-year-olds is expected to increase the number of those dying from AIDS daily to 1,400 in the next five years¹⁵.

Since the infection affects the able-bodied members of the community, families have to adjust the land area devoted to farming. Remote fields are abandoned while nearby fields are overused

¹⁴ FAO, Kenya Agriculture Sector Brief, April 2004

¹⁵ FAO, Kenya: Food Security and Agriculture Development Horizon 2015, November 2003 (Draft)

and under-maintained. A switch to crops requiring less labor is also common. Available resources are also diverted to medical care, food and funeral, instead of investment on the farm. [Oluoch-Kosura and Karugia, 2004].

Women account for the bulk of the farm labor in rural areas. However, women experience land tenure insecurity and this has impacted negatively on their agricultural productivity and food security. Traditional land tenure systems discriminate against women in the control, acquisition and ownership of land. Women are also discriminated against when it comes to acquisition of credit. (Oluoch-Kosura and Karugia, 2004). Many cultural practices discriminates women against ownership of productive assets like, cattle, houses, etc, and hence command over resources that accrue from those assets. In the events of separation or death of spouse, some women face discrimination that negates their rights to inherit family assets left behind, making them more vulnerable.

The elderly, orphans, the disabled and the pastoral community in Kenya are the main vulnerable groups for they lack the necessary social and economic support. The level of vulnerability of the elderly has increased due to the immigration of the young adults from the rural areas to the urban centers and the effects of death due to HIV/AIDS, which has also increased the number of orphans. The pastoral community is basically affected by drought and their conditions continue to worsen due to the frequency of the drought and the rapid population growth.

2.2.4 Domestic Food Requirements

Table 7 presents production and demand projections for major food crops for the period 2004 to 2014¹⁶. By 2014, Kenya for example will have to import 4, 84 and 65 percent of her maize, wheat and rice requirements respectively. If Kenya hopes to avoid using her meager foreign exchange reserves to import food, then it has to put in place measures to increase agricultural production and productivity.

Table 7: Production, Demand and Import Projections For Major Food Crops ('000 MTS)

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Maize	Production	2,815	2,874	2,934	2996	3,059	3,123	3,189	3,256	3,324	3,394	3,465
	Demand	2,919	2,980	3,043	3107	3,172	3,239	3,307	3,376	3,447	3,519	3,593
	Deficit	104	106	109	111	113	118	118	120	123	125	128
Wheat	Production	244	249	254	259	264	270	276	282	288	294	300
	Demand	905	973	1,046	1124	1,208	1,299	1,396	1,501	1,614	1,735	1,865
	Deficit	661	724	792	865	944	1,029	1,120	1,219	1,326	1,441	1,565
Rice	Production	57	58	59	60	61	62	63	64	65	66	67
	Demand	114	116	118	120	122	124	126	128	130	132	134
	Deficit	57	58	59	60	61	62	63	64	75	66	67

Source: Author calculations.

¹⁶ The production projection have been extrapolated at 2.1%, 2.1% and 1.7% for maize, wheat and rice respectively, which take into account the expected acreage and yields of each of the crops. The demand projections are 2.1%, 7.5% and 1.7% for maize, wheat and rice respectively depicting the population growth rate, rural-urban immigration and change of food preferences.

Livestock products include: milk, beef, mutton, goat meat, camel meat, pork, poultry and eggs. An average of 2.2 billion litres of milk is produced annually while local milk demand is 2.1 billion. The meat subsector is dominated by red meat (beef and mutton). Red meat contributes about 70 percent of the meat consumed locally while white meat comprising of pork and poultry make the remaining 30 percent. The production of red and white meat is 250,000 and 40,000 tonnes per year respectively. The estimated per capita consumption of livestock products is 9-10 Kgs for beef, 2 Kgs mutton and goat, 1.2 Kgs poultry and 0.3 Kgs for pork. This indicates that there is considerable potential for increased milk and meat production, which in turn imply increased food security.

As indicated in table 8, provided that Kenya intensifies livestock production by putting in place implementable strategies to increase both livestock production and productivity, Kenya is not in any serious danger in meeting most of her livestock product requirements. The table indicates that only beef and camel meat will be in deficit during the period under consideration. Other meat products will be in surplus all things remaining equal.

2.2.5 Livestock Products

Livestock products include: milk, beef, mutton, goat meat, camel meat, pork, poultry and eggs. An average of 2.2 billion litres of milk is produced annually while local milk demand is 2.1 billion. The meat subsector is dominated by red meat (beef and mutton). Red meat contributes about 70 percent of the meat consumed locally while white meat comprising of pork and poultry make the remaining 30 percent. The production of red and white meat is 250,000 and 40,000 tonnes per year respectively. The estimated per capita consumption of livestock products is 9-10 Kgs for beef, 2 Kgs mutton and goat, 1.2 Kgs poultry and 0.3 Kgs for pork. This indicates that there is considerable potential for increased milk and meat production, which in turn imply increased food security.

As indicated in table 8, provided that Kenya intensifies livestock production by putting in place implementable strategies to increase both livestock production and productivity, Kenya is not in any serious danger in meeting most of her livestock product requirements. The table indicates¹⁷ that only beef and camel meat will be in deficit during the period under consideration. Other meat products will be in surplus all things remaining equal.

Table 8: Production and Demand Projections for various Livestock Products

Item	Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Milk (million litres)	Production	2879	2951	3039	3130	3224	3321	3420	3540	3663	3792	3925
	Demand	2691	2825	2995	3175	3365	3567	3781	4008	4248	4503	4773
	Surplus/deficit	188	126	44	(45)	(141)	(246)	361	(468)	(585)	(711)	(848)

¹⁷ Calculations for both production and demand parameters are based on the projected livestock population and rural-urban immigration respectively. Production and demand for beef, mutton, goat meat, camel, pig, poultry and eggs have been extrapolated at the rates of 3%, 5.2%, 3.3%, 1.2%, 4.9%, 2.5% and 2.9% respectively from the year 2008. The supply projections for milk however has been projected at 2.5% upto 2005, 3% upto 2010 and 3.5% upto 2014 while demand has been 4% upto 2005, 5% upto 2010 and 6% upto 2014. The authors' milk projections are from 2010. The figures from 2004 – 2008 are from the Development Plan except for milk, which is from The Kenya Dairy Development Policy 2000 (which is from 2004-2010).

Beef (Tonnes)	Production	323021	332857	342693	353128	363563	374470	385704	397275	40919	3	421469	434113
	Demand	360200	371180	382000	393650	405300	417459	429982	442881	45616	7	469852	483948
	Deficit	37179	38323	39387	40522	41737	42989	44278	45606	46974	48383	49835	
Mutton (Tonnes)	Production	40830	42006	43182	44320	45457	47821	50308	52924	55676	58571	61617	
	Demand	53350	54885	56420	57905	59390	62478	65727	69145	72741	76523	80502	
	Deficit	12530	12879	13238	13585	13933	14657	15419	16221	17065	17952	18885	
Goat Meat (Tonnes)	Production	47810	49365	50920	52680	54440	56237	58092	60009	61989	64035	66148	
	Demand	42220	43590	44960	46515	48070	49656	51295	52988	54737	56543	58409	
	Surplus	5590	5775	5968	6165	6370	6581	6797	7021	7252	7492	7739	
Camel Meat (Tonnes)	Production	8470	8525	8580	8685	8790	8895	9001	9109	9218	9329	9441	
	Demand	8300	8350	8400	8450	8500	8602	8705	8809	8915	9022	9130	
	Deficit	170	175	180	235	290	293	296	300	303	307	311	
Pig Meat (Tonnes)	Production	15326	16111	16896	17762	18628	19541	20498	21502	22557	23662	24821	
	Demand	7631	7857	8083	8427	8770	9200	9651	10124	10620	11140	11686	
	Surplus	7695	8254	8813	9335	9858	10341	10847	11378	11937	12522	13135	
Poultry Meat (Tonnes)	Production	23196	23784	24371	24988	25604	26244	26900	27572	28261	28968	29692	
	Demand	23021	23637	24253	24912	25570	26209	26864	27536	28224	28930	29653	
	Surplus	175	147	118	76	34	35	36	36	37	38	39	
Eggs (Millions²)	Production	1136	1171	1205	1242	1278	1315	1353	1392	1432	1474	1517	
	Demand	1010	1040	1070	1104	1138	1171	1205	1240	1276	1313	1351	
	Surplus	126	131	135	138	140	144	148	152	156	161	166	

SOURCE: National Development Plan 2002-2008, Kenya Dairy Development Policy, GoK 2000 and Authors' calculations

2.3 Internal Food transfers

Movement of foodstuff from surplus areas to deficit areas characterizes Kenya food production. For example, maize is produced primarily in the medium and high potential areas of the Rift Valley Province. It finds its way to distance deficit area of North Eastern, Eastern and Coast Provinces and the urban centres. However, an empirical diagnosis shows that due to problems in food distribution and marketing procedures, there are cases where people starve in drought prone areas like Turkana and the North Rift Valley while several tons of maize awaits marketing opportunities in the not far distant Kitale in Trans Nzoia District. A case in point is the 1983-84 famine that affected various parts of the country. The local residents in Machakos and Makueni districts dubbed the famine *ngwa ngwete*, which means, "I am dying though I have the means". The people had some money to buy food but there was hardly anything in the commercial food stores. Since there were foodstuffs elsewhere in the country particularly in the Rift Valley, what the people in question experienced was an artificial shortage of food occasioned by poor distribution systems and policies. Additional evidence from Kenya's high potential areas shows that food insecurity can be experienced in the midst of plenty due to the combination of lack of information, impassable road network and movement control of grains.

2.4 Food security strategies and Safety Nets

Kenya has over the years faced increased food deficits as a result of prolonged droughts and low productivity. Lack of effective early warning systems, lack of adequate strategic reserves, high post harvest losses and lack of effective control of crop and livestock diseases have compounded the challenges. The private sector has demonstrated its ability to import food items that are

needed in times of domestic production shortfalls. This has decreased the need for a large national strategic reserve, although this dependency on imported foodstuffs does not encourage sustainable food security.

Kenya's Special Programme for Food Security Concept Note, prepared by Ministry of Agriculture and Livestock and Livestock Development Department of Agriculture Extension, intends to institute a national early warning and food distribution system, maintain a national strategic reserve but encourage the private sector to get involved in the international grain trade through a more predictable policy and tariff regime. Toward halving the number of food insecure, a target of at least 6 million persons has been set, and it is to be ensured that the number of chronically food insecure does not increase beyond present levels.

A significant Programme under existing national funds has been planned, beginning with the 2004-2005 budget, and through District Food Security Steering Committee actions in the 2003-2004 budget year (starting 1 July). District consultations and planning will be undertaken to prepare budget requests for the 2004-2005 fiscal year. The Ministry has, in the meantime, conducted sensitization workshops for key stakeholders, from the public and private sectors, at *national* (including the donors), *provincial* and the *district* level. The district staffs have embarked on familiarization and documentation of successful initiatives.

Start up activities for the Kenya Special Programme for Food Security and Food Security Network would include¹⁸:

- (i) District level consultations for development of profiles, priority setting and budget commitments, setting the stage for up-scaling of activities within districts and divisions.
- (ii) District preparation activities including training of facilitators (government, NGO and CBO extensionists), testing grant modalities, exchange visits. Support national policy development on a Food Security Strategy that would include Office of the President Disaster Management, production/storage issues and inter-ministerial issues such as trade, communications, infrastructure and other macro-economic issues.
- (iii) Formulation of a national programme/project under national and external funding to address immediate issues of 1 million chronically food insecure households, with all national extension providers orienting their work plans toward the proposed approach.
- (iv) Strengthening of the current Inter-ministerial Committee on Food Security combined with drawing linkages with the Kenya Food Security Meeting and means of supporting joint activities, so as to ensure greater attention to issues of *chronic* rather than transitory food insecurity.

¹⁸ FAO, Kenya: Food Security and Agriculture Development Horizon 2015, November 2003 (Draft).

CHAPTER 3

3.0 SUPPORT FOR THE AGRICULTURE: Magnitude, Evolution and Trends

3.1 Importance of The Agriculture Sector

Agriculture is the major sector in Kenya and although its contribution to the gross domestic product (GDP) has declined from 35 percent in 1964 to about 26 percent in 2004, its contribution to development is still significant (Kenya, 2002)⁸. Out of the total 56.9 million hectares of Kenyan land, over 90 percent is classified as agricultural land.

Agriculture employs about 75 percent of the labor force, provides raw materials for the agro-based manufacturing industries (which constitute 70 percent of all industries) and accounts for about 45 percent of the government revenue. Besides, the sector is the growth engine for the non-agricultural sector with a multiplier effect of about 1.64 (Block and Timmer, 1994). Thus, agriculture is the mainstay of the Kenyan economy and is expected to maintain its role as the primary engine of growth for the economy in the foreseeable future.

The fisheries sub-sector contributes about 3 percent of the GDP and 3 percent of total export earnings. It employs about 58,000 people directly and 500,000 indirectly through fish processing and trade. This sub-sector falls under the Ministry of Livestock and Fisheries Development (MoLFD) that has the mandate of promoting sustainable development of the livestock and fisheries sector and ultimately contributes to the achievement of food security. The cooperative movement plays an integral role in the procurement of agricultural and livestock inputs and marketing of outputs. The movement also plays a major role in facilitating the building up of revolving funds for cooperative movements in various organizations. The Ministry of Cooperative Development and Marketing (MoCDM) is therefore expected to spearhead the growth and development of an economically viable cooperative movement through formulation, development and implementation of policy guidelines, programmes and legal frameworks that meet the aspirations of cooperative members.

3.2 Nature of Kenyan Agriculture

Kenya's agriculture is dominated by primary production of a few commodities namely⁹: cereals (maize, wheat and rice), traditional food crops (pulses, roots and tubers, millet and sorghum), industrial crops (sugar, pyrethrum, cotton, tobacco and sisal), exports crops (tea, coffee and horticulture) and livestock (milk, meat and eggs), [Nyangito, 1998]¹⁰. Kenya's agricultural sector is characterized by smallholder mixed farming. Smallholders account for over 65 percent of the total agricultural output. Pastoralism is the main form of production in the ASAL areas. The smallholder farmers in ASAL and agro-pastoral districts have the potential to grow cotton as cash crop and maize, sorghum, millet and pigeon peas for subsistence. Plantation crops grown as monoculture crops include coffee, tea, wheat and maize.

⁸ Todaro 2001 defines development as the process of improving the quality of all human lives. Three equally important aspects of development are (1) raising people's living levels-their incomes and consumption levels of food, medical services, education, e.t.c., through relevant economic growth processes; (2) creating conditions conducive to the growth of people's self-esteem through the establishment of social, political and economic systems and institutions that promote human dignity and respect; and (3) increasing people's freedom by enlarging the range of their choice variables, as by increasing varieties of consumer goods and services.

⁹ Other crops and livestock produced in Kenya, which at present contribute little to agriculture GDP include sunflower, sesame, soyabeans, rapeseed, castor, cashew nuts, ostrich bixa, bees and crocodile.

¹⁰ Agriculture includes fishing and forestry and logging.

Table 9: Value of agricultural primary production 1995

Commodity	Value of primary production (Kshs Billions)	% of agricultural GDP	% of total GDP
Beef cattle	25.0	15	3.8
Dairy products	23.1	13.9	3.5
Maize	20.1	12.1	3.0
Tea	16.6	10.0	2.5
Coffee	14.9	9.0	2.2
Domestic Horticulture	12.7	7.6	1.9
Chicken products	7.6	4.6	1.1
Export horticulture	7.1	4.2	1.1
Sugar	7.1	4.2	1.1
Goats	6.5	3.9	1.1
Pulses	5.9	3.6	0.9
Sheep	4.1	2.4	0.6
Potatoes	3.1	1.9	0.5
Wheat	2.9	1.8	0.4
All primary agriculture	156.1	94.2	23.6
Average	12.1	7.2	1.8

Source: Kenya at the Cross Roads

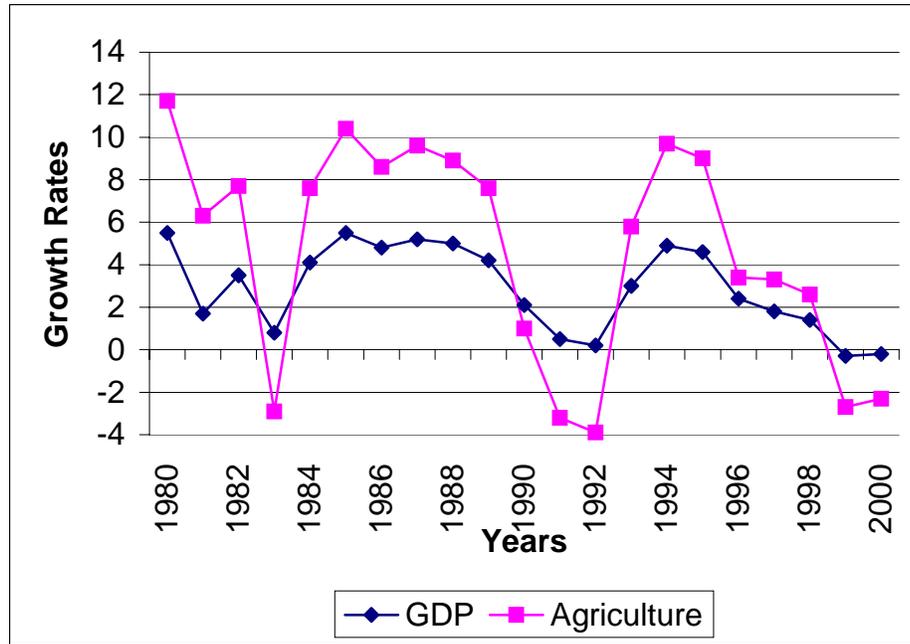
Table 9 presents the value of agricultural primary production for 1995¹¹. The table illustrates the actual value of specific commodities in the Gross Domestic Product. What is evident is that livestock contributed the largest value of agricultural primary production of Kshs 66.3 billion while cereals, cash crops, domestic and export horticulture, and others contributed Kshs 28.9, Kshs 31.5, Kshs 19.8 and Kshs 10.2 billion respectively. On the other hand, livestock, cereals, cash crops, domestic and export horticulture, and others contributed 39.8, 17.5, 19.0, 11.8, and 6.1% respectively of the value of total agricultural GDP. As a share of Total GDP, livestock contributed 10.1% followed by cash crops (4.7%), cereals (4.3%), and others contributing 1.6%.

3.3 Agricultural Growth Trends and Sector Analysis

A very close relationship exists between the growth of agriculture and that of the whole economy, (figure 4). The declining performance of agriculture mirrors the performance of the economy. When the performance of the agricultural sector is good, that of the economy is also good and the converse holds true as well. The positive correlation illustrates the need for the government to increase productivity in agriculture if the economy is to move anywhere at all.

¹¹ The figures reflect the current situation with very minor adjustments.

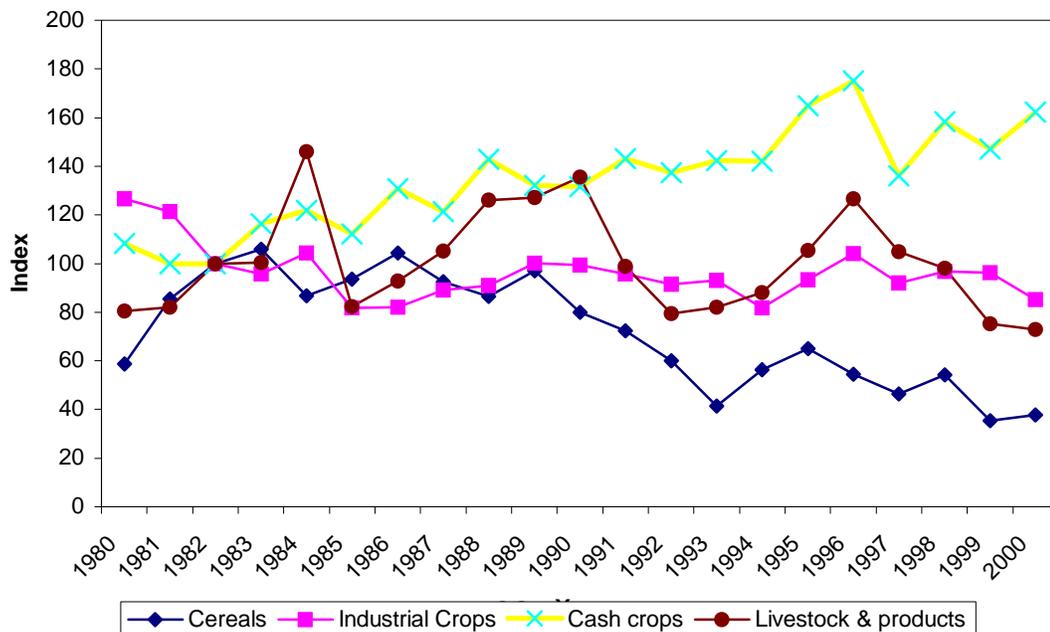
Figure 4: Growth rates of GDP Agriculture and GDP



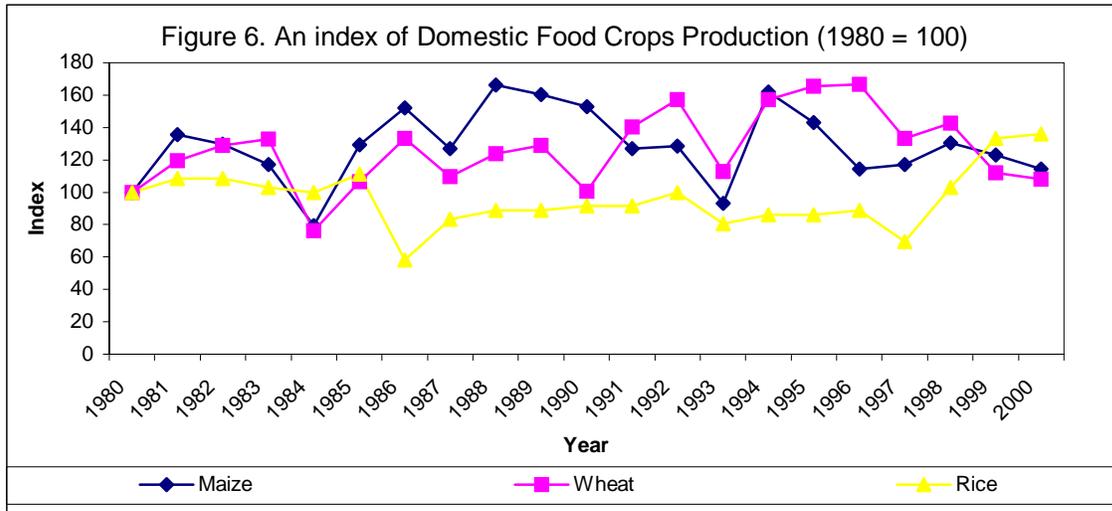
Source: Economic Survey

When the performance of the sector is analyzed in terms of production, area, yields, marketed volumes, prices, exports and imports, one draws a conclusion that agricultural performance especially in the post-reform period 1994 to 2000 was negative. Agricultural production shows mixed trends for various commodities (Figures 2, 3 and 4). Most commodities, particularly food and industrial crops have shown a decline in production as reflected by sales to marketing boards while some crops like tea and tobacco (cash crops in general) show a general increasing trend after 1990 (Figure 5).

Figure 5: Quantum Indices of Agricultural Sales to Marketing Boards (1982 = 100)

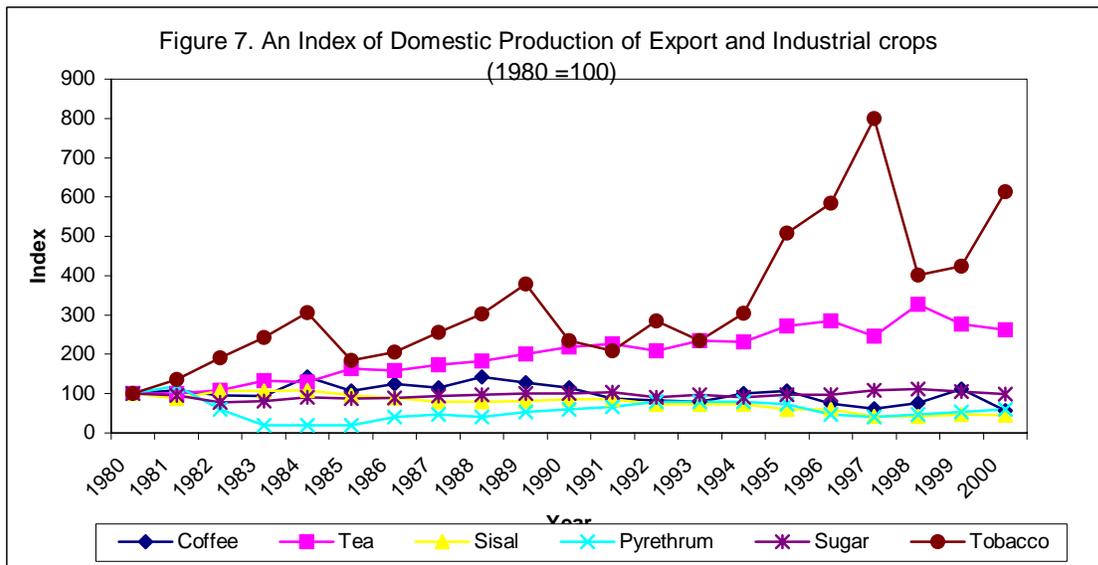


The poorest performance has occurred in maize, rice and wheat (Figure 6). The mixed trend in production is attributed to a number of factors that include area expansion or contraction, climatic, technological and price changes. While it is in fact true that climatic factors such as drought are important in explaining Kenya's agricultural performance, the major culprits are policy related.



Source: Economic Survey.

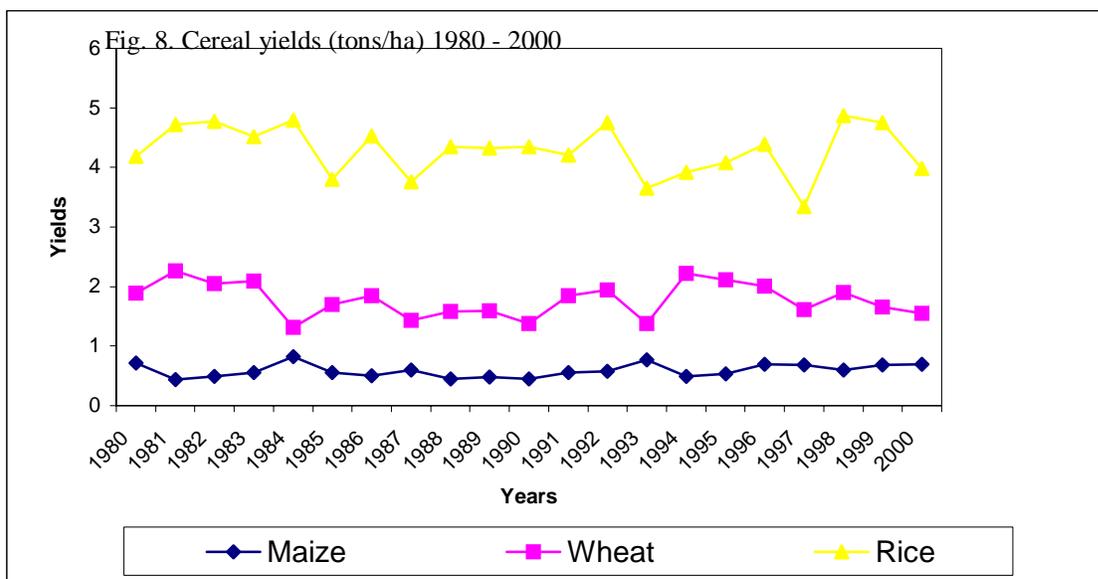
Further, although some commodities like tea show a general increasing trend in production, this is attributed to an increase in hectarage rather than an increase in productivity or yields. In all cases, productivity for all the commodities is low compared to research station results or those obtained in developed countries.



Source: Economic Survey.

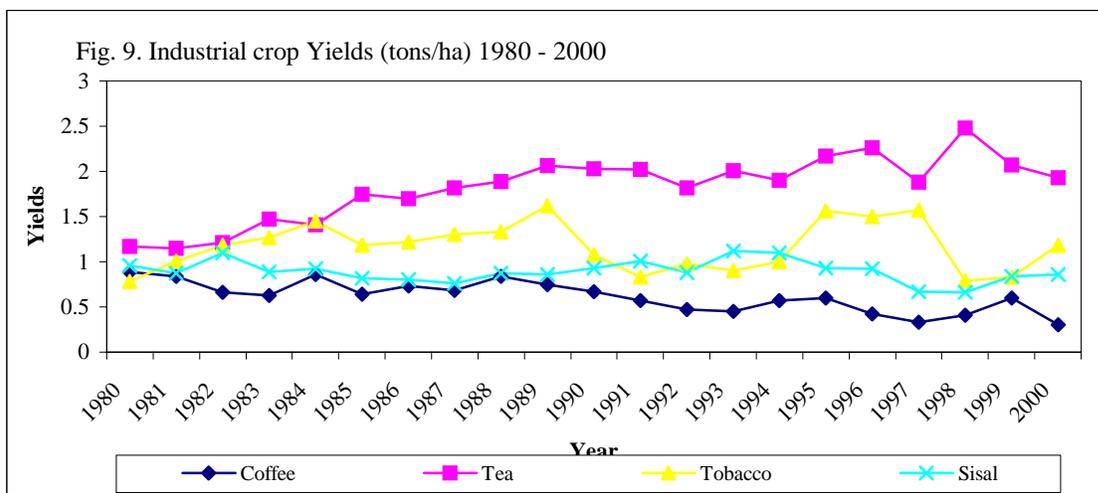
The area under crops shows mixed trends. There has been a general increase in the area under food crops (maize and wheat) and cash crops (tea, coffee and horticulture). However, there has been a decline in the area under industrial crops particularly sisal and cotton but a mixed trend is

observed for sugar cane while a general increase occurred for tobacco. Given these trends in area expansion, the decline in production cannot be attributed to contraction in area but changes in yields. The yields for various crops shown in Figure 8 (maize, wheat and rice) and figure 9 (coffee, tea, tobacco and sisal) indicate that yields for most of the crops have stagnated since 1980 although some marginal increases have occurred for a few crops such as tea.



Source: Kenya Economic Surveys.

However, a common feature for all crops is periodical fluctuations in yields. Different levels of crop husbandry practices, fertilizer and chemical use, quality of seed and production techniques, explain the fluctuations in yields. Stagnated yields and/or declining levels are a reflection of poor crop husbandry practices, low levels of use of fertilizers and chemicals, use of poor quality seed and general production techniques.



Source: Kenya Economic Surveys.

These problems extend to livestock production and as a result, production of livestock products, particularly milk has declined. In particular poor livestock disease control in particular has also

hampered the opportunity to produce beef for the export market. The existence of animal diseases has restricted beef exports to the European markets.

3.4 Challenges, Constraints and Opportunities

3.4.1 Challenges

The main challenges facing the rural sector as identified by Kenya's *Rural Development Strategy 2002-2017* are: to increase productivity and economic growth in order to halt the worsening poverty levels; and to attain the target of reducing poverty by 50% by the year 2015. They have to be confronted at a time when Kenya faces a declining financial and natural resource base, HIV/AIDS pandemic, insecurity, and ill-effects of globalization.

Another major challenge of the agricultural sector is to compete in the world market. The country depends on a narrow range of primary agricultural products for exports, which are facing a fairly volatile and stringent world market. One of the greatest challenges in Kenyan agriculture exports is to increase the volume and value of export within the various trade protocols of the WTO Agreement On Agriculture.

3.4.2 Constraints

The growth of Kenya's agriculture and food sector is constrained by both economic and non-economic constraints. These include: institutional weakness, collapsed infrastructure; lack of an effective land policy; low political support; high taxation; poor research and extension linkages; increasing prevalence of HIV/AIDS and other diseases, and dysfunctional institutions especially financial institutions. The section that follows examines in greater detail these constraints.

There is poor agrarian leadership in Kenya. The leadership has failed to promote an all-inclusive agricultural development framework, where the state, the private sector, civil society, higher institutions of learning, and the farming community participate. The framework must be an indigenous-led but Kenya can always use relevant experiences from the successful economies, for example the Asian economies, [Naya and Mcleery 1994]. Past policies have been supply driven and has been designed without the participation of stakeholders especially the farmers and even if such policies were good for the farmers, they may not have had the desired effect, as there was no ownership by the intended beneficiaries, [Gitu, 2001, Idabacha, 2000]. More important is that the role of women in agriculture has been ignored notwithstanding the important role they play in all agricultural production activities, [Boserup 1970, Sachs 1983, FAO 1993, Pinstrup-Andersen and Pandya-Lorch, 2000 and Todaro, 2000].

The weakness of most of the resource poor farmer organizations is another component of the institutional failure. There is often poor governance and weak leadership in many of the resource poor farmer groups. In particular, some of the resource poor farmer groups are led by people who perceive them as avenues for accessing financial resources from support organizations. These are the most troublesome of all farmer groups in that they inhibit the farmers' ability to establish an institutional capacity for self-development. Weak leadership in many of the resource poor farmer groups inhibit their capacities to address their needs e.g. through failure to mobilize their own resources to reasonable levels before seeking external support. Weak leadership also tends to create dependency on others for direction and frequently leads to failure to articulate group needs and demands.

Kenya suffers from collapsed infrastructure: poor road network, inadequate railway network, unreliable and costly electricity, water supply, lack of information and communications technology infrastructure. Due to poor transport network, commodity prices often fluctuate

substantially from one region to the other and are seasonally volatile. Even when agricultural surplus zones have gluts, it is not possible to transport the produce to the deficit zones. Similarly, when technical solutions in agriculture have become available, lack of infrastructure causes problems in their transmission especially with regard to marketing, credit, extension and input provisions. In some cases, the cost of transporting agricultural inputs and produce is extremely high to the extent that farmers do not produce at all even if other resources are available. This has greatly affected negatively on the development of the agricultural sector and consequently on poverty and food security.

Agriculture is predominantly rain fed and output is therefore heavily influenced by the amount, distribution and variability of rainfall, which causes considerable risks and uncertainty in production. Land scarcity is further dramatized by episodes of severe droughts, [Short and Gitu, 1990]. Recurrent drought has been associated with significant declines in production and consequent food shortages.

High taxation especially on inputs including machinery, fuel and spare parts make Kenya agriculture less competitive. Taxation and policy biases against agriculture include: concentration of public investments in areas of infrastructure and provision of safety nets in urban areas; direct taxation of agricultural based exports and local authority tax; subsidies and tax waivers for capital intensive technologies such as computers and mobile phones instead of reducing costs of agricultural inputs; development of infrastructure in urban areas rather than in rural areas where the infrastructure is needed most; weak farmers institutions to support agriculture; and market access and transport costs that are biased against rural development. Input intensive technologies are neither economical when farmers must pay prices for fertilizers and receive only 30 to 60 percent of the market value for their produce, nor are they economical when extra production cannot be transported and sold because of lack of infrastructure.

Land has been one of the most contentious issues in Kenya's political economy. The lack of a coherent land policy that harmonizes the different land based activities such as agriculture, pastoralism, tourism, industrial location and human settlement has continued to undermine agricultural development and food security. The surveying, titling and registration of land is about 80 percent complete in the high and medium potential areas of the country but this cannot be said for ASAL areas. Some authors believe that ownership of land greatly influences the intensification of agriculture as title to land gives one the exclusive rights to operate a particular land holding, invest on it and can also be used as collateral in sourcing financial credit, [Bwika, 1990]. Lack of title deeds has weakened farmers resolve to operate their land holdings and has also weakened long-term investments on land. Further, land ownership and credit access is highly biased against women who are the main operators of land in Kenya. Some empirical evidences have pointed at non-existent casual relationship between on one hand, the formal registration/titling of holdings and on the other, the propensity to invest, demand credit, increase yields and exchange land through sales and purchases. Nevertheless, it is accepted that to achieve the desired effect of land registration and titling, other complimentary factors such as access to quality inputs, infrastructure and efficient marketing of produce must be in place. These complimentary factors are mostly unavailable leading to missing markets and non-realization of increased productivity, [Migot-Adhola et al, 1994, Obunde et al 2003].

Agricultural productivity is threatened by the HIV/AIDs pandemic. The opportunity costs in terms of foregone production is high and at the same time, mortality and morbidity from HIV/AIDs is resulting to labour shortage for both farm and domestic work. In the rural areas, estimates indicate HIV infections to be between 12-13 percent. This threatens the ability of the small farmer to produce sufficient foodstuffs. Similarly, other diseases such as tuberculosis and malaria are resulting to the same, [Saitoti, 2000, Wilson 2001, Bernet and Rugalema 2001].

Low political support and non-performance of policies have affected agricultural growth. Kenya's leadership must play its part in guiding agricultural development than hitherto. It must drive agricultural development process and must provide political support, which is so vital for a rapid and sustained growth process.

Weak research and extension linkages have adversely affected agricultural production and productivity. Although Kenya's agricultural research system is relatively strong as compared to other developing countries, progress in increasing total factor productivity in agriculture suggests that it has inherent weakness that forces it to operate below its potential. This has been related to weaknesses in research priority setting, financing, management and poor inter-agency linkages under funding of operational costs; lack of managerial autonomy and accountability [Simons and Gitu, 1989, Simons, 1989, Gitu, 2001, Omamo, 2003]. A major limiting factor to agricultural research has been the fact that local research institutes mainly rely on donor funds. The weaknesses in research and extension linkage have limited the generation of new technologies. Recent analysis shows a declining trend in efficiency and effectiveness of the Ministry of Agriculture extension services, [Kosura, 2001]. This has been as a result of declining budgetary allocations to the sector, lack of clear objectives, failure to identify the role of beneficiaries and poor organizational and institutional structures among others. Although new technologies are available on shelf, the farming community has not benefited from them since research findings do not flow to the farming community as a result of dysfunctional extension service.

Strong credit and marketing institutions supported agricultural production systems in the first decade after independence. This included: Agricultural Finance Corporation (AFC) for credit, National Cereals and Produce Board (NCPB) for marketing, maize, wheat and other cereals, Kenya Meat Commission (KMC) for marketing meat, Kenya Cooperative Creameries for milk and Kenya Sugar Authority (KSA) for sugar just to mention a few. These institutions initially performed fairly efficiently, but due to high-level government interference, corruption and poor management, their performance deteriorated to a point that they increasingly failed to provide services to the farmers. For example, before the on set of market liberalization, formal agricultural credit was provided at subsidized rates through a number of credit schemes especially for maize farmers. These schemes are no longer in operation. In comparison with commercial banks, lending rates of the AFC was lower, more stable and was widespread. In an attempt to increase financial resources to the sector, the government introduced a requirement that commercial banks and non-banking institutions have to lend between 17-20% and 10-15% to the agricultural sector, respectively. However, this has not happened, as both institutions have remained conservative and adamant to lending to agriculture probably due to the assumed risks and uncertainties associated with agricultural production.

Other constraints which have also contributed to the decline in agricultural production and productivity and must be removed include: lack of storage and other post-harvest technologies; lack of a comprehensive legal framework to guide formulation of consistent policies; poor marketing information, lack of capacity by the private sector to take over functions previously performed by the state before liberalization; inadequate integration and coordination of activities by major players within the sector including the various Government Ministries, farmers' organizations, private sector, donors and NGOs, inadequate high yield crop and livestock varieties, and high input costs especially animal feeds. These constraints must be removed if agriculture productivity is to be increased. In addition, there is need to improve macro-economic performance which would enhance domestic saving rates to promote capital formation for wealth creation and economic growth, [GoK, 1986; Nyangito, 2001; Lipton, 1987; Eicher 1988; 1987 and Gitu and Short 1990, Gitu and Kanyua, 1991].

3.4.3 Opportunities for Growth and Development in Agriculture

The Kenya government has in a number of policy documents emphasized self-sufficiency in domestic production of the main food commodities as well as the ability to generate adequate foreign exchange as a means of achieving food security. As noted earlier in this document, the country has not attained the desired self-sufficiency except for maize in the 1970s. There have been shortfalls in foodstuffs particularly maize due to the reduction in acreage under the crop, low levels of fertilizer use, discontinuation of the crop insurance schemes particularly the Guaranteed Minimum Return (GMR) and drought among others. Subsequent policy papers have addressed incentives to farmers to increase food production and create an effective distribution system that guarantees food reaches deficit areas.

Even with the adverse climatic conditions and the scarcity of medium to high potential land, it has been demonstrated that given adequate support and non-interference in production and marketing, Kenya is capable of increasing both production and productivity in agriculture. Tea, horticulture and dairy sub-sectors are some of the sub-sectors where Kenya has had greatest success and still have great potential to increase production and productivity. The success in the sub-sectors can be attributed to a combination of factors including: favorable weather conditions over some of the years, availability of credit, emerging market opportunities, government sponsored research and extension, training, and monitoring among others. The government also created an enabling environment by removing bureaucratic structures in the market mechanism. The combined government assistance and restraint from interference helped in the rapid expansion of these sub-sectors, [Nyangito 1996, Kimenye, 1995].

3.4.3.1 The Tea Sub-Sector

Kenya currently produces about 16 percent of the world's marketed black tea and ranks second after Sri Lanka in the tea exports. Kenya is also the third major tea producer in the world after India and Sri Lanka. The tea sector has recorded rapid growth both in acreage and in production. The smallholders witnessed the highest expansion where production rose from a mere 1.7 per cent of the total tea production in 1963 to 61.6 percent in 2000. Tea is a major source of employment, income and foreign exchange.

Table 10: Tea Production

Year	Estates			Small Holdings		
	Area	Prod.	Yield	Area	Prod.	Yield
1963	17,921	17,770	0.99	3,527	312	0.09
1990	29,979	87,089	2.91	67,041	109,997	1.64
1991	31,017	90,847	2.93	69,609	112,742	1.62
1992	31,340	88,261	2.82	72,162	99,881	1.38
1993	31,754	98,634	3.11	73,109	112,535	1.54
1994	32,038	90,338	2.82	78,183	119,084	1.52
1995	32,201	105,580	3.28	80,355	138,945	1.73
1996	32,523	113,091	3.48	81,159	144,071	1.78
1997	32,694	91,014	2.78	84,657	129,708	1.53
1998	33,761	114,527	3.39	84,657	175,628	2.07
1999	33,586	94,853	2.82	86,813	153,855	1.77
2000	34,090	90,740	2.66	88,146	145,546	1.65

Source: Gitu and Nzuma

The remarkable growth in tea is attributable to a number of factors including: favorable land and investment policies, institutional support, attractive world market prices and the land redistribution policy adopted by the government at independence and completed in the mid 1970s where large scale settler farmers were bought out by the government. The land was subdivided and given to the smallholder farmers. In addition the abolition of the policy that previously restricted the Africans from growing cash crops led to the expansion of the area under smallholder tea. Favorable investment policy for estates particularly the non-interference in production, processing and marketing encouraged tea growing by the large-scale farmers. The success of the smallholder grower is also attributable to the Kenya Tea Development Authority (KTDA) involvement in the provision of extension services and inputs to farmers, collecting green leaf, processing, and marketing of made tea. There have also been a number of policy reforms in the tea sub-sector which includes: deregulation of markets and prices to encourage the private sector to play a more important role in production, processing and marketing of agricultural commodities, divesting government from productive activities in agriculture to allow marketing institutions to operate like commercial entities in order to compete with the private sector, and macroeconomic reforms policies that removed restrictions on the exchange rate, retaining and remitting foreign exchange and the liberalisation of interest rates. Other areas of reform included the conversion of the Kenya Tea Development Authority to a farmers controlled organization

While the above success story is remarkable, there have been constraints that have hindered the growth of the sub-sector including: poor road infrastructure, management of collection network, inadequate processing capacity and low fertilizer use. In order to improve tea production there is need to provide credit facilities especially to the smallholder farmers, strengthen extension services and increase processing capacity, increase research on high yielding varieties, drought and frost tolerant varieties and increased involvement of farmers in the management of the industry. Finally, tea is sold without blending and packaging to reflect that it is Kenyan tea despite the fact that blended tea fetches prices six times higher than bulk exports. There is therefore a great potential for earning more from exports if Kenya blends and packages its tea for export.

3.4.3.2 Horticulture Sub-Sector

Kenya's success in expanding horticultural exports (fruits, vegetables and cut flowers) is well known. Horticulture ranks second to tea in agriculture export earnings and it accounts for approximately 16 percent of domestic agricultural exports. It is a major source of income and employment to the rural areas. This sector directly contributes to food security as 95 percent of its production is consumed locally. Smallholder growers account for 80 percent of all growers and produce 60 percent of horticultural exports. Recognizing the importance of the horticultural sub-sector, the government established the Horticultural Crop Development Authority (HCDA) in 1967 to develop the sector. The HCDA has been able to help farmers in an advisory and regulatory capacity over the years. Most horticultural exporters work through private sector intermediaries, local farmers and merchants who fund farmers willing to grow the produce, provide them with information about quality, prices and timing of supply, communicate to exporters the local supply conditions, distribute packaging materials to farmers and pay at the end of the season. The intermediaries provide the collection points to which farmers deliver their produce from which the exporters collect them.

The major horticultural crops include french beans, tomato, cabbages, mangoes, citrus, onion, macadamia, cut flowers, Asia vegetables etc. The major export crops are cut flowers, fruits, vegetables, spices and herbs. Table 11 present Horticulture Crops Production Trends for the period 1996 to year 2000. A total of 2.75 million tons of horticultural products are consumed in the domestic market. In addition to the horticulture being a major source of foreign exchange, it directly contributes to the food security as a source of vegetables. The horticultural sub-sector has also contributed immensely in poverty reduction through the creation of employment in the rural areas. The sub-sector is labour intensive and basically under irrigation and therefore has the potential for growing two crops per year.

Table 11 Horticulture Crops Production Trends

Year	Crop	Area ('000' Ha)	Production	Value (Million Kshs)
1996	Fruits	95	1397	23,699
	Vegetables	81	936	9,315
	Herbs and spices	2	7	181
	Cut flowers	1	39	4366
	Total	179	2,379	37,561
1997	Fruits	129	1,713	12,718
	Vegetables	88	988	12,281
	Herbs and spices	1	6	147
	Cut flowers	1	40	7,443
	Total	219	2,747	32,589
1998	Fruits	135	2,141	14,367
	Vegetables	91	1,043	11,934
	Herbs and spices	1	5	88
	Cut flowers	1	34	4,857
	Total	228	3,223	31,246
1999	Fruits	136	2,158	18,462
	Vegetables	97	1,128	12,259
	Herbs and spices	1	6	130
	Cut flowers	2	41	7,412
	Total	236	3,333	38,263
2000	Fruits	136	2,063	25,246
	Vegetables	88	1,048	13,123
	Herbs and spices	1	5	200
	Cut flowers	2	42	7,227
	Total	227	3,158	45,796

Source: National Development Plan 2002-2008

3.4.3.3 Dairy Production

A fundamental change in structure of the commercial dairy industry occurred in the last thirty years which has been attributable to a number of measures that the Kenya government had taken in the early years of independence which included: guaranteed favorable feed prices, efficient land policy, effective disease control services, wider availability of credit especially to the small scale farmers, the development of the national artificial insemination services and favorable output pricing and marketing structures, and effective institutions. The dairy industry has grown from 421,000 dairy cattle producing 793,000 litres of milk in 1963 to 3,300,000 dairy cattle producing 2,500,000,000 litres of milk as of 2003 (Table 12). Among the government institutions that helped the growth of this sector was the Settlement Trustee Fund, which financed the purchase of dairy animals for those who were resettled in the settlement schemes that the government created after independence. Dairy farmers were provided with loans to acquire land, grade dairy animals and fencing facilities. These credit facilities were long term, which attracted low interests rates. The government also established farmers training institutes, which introduced modern methods of animal husbandry. Kenya has the potential to produce over 4 billion litres of milk provided that a number of constraints are removed including: the existing

ineffective artificial insemination services, inadequate disease control system, unavailability of credit to farmers, lack of breeding stocks, high feed prices, inappropriate policies and poor institution governance including corruption. To further improve the dairy industry there is a need to facilitate the development of producer organisations, improve transport and processing infrastructures including roads, cooling and processing facilities and dairy cattle genetic base.

Table 12: Dairy Cattle and Milk Production

Year	Dairy Cattle (000's)	Milk Production (Million litres)
1963	421.00	793.00
1968	491.00	834.80
1973	900.00	1,227.26
1978	1,128.00	901.12
1983	2,219.00	1,367.60
1988	2,687.00	2,160.00
1993	3,069.00	2,366.20
1998	3,177.00	2,654.10
2003	3,300.00	2,500.00

Source: Gitu and Nzuma

3.5 Agricultural Policies, Expenditure and Support Services

In the first and second decade after independence, macroeconomic policies covering; monetary, fiscal, exchange rate, trade policies and budgetary decisions have had profound impacts on the profitability of the agricultural sector and the welfare of farmers. Nevertheless a set of relationships among fiscal, inflationary pressure, exchange rate options and agricultural profitability underlies the indirect imposition of a tax on agricultural producers. Kenyan farmers have faced heavy implicit taxation through unfavorable macroeconomic policies especially over-valued exchange rates, which reduced the prices they obtained for their exports. On monetary policy, the requirement that ceilings on loan interest rates must include all lending related charges and fees removed, permitting institutions to set their lending rates to reflect current market conditions. Monetary policy has impacted negatively on credit availability for agriculture. The major concern with the foreign exchange policy is the need for a stable exchange rate that supports and reduces uncertainty in the sector. However, the floating exchange rate seems to be hurting the Kenyan agriculture due to its instability and uncertainty.

The role of the Ministries of Agriculture (MoA) and Livestock and Fisheries Development is to provide a conducive policy environment and appropriate services for the sector to develop. The Ministries are also responsible for the control of crop and livestock production, marketing, extension, land use development, regulation of agricultural credit, advise on soil conservation and agricultural research. Besides, the ministries are the reference points in agricultural policy formulation and implementation. One of the core functions of the Ministry of Agriculture (MoA) is to ensure food security through appropriate crop production technologies. It endeavours to attain this through, among others, provision of good quality seed and the control of pests and diseases. The Ministry has the major responsibility of creating an enabling environment for the players in the agricultural sector, through development of effective policies and strategies; undertaking review of policies and regulatory framework; and ensuring control of pests and diseases. It also facilitates collaboration among various stakeholders such as researchers, private agro-business enterprises, farmers, NGOs, CBOs, and development partners. This can only be achieved if relevant policies are formulated and implemented to enhance productivity, which leads to an enhanced food security status and a reduction in poverty. Broad self-sufficiency in the

production of foodstuffs has been a stated policy objective in the agricultural sector as a means of sustaining livelihoods in the country.

3.5.1 Market Liberalization

In the first two decades of independence, there was the school of thought that believed that government involvement in agriculture was the prime mover if not the panacea of the growth of the rural economy and agriculture in particular. This thinking was to be reversed in the third decade when too much government intervention in agriculture started to be viewed as having negative impacts on agriculture. State involvement was viewed as unsustainable, costly and responsible for the creation of market distortion and the budgetary implications arising thereof. Beginning in early 1980s, policy makers from major international institutions especially the International Monetary Fund (IMF) and the World Bank in collaboration with local technocrats and policy makers started to call for the reduction of government involvement in productive sectors. It was believed that developing economies like Kenya would grow much faster with less government, since markets would promote competition, which motivates efficient allocation of resources and would encourage innovation. This was the beginning of liberalisation paradigm. A shift towards liberalized market policies in Kenya started in the 1980s but it was not until 1993 that the government became committed to implementation of these policies, [Ikiara, Juma and Amadi, Nyangito, 1998].

Despite high expectations, liberalization failed to deliver fully due to the following reasons: first, it was fast; second, it was broad and far-reaching; third, it was poorly sequenced and not synchronized with other policies. Fourth, there was policy instability, which reduced investor confidence. Fifth, there was lack of harmony and co-ordination in implementation of the policies, [Nyangito, Argwings Kodhek, Omiti and Nyoro 2003].

The result of this broad and fast-paced liberalization of the agricultural sector tended to confuse farmers as it increased uncertainty in agricultural markets therefore undermining confidence in policies. Furthermore, major institutional change resulting from the reforms required sufficient implementation capacity that was grossly lacking within government

After liberalization, the state was to play a reduced role in agriculture and food sector but the private sector that was supposed to fill the gap left by the state has not actively participated in the sector. Reasons given for this phenomenon include: lack of capacity, poor infrastructure, inadequate regulatory system and assumed high risk in investing in agriculture. Liberalization came in to address constraints that prevailed in the agricultural sector. However, literature indicates the continued prevalence of those constraints. For example, the removal of subsidies in particular agricultural fertilizer and floatation of currencies resulted in increased costs of farm inputs, making it difficult for farmers to increase or even to maintain previous production levels from the same amount of land. Furthermore, while liberalization was supposed to ensure availability of food to all people and at all times, cases of hunger are still reported even in areas that were previously food self-sufficient. Furthermore, pricing and marketing liberalization of the food sector led to dramatic producer price increases in nominal terms for most commodities. The dramatic price increase for food crops was due to removal of price controls and response to market forces, indicating that prices were set below the market price as determined by supply and demand. Nevertheless, production volumes indicate a poor response to price increases due to the fact that real producer prices fluctuated heavily while the terms of trade between the outputs and inputs worsened. Consequently, the profitability of growing food crops became low, as the prices did not provide adequate incentives for increased production of the crops. Furthermore, an analysis of the input and output price shows that liberalization measures have yet to impact

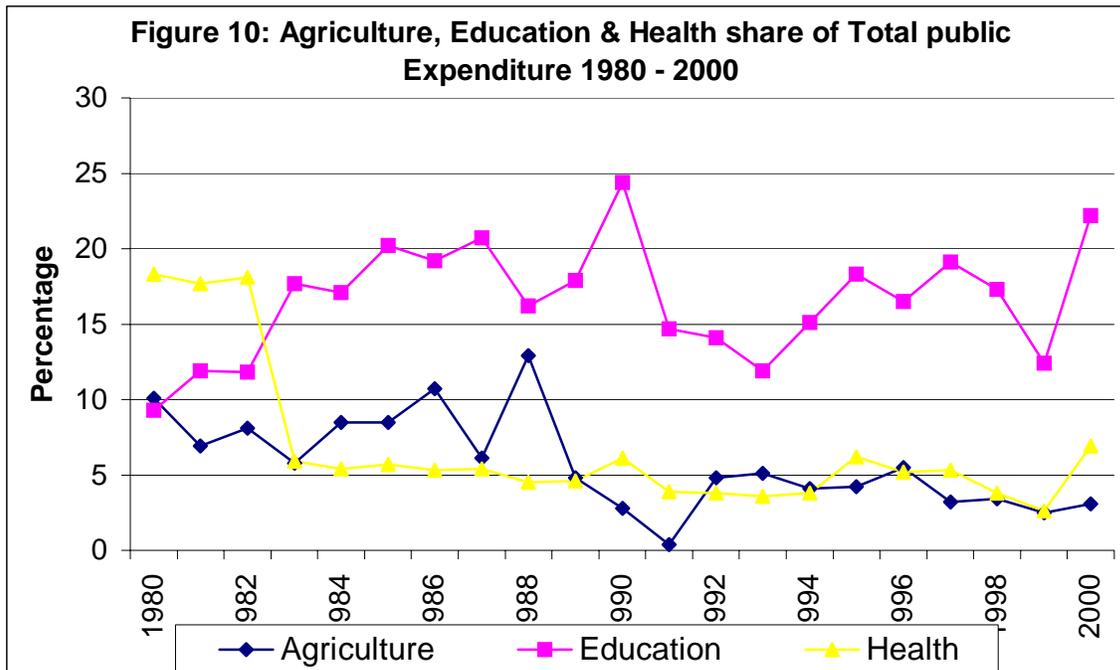
positively on profitability in agriculture. Trade liberalization has led to an increase in import of foodstuffs, and a reduction in government support to agriculture.

Liberalization of agricultural markets was supposed to lead, among other things, to improved production and distribution of key agricultural commodities, especially foodstuffs. But several years into the liberalization era, the country continues to experience frequent food shortages that greatly compromise the welfare of its citizens, especially the poor. This calls for serious rethinking and marked shift in development paradigm and policymaking in agricultural development and food security strategies if Kenya is to reverse the declining trends in agriculture production and productivity.

The need for improved agricultural productivity in the recent years has attracted the attention of policy makers, researchers and development practitioners in Kenya because: declining agricultural productivity has led to food shortage, underemployment, low incomes from cash crops and poor nutritional status. This trend must be reversed, if Kenya is to attain sustainable development. More public investment should be channeled into agriculture in the areas of human capital, technology and institutional innovations among others. This is because the transformation of agriculture ought to be public sector led in future. As noted by Eicher in reference to Initiative for Development of African Agriculture (IDEAA) countries, “The current emphasis of many donors and academics on ‘freeing agriculture from the state’, downsizing and reducing the role of the state represents a misleading understanding of history and a misleading guide to action in the IDEAA countries. Instead of endorsing a blanket reduction of the state involvement, we should be analyzing the changing and evolving roles of the state in relationship to civil society, the private sector and NGOs overtime. Specifically, we should be asking, what are the new roles for old actors such as the state?” [Eicher, 2001].

3.5.2 Comparison of Agricultural Support With Education and Health

Agriculture offers the best prospect for economic growth given its contribution to the economy and relatively high multiplier effect as compared to other sectors. In view of this, it is necessary to allocate more resources to the sector within the national budget. However, the allocation of government expenditure to the sector forms a relatively small share when compared to education and health (Figure 10) and has been declining.



Source: Kenya, Statistical Abstracts.

In the period between 1980 and 2000 budget allocation to agriculture as a share of total public expenditure averaged only 6.6percent when compared to education and health at 15.6percent and 12.6percent respectively. Available statistics indicate that on average Kenya used to spend over 10percent of its total government budget on agriculture in the first decade after independence.

Table 13 presents the share of agriculture, education and health in total public expenditure. With the introduction of the reforms, the allocation to agriculture declined significantly as a result of withdrawal of subsidized services to farmers. In the period 1980 to 1985, the allocation to agriculture on average was 9.3percent of total public expenditure as compared to 14.8percent and 12percent for education and health respectively. The budget allocation to agriculture declined to 7.9percent of the total public expenditure during the transitional period 1986-93 as compared to the budget allocation to education that increased to 15.6percent and 14.5percent for health. After 1993, the allocation to agriculture has declined to 3.7percent as opposed to an increased allocation to education at 17.3percent of total public expenditure and 4.8percent for health for the period 1994 – 2000.

Table 13: Agriculture, Education and Health Share of Total Public Expenditure (Percent).

Year	Agriculture	Education	Health
1980	10.14	9.30	18.30
1981	6.90	11.90	17.70
1982	8.10	11.80	18.10
1983	5.80	17.70	5.90
1984	8.50	17.10	5.40
1985	8.50	20.20	5.70
1986	10.70	19.20	5.30
1987	6.10	20.70	5.40
1988	12.90	16.20	4.50
1989	4.80	17.90	4.60
1990	2.80	24.40	6.10
1991	0.40	14.70	3.90
1992	4.80	14.10	3.80
1993	5.10	11.90	3.60
1994	4.10	15.10	3.80
1995	4.20	18.30	6.20
1996	5.50	16.50	5.20
1997	3.20	19.10	5.30
1998	3.40	17.30	3.80
1999	2.50	12.40	2.60
2000	3.10	22.20	6.90
Average	5.80	16.60	6.80

Source: Kenya Statistical Abstracts

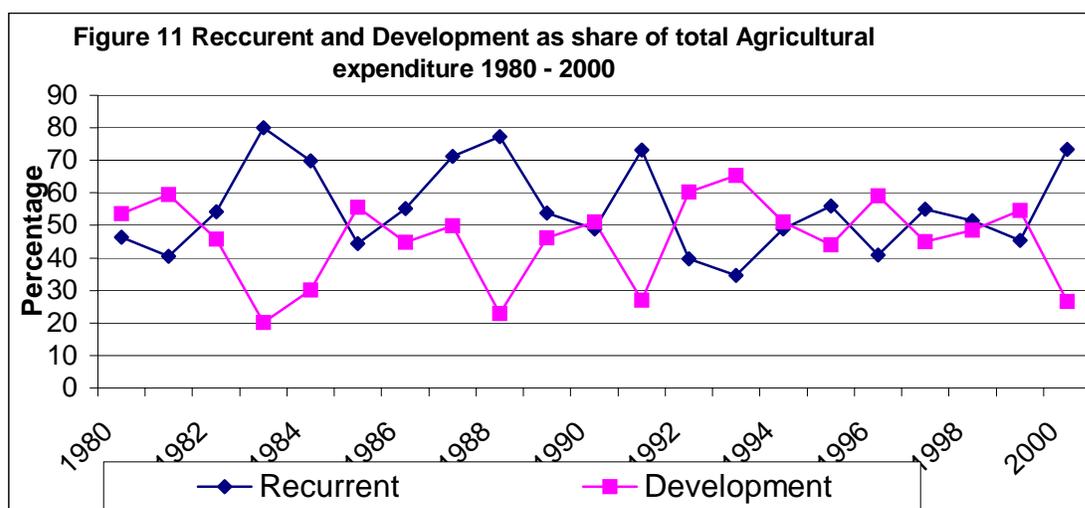
3.5.3 Agriculture Recurrent and Development Expenditure

Approximately 54 percent of the government's expenditure on the agricultural sector is on recurrent expenditure, which is dominated by salaries (Table 14). On the other hand, only about 46 percent is spent on agricultural development, which includes agricultural research and market information, animal health services, crop protection, seed inspection, mechanization services and farm planning services. The amount spent on recurrent expenditure has been consistently higher than that spent on development expenditure since 1995/96 except for the year 1996/97 and 1999/2000.

Table 14: Government Expenditures in Agriculture (million, £1980-1999.)

Year	Agriculture Recurrent	Agriculture Development	Total agriculture Expenditure	Total public Expenditure	Agriculture share of total Public Exp. (%)
1980/81	45.2	52.1	97.3	959.8	10.14
1981/82	31.4	46.0	77.4	1122.8	6.9
1982/83	52.4	44.3	96.7	1190.7	8.1
1983/84	58.3	14.7	72.9	1242.4	5.8
1984/85	90.4	39.0	129.4	1521.7	8.5
1985/86	62.2	77.6	139.8	1628.4	8.5
1986/87	122.7	99.7	222.4	2063.1	10.7
1987/88	168.1	67.7	135.8	2198.9	6.1
1988/89	310.0	91.6	401.6	3101.9	12.9
1989/90	82.7	71.1	153.8	3156.0	4.8
1990/91	38.6	40.2	78.8	2815.7	2.8
1991/92	13.3	4.9	18.2	4926.7	0.4
1992/93	117.0	177.2	294.2	6064.7	4.8
1993/94	160.6	302.9	463.5	9007.7	5.1
1994/95	184.4	192.2	376.6	9205.6	4.1
1995/96	216.1	170.5	386.6	9170.4	4.2
1996/97	229.5	331.8	561.3	10147.8	5.5
1997/98	213.4	174.4	387.8	12130.5	3.2
1998/99	243.4	229.9	473.3	13640.6	3.4
1999/00	221.1	265.8	486.9	19170.4	2.5
Average	133.0	124.7	252.7	5,723.3	5.9

Source: Kenya Statistical Abstracts



Source: Kenya Statistical Abstracts (Various Years)

This is possibly because of fiscal reforms in which the government emphasized reduction of its public expenditure and found it easy to reduce development expenditure than recurrent expenditure (figure 11). Most important perhaps, is that most of the development expenditure is funded by donors. The problem with donor funding is that it is usually unstable due to the donors' changing policies and hence is not a sustainable long-term strategy for agricultural development. The instability of donor funding is part of the reason for the observed fluctuations. The trends in recurrent and development expenditure are mirrored more prominently in education and health where recurrent expenditure has exceeded development expenditure for the entire period under consideration for both sectors. The section that follows provides a disaggregated public sector for agricultural related sectors.

3.5.4 Disaggregated Public Expenditure in Agriculture

Tables 15,16 and 17 present a disaggregated public spending on the three ministries comprising the bulk of the agricultural sector (The Ministry of Agriculture (MoA), Livestock and Fisheries (MoLFD) and Cooperative Development (MoCDM)) for the financial years between 1990/00 to 2002/03.

Table 15 Total Public Spending on MoA FY 1999 - 2002 (Actual in Kshs billions)

	1999/00	2000/01	2001/02	2002/03
Recurrent	4.9	5.8	4.8	3.7
Development	0.3	0.9	1.0	1.3
Total	5.2	6.7	5.8	5.0
Share of GOK expenditure	4.2	4.0	3.4	2.7
Share of GDP	0.5	0.5	0.05	0.42
Agric Recurrent as % of total agric Exp	94%	87%	83%	74%
Agric Development as % of total agric Exp	6%	13%	17%	26%

Source: BMD

Recurrent expenditure accounted for over 70 percent of the total agricultural expenditure, which is dominated by salaries for employees including the extension officers. On the other hand, less than 30 percent is spent on agricultural development, which includes agricultural research and market information, animal health services, crop protection, seed inspection, mechanization services and farm planning services. Government expenditure on agriculture over the period has generally declined from about 4.2 percent to 2.7 percent while it has stagnated at about half a percentage point (0.5 percent) of GDP. Agriculture still offers the best prospect for economic growth and as such, more resources need to be directed towards this sub-sector if it is to spearhead economic recovery. The share of total government expenditure devoted to the MoLFD was 1.7 percent in 2000/01 and declined to 1.1 percent in 2002/2003 (table 16). As a proportion of GDP, the expenditures have ranged from 0.33 percent in 2000/01 to 0.25 percent in 2002/03.

Table 16: Total Public Spending on MoLFD FY 2000-2003
(Actual in Kshs billions)

	2000/01	2001/02	2002/03	2003/04
Total (MoLFD) Expenditure (Kshs billion)	2.8	2.3	2.9	1.1
Share of GOK expenditure	1.67	1.37	1.06	-
Share of GDP	0.33	0.25	0.25	-
Agric Recurrent as % of total agric Exp	78	93	89	86
Agric Development as % of total agric Exp	22	7	11	14

Source: MoALD.

On average, recurrent expenditure accounted for more than 80 percent of the funds allocated to the Ministry of Livestock and Fisheries over the period that consists mainly of salaries, transfers and little provision for operation and maintenance. Development expenditure accounts for the difference and fund core poverty programmes such as livestock extension services, fisheries development, development of veterinary farms and disease and pest control. Other development initiatives such as research and extension, inspection and quality assurance, infrastructure and monitoring and surveillance. For the sector to grow, more funds should be allocated especially to fund the development projects.

The total MoCDM expenditure as a proportion of total government expenditure was 0.165 percent in 2002/03, while as a proportion of GDP it was 0.0452 percent (table 17). Recurrent expenditure accounted for 89.5percent in 2002/03 and this share increased to 97.5percent in 2003/04 while the share of development expenditure declined from 10.5percent to 2.5 percent over the same period.

Table 17: Total Public Spending MoCDM FY 2000 - 2003 (Actual in Kshs billions)

	2000/01	2001/02	2002/03	2003/04
Recurrent	0.2	0.3	0.3	0.2
Development	0	0	0.1	0.1
Total	0.2	0.3	0.4	0.3
Share of GOK expenditure	0.10	0.114	0.165	0.092
Share of GDP	0.029	0.029	0.045	0.024
Agric Recurrent as % of total agric Exp	100	100	89.5	97.5
Agric Development as % of total agric Exp	0	0	10.5	2.5

Source: BMD.

3.5.5 Agricultural Production Services

The low allocation of development expenditure to the agricultural sector is a testimony that increasingly, the government has reduced direct provision of production services to the agricultural sector leaving them in the hands of the farmers and private practitioners. The government's funding on different domestic support measures to the agricultural sector is indicated in Table 18. The government has in the recent past increased its funding on support services such as market and research, and seed inspection on nominal terms since 1990 as opposed to provision of direct domestic production support measures such as artificial insemination, tractor hire, aerial spraying, veterinary services and farm planning. [Mugunieri, Omiti and Irungu, 2002; Nyangito, 2003]¹².

Provision of the latter services is considered as direct subsidies for agricultural production. This is allowed for developing countries under the Special and Differential Treatment clause (SDT) for measures that fit into the developmental category of the WTO Agreement on Agriculture (AoA). The low levels of funding for these direct services means that the costs of these inputs to farmers for agricultural production have increased. This in particular has been a problem in maize production where the cost of fertilizer increased substantially with liberalization of the inputs market.

¹² Domestic support provided through general services and public stockholding for food security purposes and strategic reserve operations ('Green Box Measures') was estimated at Ksh. 3,791 million in year 2000, of which agricultural education accounted for 29.7 percent.

Table 18: Expenditure in Agricultural Production Services 1980-2000 in Million Kenya Pounds (k£).

Year	Market and Research	Artificial insemination	Aerial spraying	Tractor services	Govt vet services	Seed inspect-ion service	Farm planning
1980	2,624	17	120	2,363	31	46	1
1981	2,703	17	124	2,435	32	47	1
1982	2,919	18	130	2,523	32	48	1
1983	3,066	19	135	2,611	35	48	2
1984	3,126	19	137	2,676	38	48	2
1985	3,281	20	139	2,944	50	82	2
1986	3,081	15	141	1,052	174	113	4
1988	3,174	18	140	2,073	112	104	6
1989	3,139	17	144	1,783	143	111	6
1990	9,315	18	141	2,027	122	110	6
1991	9,789	17	144	2,030	125	110	6
1992	9,559	17	144	1,843	141	117	5
1993	10,700	16	145	1,800	146	119	4
1994	9,815	15	140	1,805	148	121	5
1995	10,450	16	149	1,924	158	129	5
1996	11,240	17	160	2,071	170	139	5
1997	11,688	18	166	2,152	177	144	5
1998	12,621	19	179	2,324	191	156	5
1999	12,998	20	184	2,393	197	161	5
2000	12,152	19	172	2,237	184	150	5
Average	7021	17	140	2051	115	100	4

Source: Kenya, Statistical Abstracts (Various Years).

While liberalization of service provision was expected to improve the efficiency in service delivery, not all services have improved. It has been shown that extension and veterinary services have improved in most areas, while the delivery of artificial insemination has deteriorated. A study conducted in Central Kenya reveals that 85 percent of smallholder dairy farmers reported that government extension and veterinary services were available and 60 percent of the farms were reported using the services. Private veterinary services were also available to 80 percent of the farms, of which 60 percent reported using them. For the case of private extension service, 15 percent of the firms reported its availability, [Staal, et al, 2001]. For the case of AI services, the trend is grim. The study revealed that only 30 percent of households reported its availability from co-operatives and 25 percent reported its availability from private practitioners. The study further revealed, that overall, over 71 percent of sampled households used bulls for breeding, which could imply that the lack of selective breeding may pose a long term constraint to continued productivity increases if reduced use of AI lead to a degradation of herd genotype.

What is being said here is that the government should increase its support to agriculture and reduce bureaucracy, which stalls development. This sentiment has been supported by Schapiro and Wainaina (1989), who notes in reference to Kenya horticulture sector, “government-sponsored research, training, monitoring and other activities facilitated the expansion of the horticultural sector. However, it is what the government did not do - create a large bureaucracy structure and interfere to a significant extent with the market mechanism - that is most impressive. Without this combination of government assistance and government restraint, it is highly unlikely that expansion in horticultural exports would have been as rapid or as large.”

3.6 Development Strategies and Programs in Agriculture

Policies affecting agriculture consist of government decisions that influence the level and stability of input and output prices, public investment, costs and revenues, and allocation of research and development funds to improve farming and agricultural related processing technologies (Nyangito, 2001). Some of these policies affect agriculture more directly than others and constitute the agricultural sector policies affecting particular commodities and production techniques. These have included particularly quantitative controls, subsidies and taxes on inputs and outputs. Policies that affect agriculture indirectly are of two types. One set is macro policies that affect agriculture through macro prices such as general trade regimes, interest, exchange, and wage rates. The second set of indirect policies is concerned with investment decisions in provision of services such as research and development, education, health, transport, market infrastructure and institutions, which have a broad impact on agricultural sector productivity. These policies can be broadly classified into: Pricing and marketing including marketing institutions, research and extension, land, credit and financial institutions including the role of co-operatives, infrastructure investment including transport and irrigation, food security and self-sufficiency, and agricultural input policies.

Several policy initiatives have been issued and documents have been prepared since 2001 to highlight the government objectives regarding sustainable growth and socio-economic development, and to build overall programmatic frameworks for their implementation. The most important policy documents are discussed below

3.6.1 The Poverty Reduction Strategy Paper (PRSP), 2001-2004.

This document outlines priority areas and measures necessary for poverty reduction and economic growth. The Poverty Reduction Strategy Paper was prepared through a consultative process in all districts and involved the government, the private sector and the civil society. In it, government commits to priority actions in two broad areas: – creating opportunities for rural communities and the private sector to effectively carry out their activities in an increasingly competitive global environment, and accelerating policy and institutional reforms, particularly the large backlog of legislative and regulatory reforms. During the PRSP consultations, Agriculture and Rural Development (ARD) in general, received top ranking as the key sector through which to tackle the increasing level of poverty. The ranking within ARD (in ascending order) was crop development, rural water, livestock development, food security, lands and settlement, environmental management and fisheries (Agriculture Sector Brief and Horizon, 2015).

Within agriculture, crop development, was the priority sector with poor extension services, inefficient rural financial systems, the poor state of rural infrastructure and poor marketing and distribution systems being identified as the main constraints. In the livestock sector the PRSP identified marketing systems and infrastructure, disease control and extension services as priority interventions. The challenge for the Government is to mobilize the necessary resources and build the institutional capacity to implement the proposed measures.

The causes of poverty were identified as: low agricultural productivity and poor marketing, insecurity, unemployment and low wages, bad governance, land issues, lack of infrastructure especially roads, cost of social services and education, HIV/AIDS epidemic and gender imbalance. The PRSP has addressed the removal of these causes and hopes that the extreme poverty level would be reduced by 50 percent by 2015 while the overall target is to reduce

poverty prevalence to less than 30 percent by the same year. The strategies to achieve these targets in the agriculture sector would include: crop development through improved extension services, provision of credit to the small holder farmers, improve the rural infrastructure including roads for ease of transporting the farm produce to the markets, develop marketing linkages between producers and consumers through the provision of market information, and capacity building for the institutions charged with the implementation of the strategies.

3.6.2 The Economic Recovery Strategy for Wealth and Employment Creation (2003-2007) (ERSWEC)

This document lays out the main policies of the new government. The Strategy intends to restore and sustain economic growth, generate 500,000 jobs per year to absorb over 2 million Kenyans who are currently unemployed, and reduce poverty. It lays out the main agricultural policies that are further elaborated on in two draft documents: Strategy for Revitalizing Agriculture being prepared by the Ministry of Agriculture, and the Strategic Plan 2003-2007 of the Ministry of Livestock and Fisheries Development.

3.6.3 The Ministry of Livestock and Fisheries Development Strategic Plan 2003 – 2007

The Strategic Plan gives further insight into the government's priority interventions in the livestock sector. In the areas of disease control related to enhancing the export of livestock products, the Ministry proposes to develop and implement disease and pest eradication programmes, develop and operationalize disease free zones and set up risk analysis and Trace Back Systems to meet the requirements of international livestock markets. The strategy also calls for a streamlined legislative policy framework, review of the National Livestock Policy, the policy regime surrounding the provision of veterinary services, and the Wildlife Conservation Act that does not allow e.g. ostriches and crocodiles and other emerging livestock species to be domesticated. Liaison with various government departments will be used to enhance security in livestock producing areas (Agriculture Sector Brief).

3.6.4. Strategy for Revitalizing Agriculture, 2004 - 2014

The Ministry of Agriculture has developed a separate **Strategy for Revitalizing Agriculture, 2004-2014**. This is a joint strategy of the Ministries of Agriculture, Livestock and Fisheries Development but the Livestock and Fisheries Development Ministry have already developed their own Ministry specific Strategic Plan described above. The Strategy for Revitalizing Agriculture (SRA) makes bold and potentially far-reaching proposals. It accepts the growth target for the sector of 3.1 percent, but does not say where the growth will come from. However, its analysis of the key constraints to Kenyan agriculture indicates that it is the beginning of a process that may more clearly define and achieve that target. The SRA recognizes low productivity as the key constraint in Kenyan agriculture. As a result, symptoms like high production costs and competition from imports are manifested. The productivity problem is decomposed into 3 components: extension, research and economic and financing problems. The extension problem manifests in the lack of awareness or use of existing productivity enhancing technologies, while the research problem as laid out in the SRA refers to non-existence of appropriate productivity enhancing technologies. The economic and financing problem manifests in farmers aware of, but unable to meet the cost of available productivity enhancing technologies. This is attributed to some of the poor services they receive in terms of the policy,

legal and regulatory framework, the input and output marketing services that result, and the poor access of the agricultural sector, particularly the typical small scale producer to different types of financial services.

3.6.5 The National Development Plan (NDP), 2002-2008.

The plan is a statutory policy document outlining the development policies and strategies to be pursued by the government and other development agencies over the medium term- a seven year period-and was launched more or less at the same time as the PRSP.

3.6.6 The Kenya Rural Development Strategy (KRDS), 2002-2017.

This is a longer-term framework document outlining a broad range of strategies for improvement of rural Kenya over the next 15 years. Considering food security promotion and attainment as the initial step towards poverty alleviation and equitable growth and development in rural areas, the KRDS is a road map for government, private sector, civil society (religious groups, NGOs, rural communities, CBOs) and other development partners.

Several policy actions and interventions are proposed within the KRDS framework to facilitate the process of rural development with agriculture providing the stimuli, resources and market. Agricultural growth must serve as the catalyst for the broad-based economic growth and development. Through forward and backward linkages to the non-farm economy, agriculture will generate raw materials, employment, income, larger market and growth in the rest of the economy (Horizon, 2015 and Agriculture Sector Brief).

CHAPTER 4

4.0 IMPACT OF FOOD IMPORT /AID

This chapter is devoted to understanding the various impacts of food imports and food aid. Reliance on food imports/aid has a wide range of implications that deserve a closer examination. The opponents of food aid have a number of arguments. First, food aid may have adverse effect on local production, since it could lead to lower prices, hence discourage local producers. The lower prices could in turn increase demand for the commodity, which could increase dependency on food imports and food aid. Second, the amount of food aid could be unpredictable because it depends on the whims of policy makers in the surplus countries and if not forthcoming, could lead to starvation and death in the recipient nation. Third, the effectiveness of food aid on nutritional status of vulnerable groups could be small if not accompanied by financial or other support necessary to transport and distribute it to points of need. Fourth, given that some aid is provided in the form of loans, this could worsen the recipient nation's debt burden. Fifth, food aid could be a method of disposing food surpluses of donor countries, which may be inferior to the recipient country (e.g. yellow maize in Kenya). Sixth, delays in delivery of food may cause starvation or death. Seventh, food aid depends on the surplus in developed countries hence it could be erratic in volume. Thus, it is uncertain that the needy country will be provided with adequate food. Lastly, food aid could reduce the urgency of solving food security problems as it increases the availability of food [Iseman and Singer, 1977, Ndegwa 1989].

4.1 Impact of Food Import/Aid on Food Security and Nutrition Situation

In the short run, food import or food aid is an important source of food security for vulnerable groups. This is so especially in the arid areas that are frequently afflicted by droughts and crop failures. Food imports and aid at such times serve to fulfill transitory food security requirements for vulnerable groups during such calamities as drought, floods, fires, and displacements through civil strife or in feeding refugees. By improving the status of poorly fed people, food aid may be a source of human capital formation, which in turn would be productive in their agricultural production activities. WFP has been involved in school feeding programmes in the country that has improved school attendance but there are doubts of the children's nutrition. School feeding projects have benefited Turkana, Machakos, Kitui and Baringo districts with activities being coordinated by the Catholic Relief Services. Another component of food aid is food-for-work projects. It is argued that such projects allow food to reach poor rural women who are more likely to make sure that the food supplied are consumed within their families than men would do since at times they are known to sell the relief food. One of the most deleterious impacts of food aid is the impact of delayed arrival of food aid. It has sometimes caused starvation and/or death during droughts.

4.2 Impact on Prices and Domestic Production

Food imports have been shown to reduce domestic food prices, stifle domestic food production and act as a disincentive to farmers and hence reduce food production in importing countries. In Kenya, before the 1990's, food imports were low since food consumption was almost commensurate with domestic food production. However, after 1992 imports have been high because of the decline in domestic production. The largest amounts of imports constitute cereals, sugar and dairy products from developed countries that include the USA, EU and Australia. These are countries where food production is highly subsidized and pose a threat to domestic production of food commodities in Kenya.

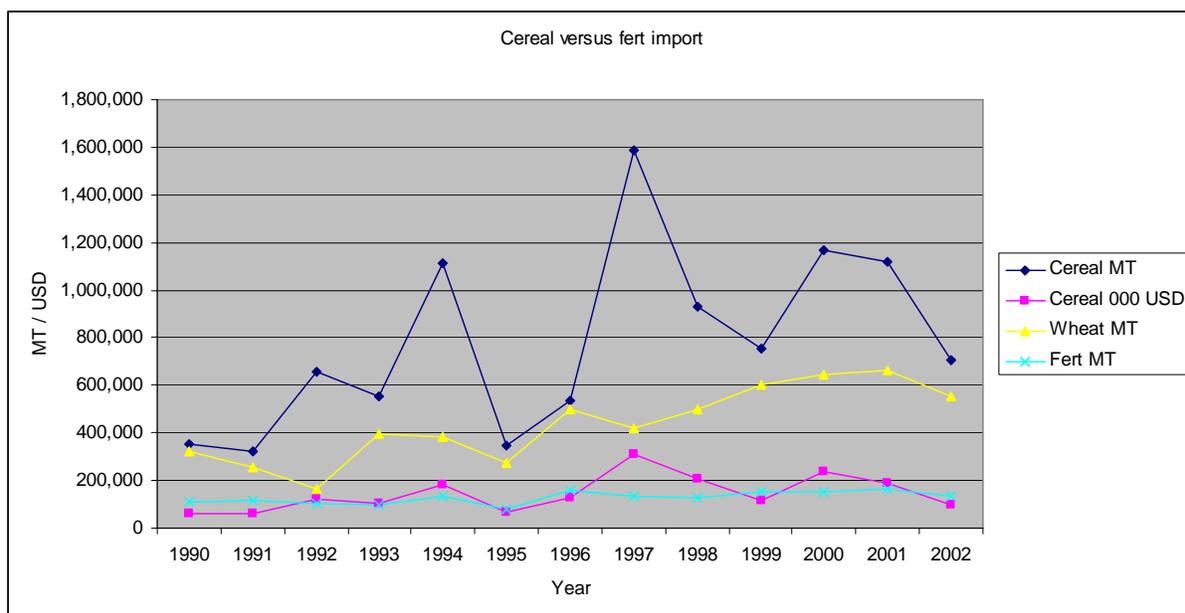
Subsidized food import enters Kenya at low prices, forcing domestic prices to decline, hence threatening domestic production of food commodities. Cheap food imports reduce the market for

domestic agricultural products and leave many farmers and workers in agricultural related industries without a source of income unless they are able to switch to production that is more profitable (Nyangito 2001). This means that even if low-cost food supplies are plentiful, many people will be unable to purchase them. This is particularly so when the imports dampen domestic producers prices thereby reducing incentives to produce. Food imports represent unfair competition to domestic producers since they increase supply and lower prices in the markets (Schuh, 1982). Food aid may have some rather serious disincentives on domestic agricultural production especially when such food aid is used primarily as a means of dumping excess produce abroad. At times in Kenya, imported food commodities such as maize, rice and sugar have been far much cheaper than the locally produced ones. In such cases domestic producers have been unable to offload their produce to the local market since the prices offered do not cover their costs of production.

Food imports distort labor markets especially where the country is highly dependent on agriculture as a source of employment (Todaro, 1960). Since agriculture in such areas is perceived to be low paying, less labor will be devoted to agricultural production and this is likely to dampen agricultural production. The labor is then shifted to the non-agricultural sectors (high level of rural to urban migration) as such ventures are supposed to yield higher income that can be used to buy cheap imported food. This is particularly important in Kenya where the labor force is affected by HIV/AIDS. Cheap import also shifts demand towards imported non-traditional foodstuffs because tastes and preferences change as they get used to imported foods. This is reflected in the stagnation of traditional crop production as a result of rapid expansion of demand for non-traditional crops such as wheat (Figure 12).

In Kenya, growing dependence on food import contrasts sharply with stagnation in fertilizer import. As shown in Figure 12, the quantity of fertilizer imported stayed well below 200,000 MT between 1990 and 2002, while cereal import rose to 1,600,000 MT in 1997 (over 8 times the quantity of fertilizer import). In 2001, Kenya imported over 600,000 MT of wheat, nearly three times the quantity of fertilizer imported to the country. It appears that the food gap in Kenya would have been met from domestic production if only fertilizer equivalent to about a fourth of the volume of cereal brought to the country was imported (assuming that a quintal of fertilizer would increase cereal production by about four quintals).

Figure 12: Fertilizer imports versus production of maize, wheat and rice (1990-2002)



4.3 Impacts on Budgetary Support/Counterpart Funds.

A country's dependence on counterpart funds for budget support may cause it to fail purposely to develop its agricultural sector in order to continue to receive this cheap form of budget support (Schuh, 1982). Such practices are common in low-income countries that devote little resources to their agricultural production but are known to always beg for assistance from donors to feed their rural populace. These trends are worrying when considering that in Kenya for example drought and floods always recurs in some particular areas each two years yet not much effort is directed towards irrigation or flood control that would boost agricultural productivity in such cases.

Food aid gives greater command of domestic resources to recipient countries as source of budget support. For example, it has been estimated that United States of America food aid alone financed 25 percent of the Bangladesh budget in 1976 and of course food aid financed a significant share of the budget of India's central government during the 1960's. Food aid that goes through government's hands does give the recipient government more control over local resources. The effect of food aid on development depends on how the resources are utilized. If they are used to support a bloated bureaucracy, for example, their contribution to development is likely to be small. If they are used for high payoff investments, their contribution can be substantial. Past experience with food aid programs would suggest that the counterparts funds can lead to complacency in developing appropriate domestic fiscal instruments for mobilizing domestic resources, and that they can and are often used to support bloated bureaucracies. Moreover, attention should be given to avoiding dependency on counterparts' funds and to assuring that resources provided are used prudently.

Counterpart funds generated by the local sale of the commodities become a potentially important source of budget support for the local governments. A country's dependence on counterpart funds for budget support may cause it to fail purposely to develop its agricultural sector in order to continue to receive this cheap form of budget support (Schuh, 1982). Such practices are common in low-income countries that devote little resources to their agricultural production but are known to always beg for assistance from donors to feed their rural populace. Kenya is one of such countries, which has continued to depend on food aid. For example, drought and floods always recur in many areas of the country and yet not much effort is directed towards irrigation or flood control that would boost agricultural productivity in such cases. The common response that seems to have become officially acceptable is that a National Disaster Management Committee is always constituted hurriedly and the head of state seeks for assistance from development partners to mitigate the effects of that particular natural disaster. Once this has been sorted, the committee goes into limbo only to be reconstituted when the disaster recurs. The tragedy here is that the government spends a lot of resources that would have been used to tame the calamity.

In Kenya, though agriculture contributes about 25 percent of the national GDP, agricultural expenditure as a share of total government budgetary allocations is typically less than 5 percent. Even in cases where expenditure is allocated, it is used on recurrent expenditures rather than development, which would have a positive effect on poor people. As a result, the agricultural sector has traditionally lagged behind the manufacturing and service sectors in growth.

4.4 Impact On Foreign Exchange/Balance Of Payments

Food aid acts as substitutes for commercial food imports thereby providing a net foreign exchange transfer and can also be used to generate capital for development through the utilisation of counter part funds generated by the local sale of program food aid to develop infrastructure such as roads, agricultural research and extension of rural health and education facilities, [Ndegwa 1998, Barret, 1998 and Gillis et al 1992]. Provided the foreign exchange is available, food import would benefit the poor and vulnerable groups by increasing the supply and lowering prices, especially at times of shortages. Cheap imports would allow consumers to access food cheaply, thus contributing towards lower wages in favor of the non-agricultural sectors.

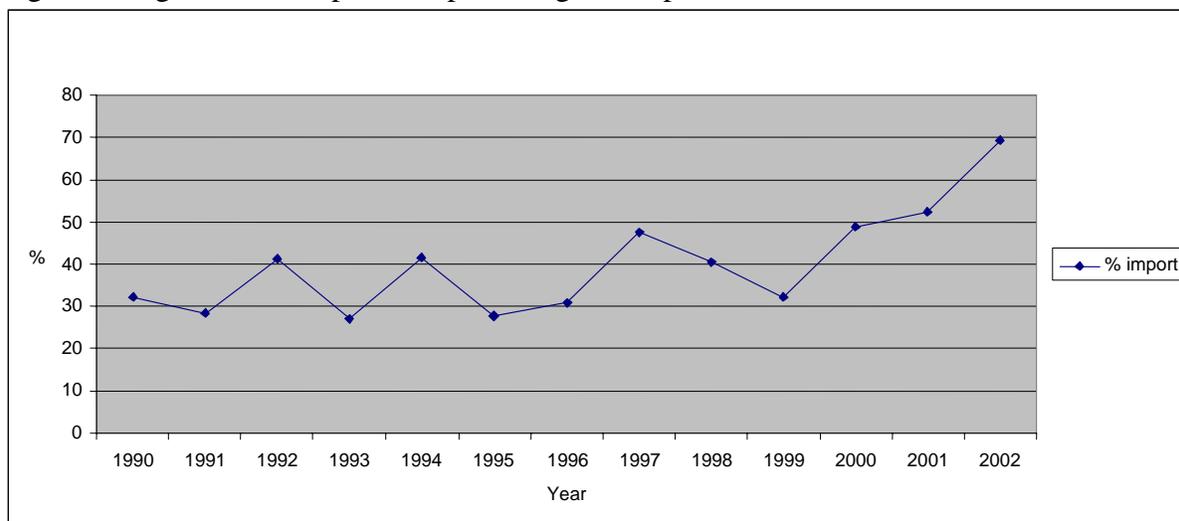
The original magic of food aid of course was that it could alleviate balance of payments constraints, thereby freeing foreign exchange for development purposes (Schuh, 1982). That it could do this with resources that had essentially zero value to the donor country and that in addition it would generate counterpart funds in the recipient country that would make it a second contribution to the recipient. This original thinking has been overtaken by events and it is now widely acknowledged that food imports/aid do drain foreign exchange savings for developing countries and restraint their ability to meet their foreign exchange needs. If food aid and financial aid are offered on the same terms, financial aid then obviously becomes favorable. The softer terms that prevail for food aid are in effect compensation for the disadvantages of aid in kind. The concessional terms on which food aid is provided cause recipient countries to place a lower value on the resources so acquired and in turn use them in a manner that distorts the local market and increase demand for more food import (at the cost of traditional crops such as roots and tubers). Indeed, the volume of imported food items has been growing rapidly in recent years. Kenya spent over 0.5 billion USD on agricultural food import (mainly primary and processed food and livestock products) in 1997, 1998, 2000 and 2001 (Table 20). The cost of agricultural import is rising rapidly and absorbing up to 69 percent of the value of agricultural export (Figure 13). The trade balance within the agricultural sector is likely to be very small or even negative if the import cost of fertilizer and other inputs used in agricultural production is accounted for. The danger of such dependence is evident when the country is affected by drought that adversely affects export production or faces sharp decline in world prices for the commodities it exports.

Table 19: 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

Figure 13: Agricultural Import as a percentage of Export



Source: Faostat

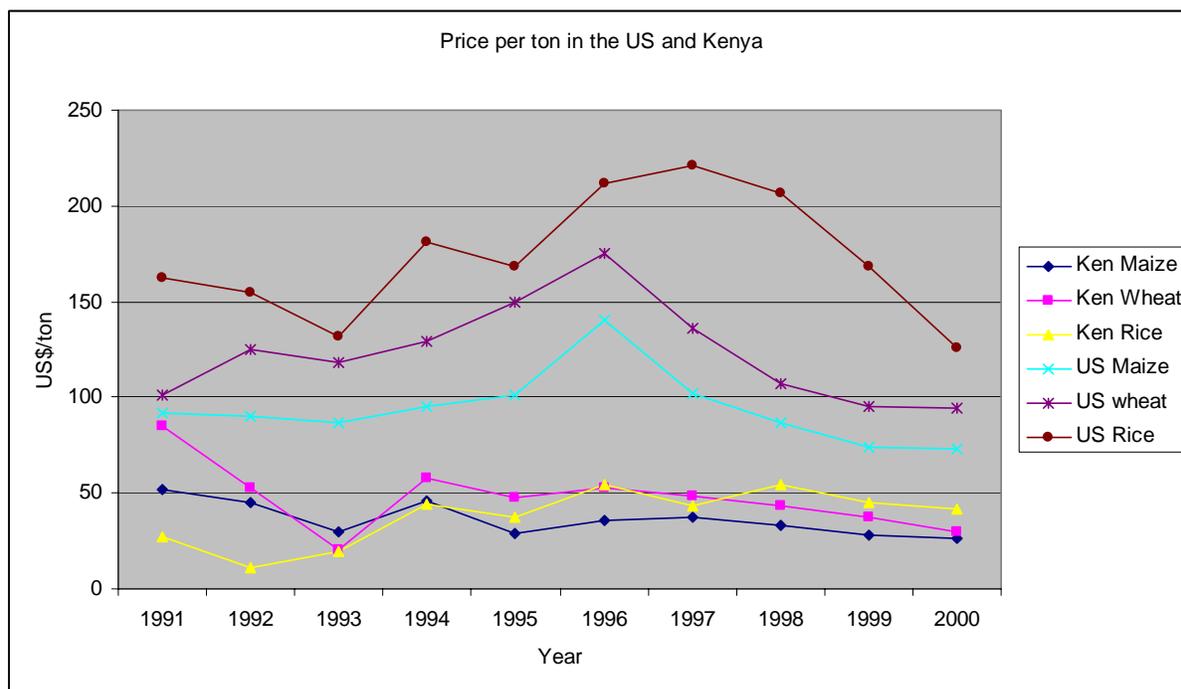
The role of food import in releasing the land under food production for cash crops may be a worthy venture for a developing country like Kenya that has a comparative advantage in cash crops and greatly needs foreign exchange for economic development. However, the drain on the foreign exchange reserves to buy food has to be compared against the returns from exporting these cash crops. In Kenya, cash crop farmers especially in tea growing areas have been known to prefer buying food crops from the market rather producing them along with their export crops. However, the country has enough land and labor resources to produce food crops at a lower cost than many countries currently exporting to Kenya. For instance, the producer price of maize, wheat and rice in the United States averaged US \$94.1, 123.0, 173.2 per ton, respectively, during the period 1991 to 2000. By contrast, market prices for maize, wheat and rice in Kenya were only US \$ 36.22, 47.56 and 34.81, respectively. Producer prices in the US were 2.6 times higher in the case of maize and wheat and nearly 5 times in the case of rice (Table 20 and Figure 14). A good part of the production cost in the US is paid by the government (because of the subsidy) and the grains are often dumped in the world market at lower prices or shipped to developing countries in the form of food aid. In the absence of any distortion in the world prices, Kenyan farmers are likely to be competitive in the domestic as well as export market. Hence, Kenya will be much better off if the foreign exchange (generated through export of cash and high value crops) is used for building the institutional and technological capacity of food producers rather than using the proceeds for importing food items.

Table 20: Market price in Kenya versus Producer Price in USA.

Year	KENYA			USA		
	Maize	Wheat	Rice	Maize	Wheat	Rice
1991	52.06	85.16	27.25	92	101	162
1992	44.12	52.79	11.02	90	125	155
1993	29.57	20.63	19.16	87	118	132
1994	46.09	58.23	14.11	95	129	181
1995	29.08	47.28	37.32	101	100	168
1996	35.74	52.96	54.33	140	175	212
1997	37.55	48.40	43.69	102	136	221
1998	33.05	43.49	54.27	87	107	207
1999	28.31	37.07	45.16	74	95	168
2000	25.98	29.62	41.79	73	94	126
Average	36.22	47.56	34.81	94.10	118.00	173.20

Source: Faostat for US price data; Market price in US\$ for Kenya came from Oluoch-Kosura, W., Kenya Country Report, for Lund University, African Food Crises: The Relevance of Asian Models, June 2003.

Figure 14: Price per ton of maize, wheat and rice in the US and Kenya



Source: Faostat for US price data; Market price in US\$ for Kenya came from Oluoch-Kosura, W., Kenya Country Report, for Lund University, African Food Crises: The Relevance of Asian Models, June 2003.

4.5 Impact on Transaction Costs

Food imports and food aid increases the transaction costs for developing countries. Transaction costs associated with food imports including aid constitute licensing, transporting, distributing, administration and enforcement of property rights. In Kenya for example, the licensing of agricultural imports such as sugar has been tainted with a lot of hue and cry. Vested interest groups would want to be licensed to import cheap sugar and sell into the domestic market yet the administrative cost of licensing and enforcing the required standards of imports may be prohibitive.

Food imports have to be transported from the ports of entry to benefit domestic rural markets. Even the cost of shipping, insurance and freight has to be included. Transport costs in Kenya are quite prohibitive given the state of its infrastructure. Owing to the high costs of transport, then imported products are likely to be highly priced as the importers seek to transfer the cost of transport to the eventual consumer. Food aid on the other hand has to be distributed to the emergency or disaster areas. Such distribution efforts are costly and are often associated with high levels of rent seeking activities and grand corruption. Computations by the Kenya Food Security Meeting indicate that approximately Kshs 27 billion was spent on relief operations, covering up to 5 million people in the country, over the March 2000-September 2002 period. Nearly, 50 % of this cost was devoted to logistics (Horizon, 2015).

4.6 Some Social Impacts of Food Aid

Food aid commodities are often viewed by consumers in recipient countries as being inferior to those domestically produced. In Kenya, the provision of relief food in form of yellow maize is viewed by the rural folk as inferior to white maize and that they believe it is used as livestock feed in the countries of origin. In other cases, consumers might doubt the nutritional and health status of the food aid as happened in Zimbabwe in 2001 when the Zimbabwean government rejected GM maize food aid owing to safety concerns. Such views might affect the psychological feelings of the consumers and as a result, some people might detest the food aid.

In Kenya relief food dependent people become lazy and cannot produce to meet their own consumption needs since they keep on postponing production decision-making processes to benefit from the free food. Though it has not been documented, there are certain dry areas of the country where food aid has become a common phenomenon. Examples include: Ndeiya location in Kiambu District, parts of Machakos and Kitui Districts, Turkana District, and some parts of Tana River, Kwale and Kilifi Districts. Some of these areas and in particular Ndeiya, parts of Machakos, and Kitui have in some instances produced surplus foodstuffs which they should have stored for future consumption but they have opted to sell it with an expectation that they shall be provided with food when the need arises. It has been argued that the reason for selling the foodstuffs has been largely due to the level of poverty and partly because they have always expected the government to organize for their food. The dependency syndrome that results from constant use of relief food enable the political elite to easily suppress development in such areas and as such marginalize further residents of such areas. Relief dependent persons waste a lot of time that would have otherwise been productively used in own production or income earning activities awaiting disbursement of relief food. Such inefficiencies in time use breed laziness that is counterproductive. In the long run, such people end up not educating their children and perpetuating the vicious cycle of food aid and poverty. These conditions are not desirable for any nation's development. Given the undesirable effects of food aid on human capital development and the psychological impacts on development, food aid should be discouraged while efforts should be made to improve the food security status of rural people.

Food import /aid would not be beneficial for vulnerable groups in the long run since it introduces a dependency syndrome for these groups know that even if they do not produce, relief food will be availed. Moreover, food aid in Kenya has often been used as a political tool during election years and has been associated with high levels of inefficiency in distribution especially if it is undertaken by the provincial administration. Distribution of food aid and food-for-work initiatives lead to high levels of wastage and pilferage by both pests and humans and problems of sale of food aid by local administrators. This makes it difficult for the deserving cases to benefit from the relief food.

CHAPTER 5

5.0 MAKING KENYA FOOD SECURE ON SUSTAINABLE BASIS

Kenya's declared intention since independence in 1963 to be self sufficient in food production is well known [GoK, 1981]. However, it is only in the first decade of independence that she was able to come close to self-sufficiency in maize production. She has therefore been depending on food import/Aid over a long time. The country therefore must put in place strategies to reverse the situation and ensure that Kenya become self sufficient in food and that she can produce surplus for export. If Kenya is to move away from food import/Aid dependency, bold steps must be taken to implement policies that can revitalize agriculture and food sector by focusing on promising agricultural opportunities on a sustainable basis.

5.1 Macroeconomic and regulatory Environment

The immediate post independence period was characterized by impressive agricultural performance, which in turn spilled over to other sectors of the economy leading to marked improvement of the Kenyan people. The impressive performance was due to a combination of factors including stable fiscal and monetary policies (favourable taxation regime, low inflation, stable exchange rate, positive real interest rate and high investments and savings), government policy and especially the maintenance of good macroeconomic management and the fact that there was an expansion of land under cultivation. The government was also extensively involved in production, distribution and marketing. During these early years of independence, agricultural policies were aimed at achieving equity, employment and self- sufficiency. Thus, the government put in place incentive structures whose goal was to promote production of specific commodities in line with the state development goals and targets. For example, policies on maize production were aimed at ensuring food self- sufficiency [Kimenyi, 2002]. In addition, the government played an important role in providing supportive infrastructure and agricultural services. Various institutions complemented agricultural activities in areas of credit, marketing, distribution and research.

Thus, to be able to increase growth in the agricultural sector, the following strategies should be adopted:

- Diversify the agriculture sector by moving towards high growth activities e.g. horticulture, tea, coffee, livestock e.t.c,
- Restore support for extension services for growth and development,
- Maintain a realistic exchange rate to help agriculture grow and maximize role as key to export earnings growth,
- Harness domestic savings and conditions for the use of foreign exchange savings and opportunities for overall gross investment and growth, and
- Increase the budgetary allocation to agriculture.

The domestic operation of the various food crops as well as the livestock products are governed by a number of chapters of the Kenyan law. The law gives power to a particular organization to control and regulate the production and marketing of a given crop or a particular livestock product.

The government had enacted these laws for the purpose of ensuring that the country was self sufficient in the various products. The law also controlled the movement of products like maize, wheat, cotton and pyrethrum. One required special permission to move a product from one district to another.

Maize and wheat were controlled by Cap 338 while rice was under Cap 347. The National Cereals And Produce Board and the National Irrigation Board were established under these laws respectively. The parastatals controlled the prices and payments for the deliveries by the farmers to the Board stores.

In 1993, the IMF/World Bank instituted the Structural Adjustment Programs under which the prices of wheat and maize were liberalized. The liberalization would not take effect until an enactment of a law, which would remove some of the sections in the previous chapters of the law. In order to speed up the legalization of the liberalization process, the government put up gazette notices.

While the general policy has been to liberalize, the regulatory framework still supports controls therefore conflicting the commercial mandate of the installations supporting the food crops. In some cases like the rice industry, the problem has been compounded by lack of reforms in the tenure system under which the rice is grown. The regulatory framework needs to be harmonized with the policies and this should, to a great extent be a participatory process between the policy makers and the farmers.

5.2 Development of Infrastructure

The major problems that hinder agriculture development are: poor roads, transport and communications. Most of the roads in the agricultural areas are impassable especially during the rainy season resulting in the underutilization of high and medium potential areas. The farmers also lose due to wastage, as the produce cannot get to the market. The poor road network increases the transportation costs for inputs and output thereby reducing profit margins of the farmers. Other infrastructures include inadequate, expensive and unreliable telecommunication, which has hampered quick and efficient flow of information from farmers, traders and other investors in the rural areas. High costs of power and installation costs for electricity also affects the establishment of agro-industries, irrigation and cold storage. Water for irrigation, livestock, processing and domestic use is another limiting factor in the development of agriculture. The monitoring and protection of water supply against pollution and preservation of water catchment areas have been considerably neglected. The agriculture sector has depended on rain fed crops as a result of the lack of development of irrigation systems. Marketing infrastructure such as storage, markets and cooling facilities are either lacking or inadequate leading to high post harvest losses.

The following strategies will be put in place to address the constraints above:

- Rehabilitation of and expansion of rural infrastructure such as repair and maintenance of roads,
- Provision of electricity to the markets,
- Construction and maintenance of water supplies and dams using locally raised funds and subvention from the central government,
- Rehabilitate existing and construct new cooling facilities at the ports and develop market centres, and
- Rehabilitate the existing irrigation schemes and establish new ones with a view to using irrigation instead of rain fed crops as a way of improving the agriculture productivity.

5.3 Rural Financial and Credit Facilities

The financing of agriculture should be incorporated in the incentives being offered to credit lenders in the agriculture sector, particularly for small-scale producers, the majority of who are women. The agriculture sector is viewed as a high-risk industry and the lenders must be assured that their money is recoverable. Among the constraints in the provision of credit to the smallholder farmers are the risks involved, the performance of the economy, low productive capacity, marketing of the produce, the mismanagement of the Cooperative Societies and the poor performance of the Agriculture Finance Corporation.

The proposed measures to address the constraints would include:

- Streamlining the management of cooperative societies,
- Support of the rural based Financial Institutions,
- Introduce a reduction of taxes or an Insurance Scheme to cover the borrowers in the agriculture sector, and
- Institute a specially targeted credit programme, which can avoid the problems previously experienced by the Agriculture Finance Corporation with the Guaranteed Minimum Returns

5.4 Agriculture Research and Extension Services

Agriculture research continues to suffer from poor management, inadequate funding, manpower instability, limited research-extension farmer linkages and weak monitoring and evaluation. A National Extension Advisory Board should be established jointly between the public and private sector to enhance the linkages between research and its usage. Among the strategies is the investment in agriculture research and extension as well as control of epidemic diseases for crops and livestock because they have a large proportion of public goods components whose returns accrue to the larger society rather than individuals. Furthermore, they also require large capital investment that cannot be undertaken by individuals. Private investors in research and extension services should be encouraged through tax rebates and credit. The investors as the end users of research should be involved in research design, planning and implementation. Rules and regulations should be set up to govern those investors to avoid exploiting the farmers [GoK, 2002].

5.5 Human Resource Development

There can never be any economic development without the human resource, which is a major factor of production. The agriculture sector is labor intensive and therefore requires human resource development. To improve the human resource base, the following strategies shall be taken:

- Upgrade the capacities of the agriculture training institutes and especially farmer's training centres,
- Evaluate the needs of the agricultural sector and tailor training to meet those needs,
- Streamline legal and regulatory framework to meet the human resource needs, and
- Strengthen the link between the college of veterinary medicine and Faculty of Agriculture and the ministries concerned with issues of agriculture.

5.6 The need for Activity-Specific Strategies

Kenya's dependency on food imports/Aid can be attributed to a number of factors including: erratic weather conditions, under funding of agriculture resulting in poor research and extension services, lack of credit, high input costs, and poor transport infrastructure and poor marketing. However, the various constraints tend to vary by activity, suggesting that blanket recommendation would not solve the problem. Table 21 provides a summary of constraints and strategies/asures to promote production and productivities for the various promising agricultural development opportunities¹⁹. The table is provided in three columns. The first column represents the product; the second column represents the constraints while the third column represents strategies/asures to be funded. Development of high-yielding varieties needs to be accorded the highest priority for most crops. Access to credit, market, and processing facilities is also of considerable importance in the case of many crops. Feed, processing facilities and disease control would play a vital role in the livestock sector.

Table 21: A summary of constraints and proposed strategies/asures to Promote production and productivity.

Product	Constraints	Strategies/Measures
Maize	Drought, poor extension services, lack of working capital, access to credit and low yielding varieties.	Research on high yielding varieties; extension; promotion of optimal use of fertilizers and improved seed quality assurance.
Wheat	Subdivision of existing farmland, lack of machinery, inappropriate technology for small holders, access to credit, soil acidity, insecurity of tenure, inadequate infrastructure (roads), low producer prices, poor research and extension services.	Research and extension services, credit, market promotion, storage and appropriate technology.
Rice	Conflict over ownership of the rice schemes, low yielding varieties, poor disease and pest control, high cost of production and poor marketing channels.	Research and extension services, land use policy, disease and pest control.
Horticulture	Poor extension services, high freight cost and unavailability of cargo space, poor implementation of SPS and inadequate cooling facilities at the Kenyan ports and high input costs.	Extension services and cooling facilities at Kenya ports, provide duty exemption for packing materials and machinery.
Traditional Crops	Poor marketing, poor research and extension and limited alternative use of traditional crops.	Market promotion, and research and extension
Oil Crops	Low producer prices, lack of high yielding varieties, inadequate processing facilities, poor pest and disease control, inadequate quality seeds and poor extension services.	Research and extension, processing facilities, pest and disease control and production of high quality seeds.
Tea	Inadequate tea factories, poor marketing, inadequate research on high yielding drought, frost resistant varieties and poor promotion and high input costs.	Construction of new tea factories, market promotion, and research and extension.
Coffee	High input cost, lack of credit, high processing costs, inadequate extension, inadequate high yield-enhancing technologies, and poor legal and regulatory framework.	Credit, research and extension and value adding exports.
Cotton	Poor seed quality and inadequate seed multiplication, and poor research and extension.	Research and extension, and seed multiplication.
Pyrethrum	Poor marketing, low product prices and increased competition, and monopoly.	Market promotion and liberalize the sub-sector.
Dairy	Poor genetic potential of existing herd, inappropriate institutional framework, disease and pest control, poor artificial insemination service, inadequate credit and high cost of feeds.	Research on improvement of genetic potential, disease and pest control, artificial insemination and credit.
Meat	Poor marketing infrastructure (roads, storage and slaughter facilities), inadequate control of communicable disease, poor extension service, insecurity due to cattle rustling and poor feed quality.	The intensification of feed production, storage and slaughter facilities especially in the rural areas, disease control and the production of quality feed.
Poultry	High initial or start-up capital, high feed cost and diseases epidemic, poor and inaccessible extension services.	A programme for disease control, extension service and provide credit.
Fisheries	Poor infrastructure (access roads, poor storage and landing	The construction of access roads, storage, landing

¹⁹ See Annex I for detailed discussion of the various activities within agriculture

	jetties and beaches, poor extension services, poor quality assurance, heavy post harvest loses, discharge of industrial waste into the water bodies leading to reduction of fish due to pollution and high export sanitary requirement.	jetties and beaches, extension services, a program for quality assurance, and post harvest technology and waste control.
Forestry and Logging	Encroachment of forest land, excision by the government, lack of a national land use policy, depletion of hard woods stocks, over harvesting, low technology leading to poor recovery rates of 30-40 percent, pollution, and specific supply shortages of important types of wood.	A study for establishment of pulp and paper industry. Analysis of the forestry department assessing its capacity and capability to manage forest resources.

5.7 Investment Program to Revitalize Food and Agriculture Sector

Table 22 below provides feasible investment program to revitalize agriculture and food sector. The program will focus on the following key areas: physical infrastructure development; financial services; human resource development; research and extension; information; legal and regulatory framework; food security strategy; production and export strategy; agriculture subsidies and land policy. The program will be for duration of five years and will cost approximately US\$ 1,650.10 million.

The recommended measures/strategies to revitalize the agriculture sector are short to medium term in duration, as they cannot be sustained for a long time. Accordingly, the farmer must be made aware of the length of the programme. The length of the support would depend on the complexity of the strategy to be implemented. Some of the measures would be short term due to their nature while others would be medium term. Items like research and extension services would be medium term while others like the credit facilities would be as per crop season.

There should also be an established criteria for the support, which include: increased competitiveness, commodity contribution to the GDP, creation of employment (whether it is labor intensive), food security, income generation, and foreign exchange contribution. The cost cutting measures would be given priority. This could include subsidization of input prices including machinery, herbicides, seeds, fertilizers, services and other major inputs and crop insurance. Other support measures would include market information, export promotion activities, introduction of the SPS regulations, processing, storage, and irrigation schemes, infrastructure provisions including road building and maintenance, telecommunications and rural electrification.

The impact of the support measures would include: increased product competitiveness, expansion of markets, better investments when the support is withdrawn and wealth creation. The support alone cannot increase agriculture production and productivity. There must be political good will to create an enabling environment through being focused, pro-active, accountable and committed agrarian leadership able and working to implement the strategy for the betterment of country and the agriculture sector in particular. Table 22 depicts the investment program, which will have an inbuilt mechanism for evaluation and monitoring. The government cannot finance the total investment of the project and the donor community shall be called upon to finance most of the strategies. It would be important to have a permanent solution to the issue of food insecurity. Currently, whenever there is a famine or a disaster, the donor community comes to the assistance of the nation. It is good to teach one how to fish rather than continually giving him fish.

Food insecurity should be approached from all areas. There are lessons that Kenya has to learn from its past when agriculture performed well and Kenya was near food secure. During the period immediately after independence, the government put up measures that enabled the agriculture sector to grow rapidly. Most of those measures were discontinued at the detriment of

the sector. It is therefore recommended that the following agricultural subsidies be introduced to effect positive change in the sector for some time:

- Subsidize farm inputs. This would include fertilizers, seeds, chemicals and pest control, artificial insemination and veterinary drugs.
- Provide credit to farmers and fishermen at affordable rates of interest.
- Zero rate duties on imported agriculture inputs, machinery and tools.
- Reduce transport charges by reducing the taxes on imported fuel.
- Reduce agricultural taxes by the local authorities.
- Construct storage facilities including cooling systems to enhance production and rent them out at reduced rents to the private sector.

The Kenyan farmer today depends on food imports and food aid as mentioned elsewhere in this study. It is proposed that the financial sector in the rural areas will be used by the farmer not only as a source of credit, but also as savings institutions. Having been made aware of the time frame for the support, the farmer will prepare himself for the days ahead when he will have to support his farming activities with any subsidies. It is also expected that the support will make the farmer have a niche in the market and the consumers would not mind to pay more as long the quality of the product is guaranteed.

The high level of production through better seed varieties, fertilizer usage and market penetration would help the farmer when the support is withdrawn. The high production would compensate for the reduction in the margins. The market access support would help to enter new markets. Support would also be extended to market research which would encourage developing a supply response rather than relying on our traditional exports. Prices in the traditional markets have been known but when we enter markets, the prices can be adjusted either upward or downward to enable the entrance into the market. The benefits of the market expansion would enable the farmer to overcome any overproduction. The initial period of support as shown in the table is for five years but could be extended in order to cover all areas of agriculture activities.

Upon implementation of the proposed support measures, there will be a number of expected effects to the economy and particularly to the agriculture and food sector. However, it is not possible to quantify the return on investment as of now due to lack of information on: the expected export prices and related transaction costs, the impact of the support services, research, extension and credit, and their effect on both production and productivity. The following however are some of the expected agricultural and general income/outcome of the support programme:

- Less reliance on food import/aid,
- More foreign exchange earned,
- High investment and savings,
- Creation of more jobs,
- Reduced level of food insecurity and poverty, and
- Increased Gross Domestic Product contribution.

The objective of the investment program is to guarantee a sustained productive agriculture. Specifically, the program should transform Kenya's agriculture to a highly modern sector where infrastructures including roads, financial services, production and marketing constraints will have been minimized. In order to exit from this program, farmers without any disruptions must be made to support specific agricultural services out of their savings. A cost-sharing program must be institutionalized in the investment program. For example, farmers should be made to contribute to such services as extension, research, artificial insemination, health services, training and education.

Table 22: Investment Program to Revitalize Agriculture and Food Sector

PROGRAM	ACTIVITIES	ESTIMATED COST (MILLION US \$)
PHYSICAL INFRASTRUCTURE DEVELOPMENT	Infrastructural development in rural areas including rural access roads, construction of dams, irrigation and other water control infrastructure, post-harvest technology and storage and cooling facilities, rural electrification, provision of support services, marketing infrastructure for output and input supply among others.	400.00
FINANCIAL SERVICES	Rural financial services to smallholder farmers including revolving fund schemes and insurance scheme. Seed money to be advanced to intermediaries for on lending to farmers.	106.00
HUMAN RESOURCE DEVELOPMENT	Education and Training and strengthening of the farmers Training Institutes.	26.70
EXTENSION SERVICES	Agriculture extension services to improve technology, information and modern agriculture husbandry. Developing of an optimal extension framework that considers elements of existing extension models.	138.50
NATIONAL RESEARCH AND EXTENSION ADVISORY BOARD	Create a National Research and Extension Advisory Board that would coordinate the research and extension services. It would act as a link between researchers and the farmers as users of the research.	3.60
HEALTH RISKS	Developing and implementing a programme on the risk awareness of the use of agriculture chemicals, other health risks including HIV/AIDS, tuberculosis and malaria. This will be in the wider scope of human development.	133.30
INFORMATION DATA BANK	Create a data bank for all major commodities to forecast food production, demand, consumption and food imports. There shall be a national networking so that areas with food deficit can be known and possible sources of food identified. The data bank can be used for early warning of food shortages/surplus.	42.50
CAPACITY BUILDING FOR PRIVATE SECTOR	Build capacities in the private sector organizations that are involved in promoting farming activities including the farmers Associations, Cooperative Societies (to provide the financial support to farmers), NGOs and other Community Based Organizations (CBOs).	36.00
REGULATORY FRAMEWORK	Strengthening legal and regulatory framework to enhance agriculture production. Assistance for complete policy reviews.	16.00
FOOD SECURITY STRATEGY	Formulate and implement a food security strategy which should include agriculture production and intensification system; disaster preparedness and response systems, storage and food security planning, early warning and response system, long term measure to reduce vulnerability to drought and poverty reduction long term policy development.	26.70
PRODUCTION AND EXPORT STRATEGY	Develop an enabling environment for private sector to invest in adding value to products for export and quality assurance for all products and inputs particularly seeds, semen, fertilizers and machinery.	16.00
	Develop a long-term agricultural diversification programme for exports	26.70

PRODUCTION AND EXPORT STRATEGY	products.	
	Strengthen livestock production methods including adoption of improved animal breeds, high yielding feeds, modern feeding systems and animal health technologies.	53.30
	Develop commodity programmes for increased productivity and value adding. Develop traditional crops.	26.70
	Develop efficient and effective marketing system for agricultural outputs and inputs.	8.00
AGRICULTURAL SUBSIDIES	Provide subsidies for fertilizers, seeds, feeds, farm implements, exports and transport.	186.70
RESEARCH AND DEVELOPMENT	Formulate, implement research programmes for identified crops and livestock. The research should be based on farmers' need e.g. high yielding seeds and livestock. There should be a mechanism of disseminating research results. The research would be done by the existing research institutes but specially tailored for the food security programme. KARI is to play a pivotal role in Research, Development and implementation.	400.80
LAND POLICY	Formulate a national land policy in order to harmonize the different land based activities such as agriculture, pastoralism, wildlife, forestry, industrial locations, tourism, and human settlement.	1.30
	Accelerate survey, titling and registration of land	1.30
	Total Five Year Programme Cost	1,650.10

5.8 Implications for the WTO Agreement on Agriculture

The above measures have been recommended after taking the AOA into account and are therefore compatible with the WTO. They do not have any distorting effect on trade under the "Green Box" and or Deminimis exemptions or the Special and Differential Treatment (SDT).

5.8.1 Sanitary and Phytosanitary Services

An important non-tariff barrier that affects Kenya's agriculture is the Sanitary and Phytosanitary (SPS) agreement of the WTO. SPS sets out the rights and obligation of member states of WTO in relation to the health of plant and plant products and animal and animal products that may restrict international trade. The basic aim of SPS Agreement is to maintain the sovereign rights of any government at the same time ensure that these sovereign rights are not misused for protectionists purpose and do not result in unnecessary trade barriers. Nevertheless, Kenya's exports to developed countries markets have been barred by what have been seen to be arbitrary imposition of SPS measures especially for horticulture and fisheries products. Kenya has also witnessed cases in which substandard goods that do not meet SPS standards have been dumped in the Kenyan market. As Njinkeu et al notes, "developed countries have been able to use environmental concerns to further protect their agriculture by restricting imports from developing countries especially in Africa"¹⁴.

The European Union (EU) requirement for example on the levels of Maximum Residue Level (MRL) allowed on horticultural export is a major challenge to Kenyan producers. Implementation of the zero analytical level means that farmers have to reduce the levels of pesticides used or uses those pesticides, which have very low residual levels. Other SPS

¹⁴ Exports of plants are subjected to a phytosanitary certificate whereas those of animal and animal products to a health and sanitary certificate.

measures include; Pest Risk Analysis and Environmental Protection Requirement by export market. Small-scale farmers in particular find it difficult to meet these standards and failure to meet these requirements will sideline most of the exporters, [Nyangito and Nzuma, 2003]. The government should provide technical support to enable the farmers understand and undertake risk analysis and participate in international meetings for setting up the standards.

5.8.2 Support Measures for enhancing External Competitiveness

Kenya is a member of the World Trade Organization and she has committed herself to implement the entire list of WTO agreements. One of the most important agreement is the Agreement on Agriculture, which has three pillars namely: improvement of market access with the objective of liberalizing trade in agriculture and calls for the member countries to reduce tariffs on agriculture trade by 36 percent for developed countries and 24 percent for developing countries, reduction of domestic support measures which are classified into three groups namely allowable measures such as extension and infrastructure commonly referred to as the “GREEN Box”, subsidies on imports commonly referred as the “Amber box” and indirect subsidies to farmers such as purchase of farmers output or payment to farmers not to produce to help raise prices commonly referred to as the “Blue Box”.

Kenya is also a member of the East African Community (EAC), the Common Market for Eastern and Southern Africa (COMESA) countries, and the African Caribbean Pacific-European Union (ACP-EU) partnership. In each of the membership there are some agreements that are signed for the mutual benefit of all parties. Some of the issues the agreements relate to include removal of tariffs and non-tariffs barriers and the provision of market access to the products of each member state.

The other external effect that has influenced agriculture growth includes the pricing of our exports like tea and coffee where the market prices are fixed by world bodies e.g. the World Coffee Buyers Association. Some of the imports like oil is determined by the Organization of Petroleum Exporting Countries (OPEC). To improve Kenya’s competitiveness in the export market the following measures should be taken: provide freight and local transport subsidiary; raise tariffs to protect local industry and export subsidiaries for strategic commodities. These issues are discussed below.

5.8.2.1 Freight and Local Transport Subsidy

As mentioned elsewhere in this report, high freight and local transport charges is one of the constraints in the expansion of the horticultural sub-sector. The freight costs are high due to lack of enough cargo space and the expensive jet fuel. The local transport cost is also high because of diesel prices and also due to the poor infrastructure especially the rural roads.

The above constraints can be removed by invoking the Green Box Provision of the Agreement on Agriculture, which allows domestic subsidies to support the competitiveness of the export sector. The government can therefore reduce the duties and taxes on jet fuel and diesel. The benefits would then be passed over to the exporters and producers, which will in turn, reduce transaction costs.

5.8.2.2 Raising Tariffs to Protect Local Industry

Under the WTO agreements, all WTO member states are required to tarifficate quantitative trade restrictions, bind their tariffs, duties and charges against further increases and to reduce them over time (developing countries by 24 percent annually). Countries are supposed to notify the WTO on the products subject to tariffication and current minimum access conditions, where

minimum access is defined as 3 percent of domestic consumption in the base year rising to 5 percent in 2004. Kenya's binding ceiling is 100 percent but has never gone beyond 35 percent which is not enough to protect such industries as sugar and cereals. Kenya uses the tariff to protect the agriculture industry against dumping and for pricing the local production.

5.8.2.3 Export Subsidies for Strategic Commodities

Globalization and regional integration offer opportunities for rural development in the country. Kenya has engaged in regional integration through the East African Community (EAC), Common Market for Eastern and Southern Africa (COMESA) and Inter-Governmental Authority on Development (IGAD). In addition, Kenya is a signatory to the World Trade Organization (WTO), the Cotonou Agreement, which facilitates entry into the Europe market, and has moved fast to take advantage of opportunities offered by the African Growth and Opportunities Act (AGO), which opens up the American market to imports from Africa. Effective presence in these markets provides an excellent opportunity to expand the country's rural exports and hence increase household incomes and reduce poverty. This opportunity can be exploited by encouraging efficiency and competitiveness of Kenya's producers relative to actual or potential competitors.

Kenya continues to enjoy some comparative advantage in the production of crops for export such as coffee, tea, pyrethrum, and horticultural crops. In coffee, the country is renowned for its high quality in the world.

Kenya has the opportunity to exploit the regional and international market for fish, live animals and animal products particularly the European Union and Middle East. However the exploitation of these markets will depend on the adequacy of disease control and compliance with technical and phytosanitary standards. The opportunity to exploit the potential on these crops and livestock activities will propel rural development by enhancing the role of these commodities in raising farm income both local and foreign, employment and food security.

Gains from increased investment from agricultural development will depend on the pursuit and maintenance of an open economy. In the delivery of this strategy, Kenya must take advantage of challenges and opportunities provided by the regional and global markets and increased cooperation and globalization. Kenya must not be left behind and the government must take a leading role in ensuring that the country takes advantage of the regional markets in East Africa and COMESA countries in addition to our traditional markets in Europe, America and the rest of the world.

The Uruguay Round on Agreement on Agriculture allows export subsidies but constraints are imposed on the practice. The subsidies have to be reduced by 24 percent in the developing countries. Subsidies to reduce costs relating to export marketing and internal transportation are exempted for developing countries, although no new ones can be introduced. The removal of subsidies has adverse effects on the importing country while the transaction cost in the exporting country goes up and becomes uncompetitive.

Kenya currently has three schemes for companies producing for export namely: the Duty Remission Scheme, Manufacturing Under Bond (MUB) scheme, and the Export Processing Zone (EPZ) scheme. In addition, exports are zero rated for VAT referred purposes (referred of VAT on all goods and services incorporated into their production). The government's estimated the fore gone (potential revenue minus collections), under these schemes at 30 percent of the potential revenue of Kshs 21.8 billion in 1995/96.

Other export subsidies includes the advisory services provided by the Export Promotion Council (EPC) who also assist the exporters' participation in trade fairs, the development of marketing and management skills and improvement of product quality. Financial, technical and marketing

services are also provided by the United States Agency for International Development (USAID) and the Kenya Exporter Assistance Scheme (KEAS) to small and medium scale export manufacturing units of non traditional exports.

CHAPTER 6

6.0 CONCLUSIONS AND RECOMMENDATIONS

This paper has reviewed the agriculture production and food security situation in Kenya. It looks at the various policies that have assisted or discouraged agriculture production and the ability of the country to be food secure. Issues discussed include promising agriculture development opportunities, microeconomic environment to promote investment in agriculture, agriculture subsidies, infrastructure development, rural finance and credit facilities, human resource development, agriculture research and extension services, legal and regulatory framework and an evaluation of the WTO Agreement on Agriculture as it relates to: sanitary and phytosanitary services, external markets environment affecting domestic agricultural development, freight and local transport subsidies, tariffs to protect local industry and export subsidies for strategic commodities. The paper finally makes a number of conclusions and recommendations in this chapter as follows: -

6.1 CONCLUSIONS

The importance of agriculture in the economic development of Kenya cannot be over emphasized. It is however clear from the study that there has been a declining trend in the level of government support to agriculture and especially at the advent of the Structural Adjustment Programmes (SAPs). The performance of the sector has been low despite the fact that it has a lot of potential to make the country food secure. The government objective has been to make Kenya self sufficient in a number of food crops including wheat, maize, rice, milk and meat. The objective has not been realised and Kenya has therefore been increasingly dependent on food imports and food aid. The current policy is to develop self-sufficiency in seven commodities including maize, wheat, meat, milk and horticultural crops both for home consumption and export markets and coffee and tea for raising farm incomes and earning foreign exchange.

From chapter two it can be concluded that Kenya has the potential to produce surplus food as the case in the 1970s when maize was exported. The new strategy is to be self- sufficient in food needs for the domestic market and an expansion of the exports base. Food available for Kenyans is 13 percent below the recommended 2,250 calories per day. The calories come from a wide variety of sources but are dominated by maize accounting for 36 percent while sugar, wheat, palm oil, and milk together constitute 64 percent of the total calories.

There is need for research institutions both public and private to compete for donor funds in accordance to competitive grants. This will ensure that the research is done as effectively as possible and that there is no monitoring component in the bids. The farmers' organization and the civil society need to be part and parcel of the agriculture research policy formulations.

There is need to increase food production to offer consumers a wide choice of foodstuffs while ensuring that domestic resources are used efficiently in food crops sub-sector for the benefit of both consumers and producers. The public and private sectors will be expected to invest in extension services to promote adoption of new technologies.

Kenya is increasingly depending on food import/aid as it has continued to import wheat, maize, rice, powder milk, and sugar and receive food aid from various donor agencies targeting mainly emergency and vulnerable groups. The food insecurity is transitory in nature and occurs both in

the rural and urban areas, in the medium and high potential, arid and semi arid lands due to poor agriculture productivity and inefficient food distribution system, population growth, unemployment, access to income and high incidences of HIV/AIDS among others. The other reason contributing to food insecurity is landlessness despite large chunks of idle land owned by the state or individuals still existing. The food insecurity has led to high incidences of malnutrition through chronic under nutrition, which has been caused by a decline on per capita supply of the main staple food since early 1980s. The food distribution system is weak and there are instances where one area of the country has surplus food while their neighbours are starving e.g. Kitale in Trans Nzoia district always has surplus maize while their immediate neighbours in West Pokot District are dying due to starvation.

Reliance of food import/aid has a wide range of implications including food security and nutrition, budgetary support and counterpart funds, foreign exchange and balance of payments, transaction costs and social impacts. The food import/aid reduces domestic food prices, stifles domestic production and acts as a disincentive to farmers and hence reduces food production. It also distorts labour market especially in a country like Kenya that is dependent on agriculture for employment creation. In some cases, food import/aid make the people lazy and cannot produce to meet their own consumption needs because they postpone production decision-making waiting to benefit from free food. Food aid in Kenya has been used as a political tool during election years and has been associated with high levels of inefficiencies in distribution especially if it is undertaken by the provincial administration.

The poverty level in the country stands at about 56 percent of the entire population. The government has put in place several policy initiatives to highlight its overall objective regarding sustainable and social economic development. The poverty level varies across different regions. There exists a close relationship between the growth of agriculture and that of the whole economy. Agriculture contributes 25 percent of GDP, 60 percent of export earnings, 75 percent for raw materials to the industrial sector, and 45 percent of the government revenue. Therefore, when the agriculture sector is performing well, the rest of the economy will do well. It is against this relationship of agriculture and the whole economy that the government has put up policy measures to alleviate poverty through the development of agriculture. The performance of agriculture has been hindered by a number of challenges including poor agrarian leadership, lack of capacity in farmer organizations, lack of capital, predominance of rain fed agriculture and globalization, adverse climatic conditions, collapsed infrastructure, lack of effective land policy, low political support, high taxation, poor research and extension linkages, HIV/AIDS pandemic, and declining budget allocation by the government among others.

6.2 RECOMMENDATIONS

Given the above findings and conclusions, the study identified promising agricultural development opportunities in food crops (maize, wheat, rice, horticulture, traditional crops and oil crops) and cash crops (tea, coffee, cotton, sisal, and pyrethrum), livestock and fisheries, forestry and logging, in cognizance of the fact that Kenya's dependency in food import/Aid has been attributed to a combination of factors some of which can be controlled so that output and productivity can be enhanced to ensure food security and an increased foreign exchange. According to chapter 5, a number of measures/strategies have been recommended. These strategies when implemented will help the country to move from food import dependence to food self-sufficiency. The following are the recommendations:

6.2.1 Physical Infrastructure: There are a lot post-harvest losses that are occasioned by the poor state of infrastructures including rural access roads, irrigation and other water management infrastructures, post-harvest technology and storage, cooling facilities and electrification. Examples of these losses include milk that cannot get to the markets, Irish potatoes that have to be sold immediately at low prices because of lack of storage technology, horticulture crops that cannot get to the market because of the poor roads. There are also productive areas that do not have electricity and therefore cooling systems cannot be installed. It is therefore recommended that physical infrastructure and especially rural access roads, irrigation and other water management be given priority.

6.2.2 Rural Financial Services: There is need to develop rural credit schemes which would include giving tax incentives to the banks and non-banking institutions that provide credit to smallholder farmers. The incentive could be in the form of revolving fund schemes, taxes and insurance schemes.

6.2.3 Human Resource Development: Formulate human development policy for agricultural education and training and create an awareness of the risks of the use of agricultural chemicals, HIV/AIDS and other diseases. Strengthen the capacity of the farmers' organizations for them to play their participatory role in the formulation of agricultural policies.

6.2.4 Research Programmes: Formulate and implement focused research programmes for identified crops, livestock, fisheries and forestry and establish a National Research and Extension Advisory Board to act as a link between researchers and the farming community. The research should be demand driven to ensure its utilisation and ownership. The National Research and Extension Advisory Board should be composed of the stakeholders, government extension officers and researchers.

6.2.5 Agricultural Extension Policy: Formulate and implement an agricultural extension policy to improve technology and information flows to the farming community. The extension officers should be enabled through budgetary allocation to visit the farmers and organize field days in their areas. Farmers exchange programs should be encouraged.

6.2.6 Information Data Bank: Develop an information data bank for all major commodities for forecasting food production, demand, consumption, food import/Aid, strategic reserves and to act as a monitoring information for early warning of food deficit.

6.2.7 Capacity Building in Private Sector: There is need to build capacities in the farmers private sector organizations to equip them for the task of ensuring food security through effective participation in the policy formulation, implementation and monitoring. The organizations should be able to understand the bilateral, regional and multilateral trade agreements including the WTO Agreement on Agriculture and their impacts on the farmer. They should be able to participate in the negotiations of such agreements.

6.2.8 Legal and Regulatory Framework: Strengthen the legal and regulatory framework for enhancing agricultural production including the completion of new and outstanding policy reviews.

6.2.9 Food Security Policy: Formulate and implement a National Food Policy which would include agricultural production and intensification system, disaster preparedness and response system, storage and food security planning, early warning and response system, long term

measures to reduce vulnerability to drought and poverty reduction long term programme. The policy would also incorporate the distribution of food to food insecure areas of the country.

6.2.10 Enabling Environment: Develop an enabling environment for private sector to invest in adding value to products both for domestic consumption as well as for export. Value adding for exports is vital for such products as tea, which can fetch six times more when packaged as compared to bulk exports. Mechanism for quality assurance for all products and inputs particularly seed, semen, fertilizers and machinery should be put in place.

6.2.11 Commodity Diversification Programme: Research and formulate a product diversification programme for both food crops as well as cash crops. The aim here is to promote non-traditional food crops and the diversification of our export portfolio.

6.2.12 Livestock Production Policy: Formulate and implement a long-term livestock production policy including adoption of improved animal breeds, high yield feeds, modern feeding systems and animal health systems. The policy should include marketing strategies both for domestic and exports including the development of EU abattoirs in livestock production areas.

6.2.13 National Land Policy: Formulate a national land policy to harmonize the different land based activities such as agriculture, pastoralism, forestry, industrial locations, human settlement and tourism. The policy should incorporate the speeding up of survey, titling and registration of land.

6.2.14 Transfer of Technology: The current technology used in crop production and harvesting requires to be modernized. One of the ways would be to use technical assistance from the developed world to improve on our current systems. It would be also important to have exchange programmes with those developed countries where our farmers would learn from the experiences of the farmers in those other countries. Such a programme would also enhance the mechanization of our farming.

6.2.15 Implementation Costs: The implementation of the above recommendations is estimated to cost approximately US\$ 1,650 million (one thousand six hundred and fifty million United States Dollars, Table 22). The government participation in the implementation would cost it approximately 40 percent of the total cost while donors would be requested to finance the balance.

References

Agriculture Sector Brief: Kenya

Bwika James M. (1990). The Returns to Smallholder Farmer Education in Kenya. Ministry of Planning and National Development Technical Paper 90-07.

Barnet, Tony and Gabriel Rugalema HIV/AIDS (2001): A critical Health and Development. In The Unfinished Agenda: Perspectives on Overcoming Hunger, Poverty and environmental Degradation. Per Pinstруп –Anderson and Rajul Pandya –Lorch.

Barret, Christopher B. Food Aid: Is It Development Assistance, Trade Promotion, Both or Neither? Amer. J. Agri. Econ. 80 (August 1998): 566–571.

Boserup, Ester (1970). Women's Role in Economic Development New York: St. Martins Press.

Eicher C.K (1988). *Food Security in Sub-Saharan Africa*, Michigan State University, International Development Papers. Food Security Policies. In Development Policy Management Government Printer, Nairobi.

Ellis, (1992).

FAO, Kenya Agriculture Sector Brief, April 2004.

FAO, Kenya: Food Security and Agriculture Development Horizon 2015, November 2003 (Draft).

FAO (1993), Women's activities in Food and Agriculture Marketing in Developing Countries: Selected Readings CTA, Technical Center for Agricultural and Rural Cooperation CAB International.

Gillis, Malcolm et al (1992): Economics of Development W.W. Norton and Company, New York, N.Y. 10110.

Gitu Kang'ethe W. and Cameron Short (1990). *Problems and Opportunities for improving land use efficiency in the high and medium potential areas: focus on daily production*. Technical paper 90 –06. Republic of Kenya. Ministry of Planning and National Development, September 1990.

Gitu Kang'ethe W. and Emily Kanyua (1993). *Economic Analysis of Kenya's Animal Feeds Industry*. Technical Paper 93 –03. Republic of Kenya. Ministry of Planning and National Development.

Gitu Kang'ethe W. and Jonathan Nzuma (2003), *Data Compendium for Kenya's Agricultural Sector*. KIPPRA SP No. 5, 2003: ISBN 9966949518.

Horizon, 2015.

Hassan, Rashid M et al, (1992). *Wheat supply in Kenya: Production Technologies, Source of Inefficiency and Potential for Growth*. KARI/ CIMMYT project report.

Idabacha Francis S. (2000). Agricultural Policy Process in Africa: Role of Policy Analysts. Ecapapa Monograph Series.

IEA, Kenya at the CrossRoads (2001), Institution of Economic Affairs (IEA, Kenya) and Society for International Development.

Ikiara, G.K Juma, M.A and Amadi, J.O. (1993), 'Agricultural Decline, Politics and Structural Adjustment in Kenya', in Gibbons, P. (ed.), Social Change and Economic Reform in Africa, Nordiska African Institute Upsalla.

- Iseman and Singer (1977). Food Aid; Disincentive Effects and their Policy Implications. Economic Development and Cultural Change.
- Jaffe, S (1998). “The Many Faces of Success; The Development of Kenyan Horticultural Exports” In S.Jaffe and J.Morton, eds Marketing Africa’s High Value Foods. Dubuque, Iowa: Kendall/Hunt Publishing Company.
- Kenya Dairy Development Policy (2000). Toward development of a sustainable dairy industry.
- Kenya, Republic of (1980 – 2001). Economic Survey: Various Issues. GoK. Printer. Nairobi.
- Kenya, Republic of (1996). Ministry of Agriculture
- Kenya, Republic of Kenya Rural Development Strategy (2002-2015).
- Kenya, Republic of National Development Plan 1997-2001. Government Printer.
- Kenya, Republic of National Development Plan (2002-2008). Government Printer.
- Kenya, Republic of (2001). Poverty Reduction Strategy Paper for the Period 2001-2004. Ministry of Finance and Planning, Nairobi.
- Kenya, Republic of Sessional Paper No.2 of 1986 on Economic Management for Renewed Growth. Government Printer.
- Kenya, Republic of. *Statistical Abstract Various Issue 1975 -2001*. Central Bureau of Statistics. Ministry of Planning. Government Printer.
- Kenya, Republic of (1980 – 2001). *Statistical Abstract: Various Issues*. GoK. Printers. Nairobi.
- Kenya, Republic of The Economic Recovery Strategy for Wealth and Employment Creation (2003-2007).
- Kiio, Elizabeth Mueni and Khamray Upadhyaya (2002). Action Aid (mimeo).
- Kilungo.J.K (1992). Description and Analysis of Factors that Affect the Nutritional Status of the Republic of Kenya.
- Kimenye, Lydia N (1995). “Kenya Experiences in Promoting Smallholder”.
- Lane, Sylvia. The Contribution of Food Aid to Nutrition. Amer. J. Agri. Econ. 62 (1980).
- Migot-Adhola, S.E, F. Place and W. Oluoch-Kosura (1994). Security of Tenure and Land Productivity in Kenya” in Bruce John E and Migot-Adhola S.E (Eds). Searching for Land Tenure Security in Africa: Kendal/Hunt Publishing Co. World Bank.
- Mugunieri, Godiah Lawrence, et al (2002). *Animal Health Service Delivery Systems in Kenya’s Marginal Areas Under Market Liberalization: A Case for Community-Based Animal Health Workers*. Institute of Policy Analysis And Research International Food Policy Research Institute Report No. 3, October 2002.
- Mungivani and Oluoch W. Kosura (2001). Livestock and Livestock Products Marketing in Kenya. Mimeo
- Muyanga, Milu et al (2003). Food Security in Kenya’s Semi Arid Lands: Underpinning Incidence and Coping Strategies. A paper prepared for IFPRI 2020 Network.
- Naya, Seiji and Robert Mcleery (1994). Relevance of Asian Development Experiences to African Problems. An International Centre for Economic Growth Publication. ICS Press San Fransisco, California.

National Museum of Kenya (1992).

Ndegwa, Philip 1989. 'Drought and Food Policy in African Context'. In coping with Drought in Kenya. National and Local Strategies, Downing Thomas, Kangethe W. Gitu, Chrispine M. Kamau.. Lynne Reinner Publishers. Boulder, London.

Njinkeu, Dominique et al (2001). A Strategic Framework for Using Japanese Official Development Assistance in Sub-Saharan Africa. Research Report prepared for the Japan Bank for International Cooperation, Tokyo, Japan.

Nyangito, (1996). Agricultural Sector Performance in A Changing Policy Environment in Kenya's Strategic Policies in the 21st Century. Kimuyu Peter, Mbui Wagacha and Okwach Abagi, (Eds).

Nyangito, H and L.Kimenye, (1996). Agricultural Development Policies in Kenya : 1963-1995 In Proceedings of the Workshop on 'From Sessional Paper No. 10 to the era of structural adjustments : Towards indigenizing the policy debate' Nairobi : IPAL

Nyangito, H. J. M. Omiti, G.A. Kodhek and J. Nyoro. (2001). *Revitalizing Agricultural Productivity in Kenya*. A Paper presented during EAGER Workshop on Restarting Kenya's Economic Growth, Safari Park Hotel, Nairobi, March 2001.

Nyangito, H. O. (1998). Agricultural Policy in Kenya: Reforms, Research Gaps and Options: IPAR Occasional Paper Series No. 2. Institute of Policy Analysts, and Research: Nairobi, Kenya..

Nyangito, H. O, and Ndirangu, L, (2001). *Impact of Institutional and Regulatory Frameworks on the Food Crops Subsector in Kenya 1990 to 1999*. KIPPRA Discussion Paper Series.

Nyangito, Hezron and Walter Odhiambo (2003). *Measuring Agricultural Productivity in Kenya: A Review of Approaches*. KIPPRA DP NO. 26. January 2003.

Nyangito, Hezron, et al (2002). *Performance of Kenya's Wheat Industry and Prospects for Regional Trade in Wheat Products*. KIPPRA DP NO. 17. November 2002.

Oluoch-Kosura, Willis and J. T. Karugia, Why the Early Promise for Rapid Increases in Maize Productivity was not Sustained, paper presented to the Workshop: African Food Crises: The Relevance of Asian Models, sponsored by Lund University and Sida, Nairobi, Jan 26-30, 2004.

Omamo S.W. (2003). "Bringing Research Policy, and Practice in African Agriculture." A paper prepared of the 5th meeting of the Regional Advisory Committee of the IFPRI 2020 Vision Network for East Africa. November 14 -15, 2003. Intercontinental Hotel, Nairobi. Draft.

Per Pinstруп Andersen and Pandya-Lorch, (2000). Agricultural Growth is the key to poverty alleviation in low income Development Countries, In The Unfinished Agenda. Perspectives on Overcoming , Hunger, Poverty and Environment Degradation. Per Pinstруп-Andersen and Rajul Pandya-Lorch.

Saitoti G, (2000). The Challenges of Economic and Institutional Reforms in Africa. ASHGATE Publishing Company.

Schapiro, Morton Owen and Stephen Wainaina, (1989) "Kenya: A case Study of the Production and Export of Horticultural commodities." In Successful Development in Africa: Case Studies of projects, Programs and Policies. EDI Development Policy Case Series. Washington, D.C. World Bank.

- Sen A (1981). *Poverty and Famines: An Essay on Entitlement and Deprivation*, Clarendon Press.
- Schuh. O.G.E, (1982). *Food Aid as a Component of General Economic and Development Policy; The Development of Effectiveness of Food Aid In Africa*; Agricultural Development Council, New York.
- Short, Cameron and Kang'ethe W. Gitu (1990). *Land Use and Agricultural Potential: A National Database*. Technical Paper 90 –02. Republic of Kenya. Ministry of Planning and National Development.
- Simons, Scott and Kang'ethe W. Gitu (1989). *Funding Agricultural Research and Extension: The Implications for Growth*. Technical Paper 89 –10. Long Range Planning Unit. Republic of Kenya. Ministry of Planning and National Development.
- Todaro Michael P. (2000): *Economic Development* ADDISON-WESLEY.
- UNON (1999),Kenya Human Development Report, 1999.
- Were Maureen, et al (2002). *Analysis of Kenya's Export Performance: An Empirical Evaluation*. KIPPRA Discussion Paper No. 22. November 2002.
- Wilson, John, Abiola and Victor O (2003). *Standards of Global Trade, A voice for Africa*. The International Bank for Reconstruction and Development/The World Bank.
- Wilson, Sara E. (2001). *AIDS Mushrooms in a Development Crisis*. In The Unfinished Agenda: Perspectives on Overcoming Hunger, Poverty and environmental Degradation. Per Pinstrip –Anderson and Rajul Pandya –Lorch.
- World Food programme.
- World Bank, (1990). *Agriculture Growth Prospect Strategy Options*, Vol. 2: Annexes.

Index of Tables

Page

1. Per Capita Per Day Food and Nutrients Availability (1970-2000).....	17
2. Maize Situation Trend (1970-2000).....	18
3. Imports of Major Food Commodities 1980-2000.....	21
4. Food Aid 2001-2003.....	21
5. Poverty Incidence Estimates in Kenya 1981-2000.....	24
6. The Poor in Kenya.....	25
7. Production, Demand and Import Projections for Major Food Crops (2004-2014)...	26
8. Production and Demand Projections for Various Livestock Products (2004-2014)..	27
9. Value of Agriculture Primary Production 1995.....	31
10. Tea Production (1963-2000).....	38
11. Horticulture Production Trends (1996-2000).....	40
12. Dairy Cattle and Milk Production (1963-2003).....	41
13. Agriculture Education and Health Share of Total Public Expenditure (Percent) (1980-2000).....	45
14. Government Expenditure in Agriculture (1980-1999).....	46
15. Total Public Spending on MOA, FY 1999-2002.....	47
16. Total Public Spending on MOLFD, (FY 2000-2003).....	47
17. Total Public Spending on MOCDM, (FY 2000-2003).....	48
18. Expenditure in Agricultural Production Service 1980-2000.....	49
19. Value of Agricultural Imports and Exports (Primary and Processed Crops and Livestock), 1990-2002.....	56
20. Market Price in Kenya Versus Producer Prices in US (1991-2000).....	58
21. A Summary of Constraints and Proposed Strategies and Measures to Promote Production and Productivity.....	63
22. Investment Programme to Revitalize Agriculture and Food Sector.	66

Index of Figures

	Page
1. Food Supply of Cereals, Roots and Tuber (Cal/Per/Day) (1990-2001).....	17
2. Share of Cereal Import in Total Cereal Supply (1990-2001).....	19
3. Quantity of Total Cereal Import and Food Aid (1990-2002).....	20
4. Growth Rates of GDP Agriculture and GDP (1980-2000).....	32
5. Quantum Indices of Agricultural Sales to Marketing Boards (1980-2000).....	32
6. An Index of Domestic Food Crops Production (1980=100), 1980-200.....	33
7. An Index of Domestic Production of Export and Industrial Crops (1980-2000)..	33
8. Cereal Yield (Tones Per Ha) ,1980-2000.....	34
9. Industrial Crops Yield (1980 – 2000).....	34
10. Agriculture Education and Health Share of Total Public Expenditure (1980-2000).....	44
11. Recurrent and Development as Share of Total Agricultural Expenditure (1980-2000).....	46
12. Fertilizer Imports Versus Production of Maize, Wheat and Rice (1990 – 2002).....	54
13. Agricultural Imports as Percentage of Exports (1990-2002).....	57
14. Price Per Ton of Maize Wheat and Rice in The US and Kenya (1991-2000).....	58

Annex I.

Performance and Constraints of Major Agricultural Products in Kenya

1.1 Maize Production

Maize is the primary staple food and is most important in terms of food security, as it accounts for over 80 percent of the total cereals produced in the country. It is a traditional smallholder crop, and provides nearly half of the calories and usable protein available to Kenyans. The national average maize yields are estimated at 1.8 tonnes per hectare, which are low by international standards. The potential exist to increase yield to over 6 tons per hectare as evidenced in high potential maize zones where farmers have achieved between 4 and 6 tons per hectare. Several constraints affect maize production including frequent drought, poor extension services, high post-harvest loses, lack of working capital to purchase yield enhancing inputs like fertilizer, seeds, chemicals, diesel and lack of credit [GoK, 2002]. Higher yields can be achieved through strategies that include: sustained adoption of high yielding varieties; optimal use of fertilizers; improved seed quality assurance; and the intensification of research on high yielding and drought resistant maize varieties [GoK, 2002; Makokha, 2001].

1.2 Wheat Production

Wheat is the second most important cereal crop grown in Kenya by both small and large-scale farmers. Production takes place in plots of less than two hectares for the case of small-scale farmers as compared to more than two hectares for the large-scale farms. Average wheat yields are about 1.78 tons per hectare. Yields vary greatly between small-scale and large-scale farmers. Both small and large-scale farmers have achieved yields as low as 0.45 tons and as high as 2 tons per hectare. There is however, potential for raising yields to about 2.5 tons per hectare.

Several constraints affect wheat production including: high post-harvest loses, subdivision of existing farms which has led to switching from wheat to maize, lack of machinery for farm operations during critical periods when required, inappropriate technologies especially for smallholder farmers, lack of access to credit to purchase inputs such as fertilizer, seeds, etc. The low fertilizer application and use of non-certified seeds, soil acidity, poor rainfall, insecurity of land tenure in new wheat areas as a result of unadjudicated lands, poor marketing services, inadequate infrastructural development such as roads, low producer prices, pest infestation and extension services further constraints production.

The policies recommended to relax constraints in wheat production are: funding and delivery of services like research, extension, credit, marketing and storage; change by the government in use of taxes and duties on imported wheat to protect inefficient producers; guarantee competitive input supply and output marketing through provision or improved infrastructure; and manage efficiently policy on wheat imports and trade policy to avoid distortions in the wheat market. On the processing and trading side, Kenya can gain advantage in the regional markets through reducing import duties on wheat imports to competitive levels with other countries in the region; reduce cost of infrastructure through increased investments; and provide information regarding regional market conditions and establishment of strong contacts in the markets.

1.3 Rice

Rice is the third most important cereal crop produced in Kenya. It is produced under irrigated and rain fed conditions. About eighty to ninety percent of the crop is produced under irrigation [Wanzala, 1993].

Rice production is constrained by conflicts over ownership of land in irrigation schemes, use of low yielding varieties especially retained seeds, high post-harvest losses, poor disease and pest control, high cost of production, and poor marketing channels, [Nyangito and Nzuma, 2002]. In order to increase rice production, the following key issues must be addressed: land ownership question, expansion of the area under irrigation, expansion of the rain fed rice growing acreage, formulate a national irrigation policy to spell out the roles of the various actors in the liberalized economy and offer extension and marketing services

1.4 Horticulture

There are over forty different types of horticultural crops produced in the country and at least 50 percent of these are exported while the rest is consumed locally, thus contributing directly to food security.

While the government should maintain its non-interference stand in the running of the horticultural sub-sector, there are some constraints that it must address in order to enhance the profitability and long-term viability of the sub-sector. These constraints include: increasing cooling facilities at the Kenyan ports, use of high quality packaging materials, increasing cargo space, reducing local authority taxation, provision of research and extension services, enforcing grades and standards, undertaking promotion, and also providing incentives such as the reduction of freight costs, allowing duty free importation of inputs so that the sector can be competitive. The government should also assist farmers to meet the maximum residue level requirement as stipulated under the WTO Agreement on Agriculture and the ACP/EU Protocols, develop market infrastructure, strengthen Kenya Plant Health Inspectorate Services (KEPHIS), and provide training to farmers.

1.5 Traditional Food Crops

Traditional food crops encompass wide range of crops such as: sweet potatoes, millet, sorghum, pulses, bananas, cassava and yams. These crops play a crucial role in food security despite the little attention given to them in terms of research, development and market promotion (MoA, 1996). While the cultivation of these crops in the high and medium potential areas of the country is declining, this is being compensated for by the expansion in the semi-arid areas. Yields per unit area tend to be low due to lack of improved varieties and agronomic and husbandry practices which arise as a result of limited research work and the past bias for high value crops. In addition, there is inadequate extension services to promote the adoption of these crops, lack of agencies to produce and market clean, pest and disease free planting materials.

The proposed measures to improve production and productivity of traditional crops include: developing suitable production technologies; creating an enabling environment for private sector involvement in new technology development; improve farmers' access to new technology packages and promoting their use; removing uncertainties in output marketing and pricing; establishing efficient external trade policies; encouraging processing, and increase research funding to establish what other use can be made to the produce.

1.6 Oil Crops

A number of different kinds of oil crops are grown in Kenya including: sunflower, cotton, simsim, coconut, groundnut and soyabean, [Gitu et al 1990]. There is a widespread production of these crops in Kenya even though the potential to grow them in the lower rainfall areas remains unexploited indicating that with appropriate domestic policies, Kenya can increase her production thus reducing excessive dependency on imported oils and fats which comprises 90 percent of edible oil requirements.

Production of non-traditional oil crops such as *vernonia galamensis* ought to be enhanced especially in the ASAL areas as they do well. The seeds of this plant germinate easily and have an oil and protein cake content of 42 and 40 per cent respectively. The crop has also multiple potential including used as a reactive diluent to replace solvents in plants, plastics etc and as a binder for biodegradable pesticides.

Constraints in this sector include: low producer prices; lack of high yielding varieties; lack of promotion of small scale oil processing; lack of knowledge of agronomic practices, poor pest and disease control methods; scarcity of quality seeds; and, in levels of research and extension outreach to oil crop farmers.

The strategies to promote the local oil crops production would include need to: provide high yielding seed varieties to farmers; promotion of high yielding varieties and improved extension services.

1.7 Tea

The tea sub-sector has a high potential for expansion. Strategies to improve both production and productivity should include: venturing into the emerging markets of Eastern Europe, expansion of the existing factories and building new ones to cope with increased production, development of infrastructure, research into high yielding drought and frost resistant varieties and export branded tea as opposed to bulk tea¹³.

1.8 Coffee

Coffee is the third most important export crop after tea and horticulture. It accounts for 15 and 0.97 percent of agricultural export and total export respectfully. Both smallholders and estates produce coffee. While acreage under coffee has increased for both producers, yields indicate a very serious downward trend. Yields per hectare for the estates have declined from 1.25 tons in 1980 to 0.67 tons in 2000 whereas it dropped from 0.73 in 1980 to 0.19 tons in the case of smallholder in the same period.

Constraints in coffee production include: high prices of farm inputs; lack of access to credit; low coffee payments due to high processing costs in the cooperatives and high marketing costs by the Coffee Board of Kenya; inadequate extension services to coffee farmers and lack of resources by extension staff for effective dissemination of the technical information on coffee farming; inadequate yield-enhancing technologies in coffee production; and legal and regulatory constraints that have limited intercropping and prohibited uprooting of coffee without authority of the board. Removal of these constraints will increase production and productivity thus making coffee production more competitive.

¹³ Blended tea venture six times more than bulk or unblended tea.

1.9 Cotton

Cotton is grown in fairly marginal environment. Area under cotton production has been declining since 1980. Cotton yields have averaged about 0.55 bales per hectare with the highest yields of 1.23 bales per hectare obtained in year 2000.

Constraints faced by cotton farmers include: poor seed quality and inadequate multiplication, limited funds for research and extension services to farmers. The survival of cotton ginneries will only be achieved if resources are spent on seed multiplication and certification system as Kenya has abundant ginning capacity. To sustain and arrive at self-sufficiency in cotton production, the Kenya government and the Cotton Board have been trying to provide incentives such as free seeds, inputs on credits and have also continued to control prices despite liberalization.

The policy options available for the survival of cotton industry include: investment in seed multiplication and certification process to enable Kenyan cotton to compete both in price and quality; active participation by the public sector in ensuring seed quality assurance and certification; encouragement of private sector to multiply and distribute certified seeds; leave seed cotton marketing and ginning process to market forces; repeal the Cotton Act (Cap. 335 No 3 of 1989, Revised 1990) to legalize the current free marketing system; and, disband and replace the Cotton Board by a small organization with representation of the private sector farmers institutions, producers, ginners and public sector representatives.

1.10 Pyrethrum

Kenya produces over 80 percent of world pyrethrum extracts. Production is concentrated in the highland zones where temperatures are cool and solar radiation is high. Pyrethrum is a smallholder's crop. Major inputs include planting materials and labour for planting, weeding and picking.

The Pyrethrum Board of Kenya (PBK) is a state monopoly that provides farmers with planting materials on credit, although there is an active private market in planting material, and farmers can keep and re-use their own. Dried flowers from all producing areas are delivered to the PBK plant at Nakuru, where chemical processes are used to extract concentrated pyrethrin as well as a number of useful by-products such as pymarc, which is an animal feed and other by products used to treat wood and make mosquito coils. Traditionally, the main market has been in the major industrialized countries. However, demand is now growing in Asia, Africa, Eastern and South America.

Major challenges to pyrethrum production include: poor marketing channels; poor prices; increase in competition in synthetic pyrethroid production that leads to new and safer products and delays in payments. Proposed strategy to improve performance of pyrethrum industry are: aggressive marketing to open up new markets, liberalization of the industry to remove inefficiency created by the monopoly, increase funding for research and extension and timely payment to the farmers.

1.11 Livestock

The livestock industry is the largest sub-sector in agriculture contributing 40 percent of agricultural GDP and 10 percent of total GDP. It employs over 50 percent of the agricultural labour-force. Additionally, the sub-sector contributes to household income through sale of livestock and livestock products, provides raw materials for agro-industries, and generates foreign earnings through exports. The sub-sector also provides raw materials for local dairy, meat and meat processing industries as well as hides and skins for tanneries, wool and hair. The

subsector therefore, has both direct and indirect contributions to sustainable development and food security. The role of livestock is more important in ASAL areas which occupy about 84 percent of Kenya, but where crop agriculture is marginal. Indigenous livestock provides an opportunity in these areas because of their adaptivity, [Mugivane and Kosura, 2001].

Cattle, both beef and dairy, are the most important livestock species accounting for about 73 percent of the total livestock biomass, followed by the small stock of sheep and goats (19 percent), camel (6 percent) and the rest (2 percent). Kenya also produces poultry, both layers, and broilers. The section that follows discusses dairy and meat products including fish.

The dairy industry is characterized by strong private sector participation, which includes an increasing proportion number of informal marketing systems operated by small-scale marketers. Milk marketing outlets include direct selling, through cooperatives, self-help and roadside stands. The informal channels lack processing, preservation and storage facilities as well as quality control capacities. This sector remains fairly uncoordinated and offers varying product prices, [Mugivane, Mwai and Kosura, 2001]. The key players in the milk marketing are the private milk processors. But because the private processors tend to concentrate on areas near the urban centres, farmers far off in the interior are unable to sell their milk. In order to improve dairy production a number of strategies are suggested including the need to: facilitate the development of producer organizations; improve transport and processing infrastructures including roads, cooling and processing facilities; improve dairy cattle genetic base; improve the Artificial Insemination (AI) delivery system; and, improve disease control.

The meat sub-sector is dominated by red meat (beef and mutton). Most of the red meat and products are produced in the arid and semi-arid lands under pastoral conditions. Red meat contributes about 70 percent of the meat consumed locally while white meat comprising of pork and poultry make the remaining 30 percent. As noted earlier, there is considerable potential for increased meat production, which would in turn imply increased food security, employment and incomes. Several constraints impede the development of the meat sector, including: poor marketing infrastructure (roads, storage and slaughter facilities) which forces animals to trek long distances resulting in weight loss, hence reduced profitability; inadequate control of communicable diseases like rinderpest and foot and mouth, due to lack of enforcement of the established disease control rules such as quarantine in case of a disease outbreak; poor extension services; and insecurity due to cattle rustling in the livestock producing areas and marketing routes.

A number of strategies have been suggested in order to improve the meat sub-sector. These include the need to: intensify animal feed production; improve marketing infrastructure and livestock extension service; facilitate the private sector to improve livestock marketing through setting up of small abattoirs and storage facilities in the producing areas; reactivate regional approach to the management of tick-borne disease and Trypanosomiasis; rehabilitate existing dips and facilitate the construction of more dips particularly in the ASAL and strict enforcement of the provisions of Animal Disease Act for compulsory vaccination, notifiable diseases and imports of livestock and livestock products [GoK 2000, Gitu and Kanyua 1993].

1.12 Poultry

The poultry sub-sector can be divided into commercial and subsistence farming systems. Commercial farmers who are usually located in peri-urban centers keep hybrid chickens, both broilers and layers, while subsistence farmers keep indigenous chicken whose productivity is

very low. Indigenous chickens can be found in almost every homestead in the rural areas and account for about 75 percent of the total poultry population.

Commercial poultry and eggs production in Kenya began as an extension of flocks kept for domestic consumption. The development of modern hatcheries, the importation of high quality day old chicks, improved feeds and better health care has led to specialized broiler and layer operations. Commercial poultry farmers are heavily dependent on the existing hatcheries for day old chicks.

Constraints include: high initial capital outlay for commercial poultry farming; high feed cost, disease epidemics, and little accessibility of extension services to poultry farmers. The strategies required to improve poultry production would include: provision of capital to the farmers, farmer training, reduced feed cost, marketing services, provision of veterinary services and development of high breed variety to increase both yield of eggs and quality of broilers.

1.13 Fish Industry

Fish is an important and reliable source of protein, employment and income for a large proportion of Kenyans. Several constraints hinder the development of the fish industry including poor infrastructure that comprises access roads, power, cold storage and, underdeveloped landing beaches and jetties, poor extension services; inadequate facilities for quality assurance; heavy post harvest losses; and discharge of industrial waste into the water bodies leading to reduction of fish due to pollution. Fish production can be increased through the intensification of fish farming using green house technology at the household or farm level and in tanks using gravity red water systems; promoting the production of salt-water marine products like shrimps; encouraging through economic incentives the private sector to develop, manage and maintain landing beaches, establishing cooling and processing facilities; developing and enforcing legislation of fishing gear and trawling; and establishing Fisheries Development Board to promote, develop and regulate the fish industry [GoK, 2001].

1.14 Forestry and Logging

Kenya's forest and major woodlands occupy approximately 2.4 million hectares of which 1.64 million hectares is gazetted (National Museums of Kenya 1992). Cypress, pine and eucalyptus are the main species grown. Between 8,000 and 15,000M³ of timber is annually exported mainly to Middle East while the average import duties on wood and wood charcoal is 21.3 percent. Forests are a major habitat for wildlife, which are vital for the tourism industry. The main forest ecosystems include: moist highland forest; dry forest; tropical rain forest; coastal forest; riverine and mangrove forests. The closed-canopy forest complex is about 1.4 million hectares with 0.18 million hectares outside the gazetted reserves. The closed-canopy indigenous forest covers 1.2 million hectares while industrial plantation forest area is estimated to be 160,000 hectares.

Constraints impeding this sector are: encroachment of forest land by people for agricultural farming; settlement of the landless people; increasing need of forest products; excision by the government; absence of a concise national land use policy; population pressure, climatic change, depletion of hard wood stocks, inaccessibility to some sources leading to over harvesting in accessible areas, low optimal usage due to lack of integrated forest industries, low technological and labor inadequacies leading to low recovery rates of 30-40 percent, pollution caused by residue disposal problems and specific supply shortages of important types of wood such as wattle.

Nevertheless, the Kenyan government has been trying to contain the management of forests through the creation of a plan and development programmes. For instance, the Kenya Forestry

Master Plan (KFMP), which addresses issues such as: conservation of diversity; forest management and protection of forest against pests, diseases and fires. Alternatively, the Kenya Indigenous Forest Conservation projects promote the joint management of forestry resources by adjacent communities, the private sector and the government. The means for financing the upgrading of equipments used in the forestry sub-sector are under study while at the same time, the government is drafting a new Forest Act to implement the Forest Policy (based on the KFMP) approved in 1996. Furthermore, exploitation of indigenous timber has been banned and the export of wood is prohibited. Other strategies include: Restructuring wood procurement practices to encourage integrated harvesting to facilitate optimal allocation of logged wood to industries, formulating policies to encourage investment in pulp, paper and mechanical wood industries. The plan is also putting in place strategies to address shortcomings in wood supply and provide legal framework to enforce supply and utilisation decisions, formulate specific programs to encourage farm forestry among the small holder farmers to increase wood supply, and undertake an analysis of the forestry department assessing its capacity and capability to manage forest resources and the recommendations implemented.