



REPUBLIC OF KENYA  
MINISTRY OF AGRICULTURE, LIVESTOCK AND FISHERIES  
STATE DEPARTMENT OF LIVESTOCK

# SESSIONAL PAPER No. 5 of 2013 ON THE NATIONAL DAIRY DEVELOPMENT POLICY

*Towards a Competitive and Sustainable Dairy Industry  
for Economic Growth in the 21st Century and Beyond*



REPUBLIC OF KENYA  
MINISTRY OF AGRICULTURE, LIVESTOCK AND FISHERIES  
STATE DEPARTMENT OF LIVESTOCK

# SESSIONAL PAPER No. 5 of 2013 ON THE NATIONAL DAIRY DEVELOPMENT POLICY

*Towards a Competitive and Sustainable Dairy Industry  
for Economic Growth in the 21st Century and Beyond*

# Table of Contents

<b>ACRONYMS</b>	<b>iv</b>
Foreword	v
<b>CHAPTER ONE: INTRODUCTION AND BACKGROUND</b>	<b>1</b>
1.1. Introduction	2
1.2. Historical Perspective	2
1.2.1. The Colonial Period (1900-1962)	2
1.2.2. Post-Independence and Market Control Period (1963-1989)	3
1.2.3. Dairy Market Liberalization Period (1990 and Beyond)	3
<b>CHAPTER 2: THE POLICY CONTEXT</b>	<b>4</b>
2.1. Introduction	4
2.2. Policy vision	5
2.3. Policy mission	5
2.4. Policy goals and objectives	5
<b>CHAPTER 3: CHALLENGES AND POLICY INTERVENTIONS</b>	<b>6</b>
3.1. Introduction	6
3.2. Dairy Production	6
3.2.1. Breeding	7
3.2.2. Animal Health and Veterinary Services	8
3.2.3. Dairy Feeds and Feeding	8
3.2.4. Extension and Advisory Services	10
3.2.5. Dairy Research and Development	11
3.3. Milk Marketing, Dairy Business Environment and Value Addition	11
3.3.1. Dairy Business Environment	12
3.3.2. Milk collection	12
3.3.3. Milk Cooling and Grading	13
3.3.4. Milk Processing and Packaging	13
3.3.5. Quality Control and Assurance	14
3.3.6. Informal Milk Marketing	15
3.3.7. Imports and Exports	15
3.4. Market Stabilization and Milk Strategic Reserves	16
3.5. Consumption	16
3.6. Human Resource Development	16
3.7. Dairy Industry Information	17

<b>CHAPTER 4: CROSS CUTTING ISSUES</b>	<b>18</b>
4.1. Environment	18
4.2. Gender and Youth	18
4.3. HIV/AIDS	18
4.4. Land	18
4.5. Water	19
<b>CHAPTER 5: INSTITUTIONAL FRAMEWORK</b>	<b>20</b>
5.1. Introduction	20
5.2. Kenya Dairy Board (KDB)	20
5.3. Dairy Co-operatives	20
5.4. Dairy Sector Financing	21
<b>CHAPTER 6: SUMMARY TABLE SHOWING THE PROPOSED POLICY INTERVENTIONS</b>	<b>22</b>

# Acronyms

<b>AI</b>	Artificial Insemination
<b>AFC</b>	Agricultural Finance Corporation
<b>AIDS</b>	Acquired Immune Deficiency Syndrome
<b>AKEFEMA</b>	Association of Kenya Feed Manufacturers
<b>ASAL</b>	Arid and Semi Arid Lands
<b>KAGRC</b>	Kenya Animal Genetic Resource Centre
<b>DANIDA</b>	Danish International Development Agency
<b>ERS</b>	Economic Recovery Strategy
<b>FAO</b>	Food and Agriculture Organization
<b>FTC</b>	Farmers Training Center
<b>GOK</b>	Government of Kenya
<b>HIV/AIDS</b>	Human Immune-deficiency Virus / Acquired Immune Deficiency Syndrome
<b>ICT</b>	Information and Communication Technology
<b>KCC</b>	Kenya Cooperative Creameries
<b>KDB</b>	Kenya Dairy Board
<b>KDPA</b>	Kenya Dairy Processors Association
<b>KENFAP</b>	Kenya National Federation of Agricultural Producers
<b>KNAIS</b>	Kenya National Artificial Insemination Service
<b>LME</b>	Liquid Milk Equivalent
<b>MT</b>	Metric Tons
<b>NGO</b>	Non - Governmental Organization
<b>OIE</b>	World Animal Health Organization
<b>SRA</b>	Strategy for Revitalization of Agriculture
<b>UHT</b>	Ultra Heat Treated
<b>VAT</b>	Value Added Tax
<b>WTO</b>	World Trade Organization

# Foreword

This policy document is a result of various consultations among stakeholders who participated in the review of the Dairy Policy that was launched in 1993. It addresses the challenges and shortcomings arising from the liberalization policies of the 1990s. The document is consistent with the Government economic blue print, the Kenya Vision 2030 and the sector-wide Agriculture Sector Development Strategy (ASDS) for the period 2010-2020. It is also developed within the framework of the Sessional Paper No. 2 of 2008 on the National Livestock Policy.

This policy framework recognizes stakeholders in the dairy industry and defines their respective roles. It takes cognizance of the seasonal variations in the production and supply of milk and milk products, among other challenges and proposes interventions to address the challenges.

The policy covers issues of production, marketing, quality control, standard, consumer safety, consumption, promotion of Kenyan dairy products export among other. In developing this policy, it is recognized that dairy is mainly practiced in the medium to high potential areas which form 20% of the Kenyan landmass where exotic dairy cows and their crosses are predominant. It should also be recognized that, 80% of Kenya is Arid and Semi-Arid (ASALs) where livestock production is main economic activity and milk is an important food in terms of nutritional value and as a source of income.

The realization of the objectives in this Policy will depend on several factors such as formulation, review and implementation of related policies on breeding, supply of animal feeds, livestock disease management effectiveness of the cooperative sector, public health, extension, research services, and milk processing among others.

The policy recognizes the potential of other livestock species such as goats, sheep, camels and other that contribute towards increased milk production. It is expected that the changes envisaged in this policy will revitalize the industry and sustain the dairy sector as a major economic activity in the country that enhances Kenya's leadership position in the region.



Felix K. Koskei  
CABINET SECRETARY

# CHAPTER ONE: INTRODUCTION AND BACKGROUND

## 1.1. Introduction

Kenya is one of the largest producers of dairy products in Africa with a dairy herd of about 3.5 million exotic cattle, 14.1 million indigenous cattle, 27.7 million goats, and 2.97 million camels (2009 census). Cattle account for approximately 88% of the milk produced in Kenya while camels and goats contribute the rest. The country has the highest per capita milk consumption in Africa with a consumption rate of about 100 kg per capita annually compared to an average of 25 kg per capita for Sub-Saharan Africa. This falls short of the global annual per capita milk consumption requirement of about 220 Litres per capita. The Kenya dairy industry was liberalized in 1992 and the liberalization led to the rapid growth of the informal milk trade which mainly deals with marketing of raw milk. This market controls an estimated 80% of milk sold in Kenya and the situation poses major challenges of quality control and standard enforcement.

In the past, dairy farming focused on increasing the market share of pasteurized milk and value addition while attempting to address potential public health risks of consuming raw milk. The legislation passed in 1958 created the Kenya Dairy Board (KDB) with the mandate of regulating milk marketing, encourage private investment and production of quality milk. However, with the growth of the economy and a new constitutional dispensation, new challenges have emerged necessitating the review of KDB's role in the dairy industry

On-farm milk production in Kenya has remained relatively low due to, inadequate feeding, poor animal husbandry, low quality feeds, declining genetic base, animal diseases, effects of climate change, diminishing land sizes, among others. Similarly, primary marketing of milk has faced infrastructure bottlenecks such as poor road networks and lack of cooling/storage facilities causing losses of approximately 3% of total milk produced during flush periods.

Milk processing continues to face a number of challenges despite the revival of the Kenya Co-operative Creameries (KCC). The collapse of KCC in the 1990s left farmers with limited outlets for milk marketing, a move that attracted private investors into the industry most of whom have since wound up, leaving behind unpaid milk deliveries. The turbulence in the industry led to underutilization of the countries milk processing infrastructure with approximately 50% of the installed milk processing capacity being utilized.

Kenyan Economy has experienced a tremendous growth over the last 10 years and increased milk production accompanied by entry into regional markets such as East Africa Community (EAC) will spur growth of the dairy industry, resulting in increased returns for dairy farmers. The expected growth will further lead to increased domestic consumption of processed milk and milk products therefore; the country will need a good breeding policy, which can promote a vibrant domestic livestock breeding industry to diversify and promote exports of Animal genetic resources.

The dairy industry policy was last reviewed in 1993 and over the years, new opportunities and challenges have emerged in the industry necessitating the need for a current and accommodative dairy policy. It is expected that the interventions proposed in this policy will address these challenges and opportunities to realize a vibrant dairy industry in Kenya will be utilized.

## 1.2. Historical Perspective

### 1.2.1. The Colonial Period (1900-1962)

For years, Kenyans have practiced dairy farming and milk has been an important part of their diet. However, commercial dairy farming was introduced in Kenya by colonialists in 1900. They imported dairy breeding stock from England, Australia and South Africa and bred them with the local Zebu and Boran in order to boost milk production and enhance disease resistance. As a result, dairy farming became a viable agribusiness in the Rift Valley in the then known as the White Highlands. In 1925, KCC was formed with an aim of processing and marketing milk produced by the settler dairy farmers. Indigenous Kenyans were not allowed to engage in commercial dairy farming until 1954 when a production quota was allocated to them by the Swynnerton Plan. In 1958, Kenya Dairy Board (KDB) was established in order to enforce regulations in milk marketing.

### 1.2.2. Post-Independence and Market Control Period (1963-1989)

There were major land ownership reforms in Kenya immediately after independence that resulted in acquisition of large-scale agricultural farms from the white settlers by the small-scale farmers. This was followed by sub-division and distribution of these farms to small-scale farmers who started engaging in dairy production. In 1964, the Dairy Industry Development Commission, chaired by the retired President Mwai Kibaki opened up KCC to all dairy producers by abolishing the milk delivery quota system. The move led to expansion of the KCC processing plant in addition to installation of milk cooling plants countrywide. These changes coupled with other incentives from Government resulted in small-scale farmers gradually taking the lead in the development of market oriented dairy production.

After independence, the Government maintained policies inherited from colonial government, which included provision of extension services, tick control, livestock credit, veterinary services and Artificial Insemination (AI) services. The policies resulted in the creation of Kenya National Artificial Insemination Service (KNAIS) in 1965 whose role was to boost provision of Artificial Insemination (AI) services at subsidized prices. The industry responded positively resulting in a large dairy herd and increased milk production.

### 1.2.3. Dairy Market Liberalization Period (1990 and Beyond)

This period led to liberalization of the dairy industry which was accompanied by policy changes. The policy changes led to institutional changes in the dairy subsector, leading to increased private sector participation and Government divestiture. Services such as Artificial Insemination (AI), veterinary clinical services and tick control (dipping) were liberalized in 1991, in line with Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth. The removal of the Government supported services led to the decline in the performance of the dairy industry. Majority of farmers could not afford AI, dipping and clinical services due to the high cost of services. As a result, small scale farmers reverted to using bulls for breeding leading to low quality stock and a decline in milk production.

In 1992, milk marketing was liberalized following recommendations in the Dairy Master Plan (1991). The move ended the monopoly of KCC in milk marketing and other milk processors were licensed by KDB. New markets for raw milk were opened within the urban and peri-urban areas. The Government reacted to the challenges arising from liberalization by preparing the Dairy Development Policy of 1993 which allowed the government to slowly withdraw its services in the dairy sector. It also intensified the dairy production systems in non-traditional areas to boost milk production.

Due to political interference and poor management, KCC could not cope in a liberalized market. By 1999, KCC was bankrupt and on the verge of collapse, weighed down by debts they owed farmers and suppliers. Farmers were left with no alternative other than selling their milk to the informal market and other private processors. Some of the private processors collapsed and millions of shillings owed to farmers were not paid. The situation led to excess milk supply and lack of reliable marketing infrastructure. As a result, milk farm gate prices reduced affecting the viability of the dairy enterprise. The dairy producers were unable to invest in production of enhanced inputs like nutritive feed and improved genetics and the return from milk sales were low. Milk collection became erratic leading to huge losses on the dairy producers.

The inefficient and unreliable milk marketing system gave rise to alternative marketing channels such as cooperatives and itinerant traders hawking milk in urban areas. The industry could not address the challenges of liberalization while the private sector failed to cater for support services such as supply of inputs, breeding, veterinary and credit services.

# CHAPTER 2: THE POLICY CONTEXT

## 2.1. Introduction

The Poverty Reduction Strategy Paper (PRSP) of 2000 formed the foundation for Economic Recovery Strategy (ERS, 2003–2007) for Wealth and Employment Creation. In the latter strategy, the Government committed itself to the revitalization of the dairy industry through agricultural development. ERS, 2003–2007 further identified the agricultural sector as key pillar to reviving economic growth, in Kenya. This led to articulated of the sector-wide Strategy for Revitalizing Agriculture (SRA, 2004-2014). The revitalization period ended earlier than anticipated (2008) and the Agricultural Sector Development Strategy (ASDS 2008-2020) was developed in 2008. The vision of ASDS 2008-2020 is to make Kenya a food-secure and prosperous nation. The goal is to achieve an average growth rate of 7 per cent per year over the next 5 years. The mission is to encourage innovative and commercially oriented agriculture.

SRA envisaged evolution of a globally and regionally competitive agricultural sector through producers accessing quality inputs and services. However, quality inputs and services can only be attained if stakeholders play their roles effectively. SRA envisages government role as being limited to making policy. It emphasizes separation of policy-making, regulation, commercial functions and service delivery. These principles have major implications for the roles and functions of institutions in various stages of the dairy industry development and value chain. In addition, the National Livestock Policy (NLP 2008) provides an overarching policy framework for the entire livestock sector, including the dairy industry. The new policy articulates and applies these principles to different segments of the dairy industry.

In 2012, milk consumption in Kenya was about 4 billion liters. The consumption is estimated to rise by 3 to 4% annually driven by increases in population, urbanization and income. It is anticipated that by the year 2018, the consumption will rise to 4.7 billion litres. Currently, it is estimated that the annual per capita milk consumption is 120 litres. This is below the recommended annual per capita milk consumption is 220 litres (FAO), therefore; milk consumption should be promoted in Kenya. Kenya produces about 5.2 billion litres of milk annually. Milk production is projected to grow by 4.5 to 5 % annually for the next ten years and it is envisaged to increase to about 12 billion litres by the year 2030. This is a clear indication of the dairy production potential in Kenya.

The focus of this policy is to create the necessary framework, institutions, and appropriate relationships for an efficient dairy industry. The anticipated growth can only be achieved if proper marketing channel are established and they are properly managed. Processing of long shelf life dairy products provide an opportunity for marketing the surplus milk, therefore; there is need to promote exportation of milk and milk products in the region and even beyond.

## 2.2. Policy vision

To develop an efficient and an internationally competitive dairy industry

## 2.3. Policy mission

To develop and promote a self-sustaining dairy industry

## 2.4. Policy goals and objectives

The goal of this policy is to improve the livelihoods of Kenyan dairy industry sector actors in line with the Millennium Development Goals (MDGs) and vision 2030. This can be attained through putting in place enabling policy and legal environment as envisaged in this policy document. This will translate into increased dairy sector productivity leading to national food security, increased incomes and economic growth. The specific objectives of this Policy are to;-

- (i) Improve the productivity and competitiveness of Kenya's dairy and dairy Products
- (ii) Positively contribute to the livelihoods of milk producing households
- (iii) Increase domestic consumption of milk and milk products.
- (iv) Contribute to national food security.
- (v) Transform the industry into an exporter of dairy animals and products.
- (vi) Maximize dairy exports in the regional and global markets.
- (vii) Re-orient milk processing towards long life dairy products.

# CHAPTER 3: CHALLENGES AND POLICY INTERVENTIONS

## 3.1. Introduction

For decades, Government policy on dairy development focused on promoting milk production with limited emphasis on processing, marketing and consumption. This phenomenon necessitates a policy shift towards prioritizing consumer requirements, exploitation of external markets and the placement of premiums on efforts to increase dairy productivity, quality control and efficiency. An increased and sustained dairy industry will require a diversified milk source. Previous dairy policies and other interventionary initiatives emphasized on dairy cattle and little attention to other milk-producing livestock species, such as goats, sheep, camels and others. Dairy goats and camels contribute up to 16% of the total milk production in Kenya. The multiplication facilities for goats, camels and other milk producing species have received inadequate attention and are unable to meet dairy producer's requirements. The development of these alternative milk species, require strengthening of the corresponding upgrading aimed at promoting the species as alternative sources of milk.

This policy examines how the dairy value chain can best meet consumer needs at affordable prices while ensuring acceptable returns to the entire actor in the value chain. For this reason, this policy brings out the interventions by the government together with stakeholders in the dairy industry. These interventions cover dairy production and research, extension, marketing of milk and milk products, milk processing, milk consumption, human resource development and training, financial services, institutional, legal and regulatory issues.

## 3.2. Dairy Production

The average productivity per cow in Kenya is estimated to be 7-8 litres per day. The average production per lactation is between 2,000 litres and 2,400 litres. These figures are low compared to the leading global productivity per cow of 60 litres per day and 18,000 litres per lactation. The low productivity is attributed to inadequate feeding, inadequate and inefficient breeding services, inefficient dairy research, poor animal husbandry, inadequate extension and advisory services, low quality feeds, environmental, socio-economic/cultural factors, ineffective disease control and veterinary services, poor infrastructure, high cost inputs and/or labor among others. Poor access to output markets also contributes to low incentive in increased dairy production.

### 3.2.1. Breeding

The dairy sector in Kenya has in the past experienced reduced productivity partly due to a declining genetic base, among a host of other factors. Early success, through widespread adoption government backed Artificial Insemination (AI) led to increase of the number of Artificial insemination with a high of 579,000 inseminations in 1979 and a low Artificial inseminations of 68,339 inseminations in 2002. The service was revived after liberalization and the numbers of inseminations have increased from 68,339 in 2002 to 233,384 inseminations in 2012. It is estimated that Kenya needs at least 1 million AI services annually to achieve the policy targets. A part from AI services, there is need for the government to emphasize on alternative breeding methods such as assisted reproductive technologies (ARTs) including sexed semen and embryo transfer to fast track heifer multiplication for local and regional requirements. For ASAL areas, there is need to promote selective breeding and upgrading of the local herd towards development of locally adaptable breeds for dairy production.

The bulk of the costs in AI services relates to the cost of getting the semen to the cow and not the semen or the nitrogen in cooling kits. Following the withdrawal of the Government backed AI services in 1992, the usage of the AI services declined. Farmers resorted to use of bulls for breeding purposes which pose of challenge of inbreeding and breeding diseases. The policy is expected to promote farmer, private and/ or cooperative-based AI provision. The Government will retain the supervisory and regulatory roles in the provision of AI services. The Government will make concerted effort to increase the number of trained artificial inseminators, whose numbers have dwindled over the years.

In this regard, the Government together with the private sector including non-governmental organizations (NGOs) will empower inseminators through training and provision of equipment. The training will entail a harmonized AI training curriculum. It is anticipated that the Gazettement of the national AI syllabus will encourage inseminators to seek further training and certification. Currently, there are a number of institutions both private and public which are involved in dairy animal breeding, however; they are not working in harmony towards the national breeding objectives. Therefore, there is need to promote collaboration amongst the various actors in dairy breeding.

Declining genetic pool is a result of poor record keeping by farmers and little emphasis on animal registration has negatively affected the dairy industry. This has led to production of poor quantity and quality breeding stock resulting from inadequate nutrient uptake, poor housing, other routine management activities and high mortality rate of the young stock. These challenges accompanied by the low numbers of replacement stock can only be addressed when the government promotes good animal husbandry and breeding practices that target development of young breeding stock.

To address these shortcomings, the government undertake to;

*Audit all institutions involved in dairy animal breeding, harmonize and consolidate their functions. Encourage good animal record keeping and registration by strengthening the consolidated and harmonized breeding institutions and breed societies.*

*Strengthen the Kenya Animal Genetic Resource Centre (KAGRC) through capacity development in term of laboratory networks and establishment of satellite bull stations.*

*Strategically manage and maintain the national livestock gene pool under a national gene bank. Ensure that there is linkage between breed societies, private breeding organizations, individual breeders and KAGRC.*

*Strengthen the breeder societies, Dairy Recording Services of Kenya (DRSK), and the Kenya Stud Book (KSB).*

*Restructured and equipped the department of Veterinary Services (DVS in order to effectively handle the breeding regulatory functions).*

### 3.2.2. Animal Health and Veterinary Services

Efficient and reliable animal health services are crucial to a vibrant dairy industry. Dairy animal productivity and profitability are dependent on effective disease surveillance control. Kenya inherited a system of disease control, which was based on availability of veterinary services. The services were supplied by both public and private veterinary professionals. The system gives the Director of Veterinary Services (DVS) power to carry out disease surveillance and control the spread of diseases, mount campaigns to contain diseases and control movement of animals. This enabled Kenya to maintain Disease Free-Zones (DFZ), export live animals and animal products worldwide. The National Livestock Policy of 2008 provided the direction for the delivery, management and funding of veterinary services and disease control.

Among diseases that hinder dairy industry development include Bovine Pleuro-Pneumonia (CBPP), East Coast Fever (ECF), Foot and Mouth Disease (FMD), mastitis, breeding diseases (Brucellosis, trichomoniasis) and Trypanosomosis. Apart from the above diseases, Tick borne diseases are costly for the dairy industry in Kenya. Although the Government withdrew from the management of dips, the performance of community-based dips has been of highly variable quality. In a desperate move to battle the tick borne diseases, some dairy producers have resorted to individual spraying of their animals, using non-recommended pumps instead of the communal dips where management has been poor resulting in abuse of acaricides. The Cattle Cleansing Act (CAP 358) emphasizes regular dipping as a requirement for tick control.

Legislation providing sanctions exists but is rarely enforced on those who do not control ticks on their animals. The same applies to livestock movement restrictions that are routinely ignored. This results in increased tick and disease pressure on dairy farmers. In addition to cattle cleansing Act (Cap 358), there are over 16 Acts of Parliament that affect animal health and veterinary service delivery in Kenya. Two of these have major impact on the veterinary profession, namely the Veterinary and Para-professional Act No.29 of 2011 act of 2012 and Animal Technicians Act No. 11 of 2010. The cattle Cleansing Act specifies dipping as a must for tick control but does not recognize other tick control methods. These legislation needs to be harmonized for better delivery of animal health services. In this regard, the Government will amend The Cattle Cleansing Act to provide for other acceptable tick control methods. In addition, the Veterinary Department will be strengthened to enable it deal with epizootic diseases and carry out the regulatory roles. The Veterinary and Para-professional Act No.29 of 2011 act of 2012 and Animal Technicians Act No. 11 of 2010 will also be harmonized.

### 3.2.3. Dairy Feeds and Feeding

Proper feeding is paramount for dairy productivity because feeding alone accounts for about 70 percent of the farm level production costs. In Kenya, dairy is highly dependent on rain fed production of forages whose production fluctuates with seasons. During the rainy season, the quantity of forage produced supersedes the demand leading to losses, while during the dry periods severe shortages are encountered. As a result of this, milk production fluctuates over the seasons. The quality of these forages also varies with seasons where during the dry periods the quality is low. In addition,

most dairy farmers are accessible to poor types of forage decreasing cattle productivity. Livestock feed supplementation paramount for dairy productivity, however; inadequate enforcement and monitoring of animal feed supplements quality has led to the proliferation of low quality feeds in Kenya. Consequently, some farmers have moved away from commercially manufactured feed supplements to homemade rations. Whereas feed quality standards at manufacturing level have been adequately enforced by the Kenya Bureau of Standards (KEBS), the corresponding initiatives at the point of sale have remained ineffective. Association of Kenya Feed Manufacturers (AKEFEMA) was formed to foster self-regulation amongst commercial feed millers, however; it has not been effective. These challenges necessitate control of the animal feed industry.

The main constraint to adequate cattle feeding is the low quality and inadequate quantity of the available livestock feeds. High prices and falling quality standards of feed supplements has continued to be a problem in the development of the dairy sector. Use of maize as an ingredient in animal feed manufacturing presents stiff competition between man and livestock since maize is a staple food in Kenya. This makes it unavailable and expensive for feed industry. Unavailability of local sources of vitamins, amino acids, macro and micronutrients also hinders production of low priced feeds. The recent imposition of VAT on supplement feeds and minerals has further compounded the challenges of quality feeding of dairy.

*To address the challenges related to feeds, efforts will be made to ensure availability of pasture and fodder seeds by encouraging large scale range intensification and regeneration of existing pasture. The government will facilitate establishment of seed multiplication centers and expand forages production in ASALs through irrigation.*

*Dairy producers will be encouraged to conserve forages during the time of plenty to be used during the dry season. Emphasis will also be placed on the use of crop residues, silage and hay making.*

*Dairy producers will be encouraged to engage in on-farm formulation by use of Total Mixed Ration (TMR) Urea Molasses Multi-mineral Blocks (UMMBs), and feed fortification. This will help them reduce costs and wastage. Feed quality and safety issues will be addressed through producer capacity building in collaboration with KEBS.*

*The Government will also encourage co-operatives, farmer groups and other private investors to put up small feed mills and/or purchase feed mixers for making homemade ration using locally available materials.*

*Further, investments in local production of vitamins, amino acids, macro and micronutrients will also be encouraged in an attempt to reduce costs and improve feed quality.*

*The Government will introduce a legislation to strengthen monitoring of feed quality at the retail level. The changes will be targeted at the amending the Fertilizers and Animal Feedstuff Act so as to establish an Act to enhance quality control.*

*Retail inspections and information awareness campaigns will be strengthened. Association of Kenya Feed Manufacturers (AKEFEMA) will be strengthened in order to work with other stakeholders in the feed industry on self-regulation at retail level.*

### 3.2.4. Extension and Advisory Services

The government has been the main provider of extension and advisory services in Kenya, however, it is underfunded. The bulk of extension services costs are spent on staff remuneration leaving a small proportion for facilitation and infrastructure development. The staff to farmer ratio (1:5000) is also very low. This inequitable resource allocation affects basic extension services such as travel, transport, communication, demonstrations, tools to seek new information and/or adopt new technologies from research. The result has been limited follow up of extension and advisory services leading to low adoption of new dairy technologies and productivity.

In addition to the extension services provided for by the government, there are other extension service providers mainly from the research institutions, universities, development partners, NGOs, private companies among others, some of whom have not been accredited.

There are various dissemination pathways and approaches such as radio, TV, e-extension, model farm concept among others which have improved extension service delivery. In addition to above pathways, there are other infrastructure/institutions such as livestock multiplication farms, Agricultural/Pastoral Training Centres (ATCs/PTCs), Dairy Training Institute (DTI) that support extension through short topical trainings to dairy value chain actors, however they are underfunded.

*As a deliberate initiative to introduce public-private sector investment in the extension and advisory services within the dairy industry, the Government will limit its activities in dairy extension to regulatory issues. This will entail among others certification of extension agents and messages being provided by the private, cooperative and processor-controlled extension systems. With the continuing emergence of private extension service providers, this policy shift will result in a dairy industry that benefits from new and innovative pathways of extending messages in the sector, such as e-extension, TV, exchange visits, print and electronic media, radio, and farmer field schools. This transition of Government from an agent of direct provision of advisory services will be gradual and informed by well-designed exit plans and quality service delivery surveys.*

*To address the financial problems anticipated by the private extension and advisory services providers, the Government will explore ways of supporting the new providers that are expected to include cooperatives, processors, universities and retired Government extension workers venturing into private practice. The Government will develop sound legal instruments and work out modalities for such arrangements to pilot the activities in selected sub-counties and wards countrywide. National Agricultural Sector Extension Policy (NASEP) sessional No. 4 of 2011 will guide extension provision.*

*Although other extension service infrastructures, such as livestock multiplication farms and the Farmers Training Centers (FTCs), have received inadequate funding, government will endeavor to increase their funding and/or making them semi-autonomous.*

### 3.2.5. Dairy Research and Development

Adoption of dairy technologies by dairy farmers has been limited mainly due to limited involvement of the clients in prioritization of research agenda. Other factors that limit adoption of dairy technology include cost and relevance of the technology, inadequate funding and lack of a comprehensive approach to dissemination. Research in dairy has mainly focused on dairy production with limited emphasis on processing, product development and packaging. It has also been observed that dairy research has not been client-based, thereby limiting its relevance to end-users. Other challenges to dairy research are limited institutional capacity to conduct dairy research and weak networking among the various actors.

*To address the dairy research concerns, the Government will come up with a national body, whose main task would be to spearhead livestock research. The body will be known as Kenya Livestock Research Institute (KeLRI). The organization will comprise of dairy research centers that will give priority to dairy production, marketing, product development, milk packaging, dairy standards and safety. Environmental and gender issues will be considered. The capacity of the KeLRI will be strengthened through human resource and infrastructure development. The necessary funding for dairy research will come from Government grants and the dairy industry through such initiatives as commercialization of research products, including contracts and royalties, for sustainability.*

*To enhance client-driven technology development and transfer, the Government will facilitate the strengthening of research-extension-client linkage and feedback mechanisms, and also institutionalize dairy research priority setting mechanisms.*

### 3.3. Milk Marketing, Dairy Business Environment and Value Addition

Given that milk is a perishable product, efficient and orderly collection, cooling and marketing are necessary to the overall viability and profitability of commercial dairying. Milk in Kenya is mainly produced in rural areas and the ability to deliver it quickly to the consumers at minimal cost and without spoilage is of critical importance to the dairy farmer. Available statistics shows that farmers lose about 95 million litres of milk annually mainly due to spoilage in farms and wastes along the market chain. Inadequate milk preservation facilities in Kenya further undermine realisation of a significant potential in dairy production. The farmers' major concern in milk marketing is, therefore, the development of marketing channels that minimize losses and maximize returns.

### 3.3.1. Dairy Business Environment

The Government and stakeholders in the dairy industry need to develop good business ethics in dairying. Responsible business practices, contracts, contract enforcement and low cost dispute resolution mechanisms in the sector is lacking. Instances of failed and delayed payments for milk farmers have been common impacting negative to milk production.

*To address such limitations, the Government will work closely with stakeholders in the industry to address problems pertaining to dairy business environment. Areas of priority will include: - guiding the industry towards self-regulation path; development of contractual norms and corresponding legal mechanisms; establishing low cost dispute resolution mechanisms and industry codes of practice; facilitating formation of a stakeholder driven ethical committee to handle arbitration issues in the industry; facilitate organization of interest groups along the value chain to improve performance in the sector; and support setting up of an industry umbrella association within the sector where stakeholders can dialogue and lobby. A tribunal to handle livestock disputes will be established to arbitrate issues on dairy industry, among others.*

### 3.3.2. Milk collection

A predictable and well-managed milk collection system motivates farmers to increase production. Kenya's previous success in stimulating growth in the dairy industry was built on investments in the design, operation and maintenance of a well-organized and orderly milk collection system by the KCC. However, this system collapsed in the 1990s, when KCC went under receivership. This left behind an erratic milk collection system which led to entry other players in milk collection including cooperatives, private companies and informal milk traders.

Roads network particularly feeder roads also play a key role in the efficiency of milk collection. However, many roads have been inadequately maintained and most of them are in poor condition. In addition, most milk producing areas lacks milk bulking facilities and other support infrastructure such as electricity, transport and potable water.

*In order to address this challenge, emphasis will be placed on establishment, revival, and strengthening of milk marketing cooperative societies and producer/trader associations. It is expected that co-operative and farmer groups approach will facilitate setting up of rural milk collection centres in addition to enhancing promotion of responsible business practices, contracts enforcement as well as low cost and dependable dispute resolution mechanisms.*

*The Government undertakes to regularly maintain the road network including feeder roads in milk producing areas. It will further expand availability of the supportive infrastructure such as electricity and water while encouraging private sector facilitation in the endeavour.*

### 3.3.3. Milk Cooling and Grading

The bulk of marketed milk in Kenya is rarely cooled. To produce good quality wholesome milk products that can be sold internationally, a policy shift in this area is imperative. There are more than 600 milk coolers in the country; some of which are non-operational while others are operating under capacity. Despite the supply of electricity in rural areas through the rural electricity programme, the electricity installation and tariffs are high discouraging investments in milk cooling.

Many dairy farmers in Kenya live in areas which have poor roads. Often, milk collected from these areas cannot reach the processing plants within the recommended time of two to three hours, resulting in spoilage. In some inaccessible areas, afternoon milk is not collected because doing so is unprofitable. In such areas, farmers cope with the lack of preservation facilities by prolonging the duration before milking. The use of the udder as storage for milk has high negative impacts on milk production. In addition, some milk marketing agents in the remote areas tend to use illegal chemical agents to preserve milk.

Currently, milk payment is based on quantity and not quality. Milk processors do not offer premium prices based on the quality of the delivered milk discouraging farmers who are producing quality milk. Milk hygiene is affected by poor milking environment and handling. Other factors which contribute to low quality of milk in Kenya include Aflatoxin and other chemical agents. This poses risks to human health and restricts markets.

*To address constraints related to milk cooling, the Government will endeavour to speed up the rural electrification programme, especially in milk producing areas, while at the same time exploring the viability of alternative sources of energy, such as solar, wind, mini hydro plants and biofuels. Further, measures to reduce electricity tariffs will also be explored and recommended for adoption by the relevant authorities. The Government will also encourage investment in cold chain infrastructure by milk marketing cooperatives and private investors through the provision of incentives, such as tax exemptions on the necessary imported equipment. While cooling is the preferred preservation method of bulk unprocessed milk, research on other methods will be explored.*

*To initiate good business practices, the Government will encourage processors to reward milk that goes through the cold chain by applying quality based pricing mechanism. There is need also for producer groups to be supported with milk quality testing facilities such as lactoscans milk to enhance quality milk production and marketing.*

### 3.3.4. Milk Processing and Packaging

The processing sector has been relatively unstable with the entry and exit of many low capacity processors that have lack capital in addition to management incompetence. Nonetheless, the existing low capacity processors provide the necessary competition in the dairy industry. Currently, there are about 54 registered dairy processors, however; only 34 are operational. The current installed processing capacity in dairy processing is approximately 2.9 million litres per day. Most milk processors are operating at half capacity and their sales account for about 12% of fresh milk sales. The main reason for the low demand for pasteurised milk is mainly due to its relatively high price compared to the price of raw milk.

Although the active milk processors produce a wide range of products, including long-life milk and yoghurt, pasteurised milk is still the predominant consumed product. Kenya has Ultra Heat Treated (UHT) milk processing capacity of about 1.2 million litres per day, however; more than half of this

capacity is new investment by the private sector. It is expected that the enhanced use of this capacity to produce long-life products will enhance penetration of the rural and regional export markets.

*Milk packaging is a critical component in milk marketing and quality control, however; the conventional milk packaging materials are costly resulting in high and unaffordable prices of packaged milk. As a result, there is a tendency to package milk in non-food grade materials that are unhygienic and environmentally unfriendly. Moreover, there has been a shift from packaged milk to unpackaged milk in response to demands of low priced milk by the low-income groups. This has prompted health and safety concerns that need to be addressed.*

*To support and promote local milk processing, the dairy cooperatives and private sector operators will continue to benefit from tax rebates on new investments. This will include review of recently introduced value added tax on inputs (VAT Bill 2013) in addition to zero rating of milk processing inputs.*

*To address the milk packaging problem, priority areas of emphasis will be on promotion of the development and adoption of cost effective milk packaging that is of acceptable standards. Health and milk safety issues will be addressed through value chain approach in addition to mainstreaming environmental issues. The government will also explore ways and means of encouraging local initiatives and use of locally available materials in milk packaging mainly through industrial research.*

*Apart from developing innovative ways of reducing processing costs, dairy processors must actively involve producers in the collection of milk from the rural areas. In addition, producer prices based on differences in quantities and quality of milk delivered by a given client (e.g. quantity premiums) will be encouraged. Such quantity premiums will encourage large groups or co-operative societies' participation in dairy marketing in addition to improved breeding practices.*

### 3.3.5. Quality Control and Assurance

While the Government has been able to ensure proper hygiene and quality control and assurance for milk products in large-scale marketing enterprises, such assurance for dairy products handled through informal marketing channels has been elusive. Milk testing and quality control systems are critical components for the successful development of a competitive dairy value chain. The high cost of milk testing equipment, lack of proper skills on the use of this equipment, inadequate pre-harvest and post-harvest quality management systems and institutional inefficiencies are also major hindrance to total quality control and assurance in the dairy value chain.

*Consequently, priority measures will be introduced to ensure that dairy producers, processors and manufacturers have put in place quality control and assurance systems that conform to international standards. Such measures will include animal feed and input quality control, provision of incentives for milk testing equipment procurement and installation, stakeholder sensitisation on the importance of safe use of antibiotics and other veterinary drugs, milk testing training and strict enforcement of quality standards. Moreover, the relevant institutions will be supported with the appropriate legal framework to enforce quality management along the dairy value chain.*

### 3.3.6. Informal Milk Marketing

The most significant post-liberalisation development in milk marketing was the rapid growth of sale of raw milk especially in urban centres. The growth was attributed to the consumer preference for unprocessed whole milk which is 20 to 50 percent cheaper than pasteurized milk. The milk is cheaper due to fewer costs involved in its supply chain, perceived better taste (high butterfat content), and it's sold in different quantities which allow the poor communities to access milk. Consequently, it is estimated 80 percent of marketed milk in Kenya is handled by the informal traders who deal with unprocessed whole milk. This proportion is critical in milk marketing and it represents an appreciable employment opportunity, however; the manner in which the product is handled often raises public health concerns. This is mainly because there is low investment in safe milk handling skills, equipment and adherence to standards. While it is essential to promote free trade, basic standards to safeguard consumer health should be upheld all the time.

*To address the above challenges, measures to facilitate transformation of informal milk trade will be pursued. Such of measures to be pursued include: development and adoption of low cost technology for small scale dairy investors; investment in training programmes on safe milk handling, promoting synergy among the dairy industry stakeholders instituting public awareness campaigns on the dangers of drinking unprocessed milk and giving informal milk traders incentives for milk handling and setting up of milk dealer certification system.*

### 3.3.7. Imports and Exports

The role of a dairy policy is to ensure that the stakeholders within the dairy value chain are free to develop efficient mechanisms and processing capabilities to ensure adequate supply for both the domestic consumption and export. As a member of the World Trade Organization (WTO), Kenya is committed to the principles that underpin free trade. However, Kenya's participation in world dairy and food standards setting forum has been limited.

*In this regard, priority measures will include; promotion of export of dairy products in the regional and international markets; rationalising export and import of dairy products to account for production cycles; involve the dairy industry in regional and international trade negotiations; and analysing and disseminating up-to-date market information to stakeholders*

*Towards this end, enforcement of rules and regulations for domestic and imported dairy products will be strengthened, while the level of participation in the development and setting of world dairy standards will be enhanced. Kenya will endeavour to classify dairy output as a special product under the WTO and take cognisance of its significant contribution to food security and poverty alleviation. The government will further endeavor to achieve the world export standards and avoid trade of sub-standard milk and milk products in the domestic market.*

### 3.4. Market Stabilization and Milk Strategic Reserves

Dairy farmers' dependence on rain fed dairy production often leads to milk surpluses during the wet seasons and severe shortages during dry seasons. This leads to the wide variations in domestic milk supply over the years. This phenomenon demands serious attention so that the country can stabilise the supply of milk both for domestic and export market.

*In this regard, processors will be encouraged to offer premium prices during dry seasons. The priority areas include promoting processing of long-life milk products. Other areas are ensuring that dairy products are stocked in the national food strategic reserves.*

### 3.5. Consumption

Per capita milk consumption in Kenya's is among the highest in the developing world, however; there are huge discrepancies in milk consumption between rural and urban populations. This is also reflected in different income groups. The annual per capita consumption of milk in Kenya is estimated at 100 litres compared to the recommended per capita consumption of 220 litres (FAO). Studies have indicated that per capita milk consumption in Kenya is typically 45-49 percent higher for urban consumers' vis-à-vis rural consumers. Therefore; milk consumption in Kenya is skewed in favour of high-income groups, who consume about 45% of the milk sold in Kenya urban areas leaving 55% to middle income and low income groups. Milk consumption appears to be highly income elastic and can be expected to rise with growth in income per capita, population, industrialisation and urbanisation.

*The bulk of the milk marketed and consumed in Kenya is not formally processed. Consumers in rural and urban areas have adopted a number of methods to ensure that milk remains safe and wholesome, including boiling and fermentation. However, these measures do not assure the expected complete consumer safety.*

*Measures aimed at increasing per capita milk consumption among all income groups and in all areas will be improved. Such measures will include promotion of wholesome milk consumption and encouraging production of a diversified range of milk and milk products that meet the consumer tastes and preferences. In addition, there will be increased awareness on the nutritional and health benefits of milk consumption. Revival of school milk programme should be enhanced and strengthened.*

### 3.6. Human Resource Development

Human resource constitutes the primary means of realizing, building and sustaining goals and objectives of all stakeholders in the dairy industry. Capacity building is crucial for the maintenance of productivity, motivation and quality standards for both the private and public sector. The Naivasha Dairy Training Institute, Animal Health Training Institutes (AHITIs) and the ATCs/PTCs have been mandated by the Government to offer training through formal and on-the-job trainings. However, these institutions have been under-utilized due to low funding. In addition, the curriculums have not coped with the changing needs of the dairy industry. Although there is a relatively liberalized dairy industry, the institutions continue to depend on limited Government resources to build human capacity.

*In order for the dairy industry to have an adequate and competent human capacity the Government will empower agricultural colleges and universities to offer updated formal and on-the-job training. In this regard, the Naivasha Dairy Training Institute, the AHITIs and the ATCs/PTCs will be restructured and granted semi-autonomous status to enable commercialization of their training services. Further, stakeholders will be encouraged to set up their own training institutions, which will be vetted and licensed by the Government.*

### **3.7. Dairy Industry Information**

Availability and accessibility of updated dairy industry information is crucial for proper planning, management and forecasting various issues in the industry. At the moment, KDB and other stakeholders such as i-cow are piloting electronic-dairy (e-dairy) platforms for information gathering, analysis and dissemination to dairy stakeholders. However; adoption of these technologies has been limited due to lack of awareness, in addition to inadequate ICT infrastructure and skills.

*In order to establish such a mechanism for the entire dairy industry, the Government will facilitate implementation of e-dairy platforms to improve information sharing among stakeholders. A strong linkage between universities, research institutions, financial institutions, dairy farmer associations, and extension agents will be created to promote dairy production in Kenya. In addition, the Government will set up a National Dairy Information Center at KDB that will be equipped with a databank facility to collection, and disseminate up-to-date information to dairy stakeholders.*

# CHAPTER 4: CROSS CUTTING ISSUES

## 4.1. Environment

Dairy production is a major contributor to environmental and natural resources degradation through gas emissions, dairy management chemicals, poor agro-forestry practices, poor disposal of dairy by-products, products and packages, improper management of pasture and forage, overgrazing etc. Environmental concerns relating to the dairy sector, therefore, need to be addressed in order to avoid further negative impact on our environment and natural resources.

*To address the above shortcomings, the Government together with stakeholders, will fast-track implementation of climate smart technologies in the dairy sector. Other measures will include ensuring sustainable management of natural resources and environment by enforcing the Environmental Management and Co-ordination Act.*

## 4.2. Gender and Youth

Lack of access to productive resources such as land, credit, technical skills and extension services has limited participation of women and youth in dairy production.

*The Government, in collaboration with stakeholders, will incorporate gender mainstreaming in dairy development by having gender and youth friendly policies including modern technology.*

## 4.3. HIV/AIDS

The impact of HIV/AIDS in the dairy industry is significant since it affects the most productive segment of the population (15-49 years). In addition, it affects dairy productivity by diverting resources to other expenses such as medicine and patient care.

*In order to avert the effect of HIV/AIDS in the dairy sector, the Government, together with stakeholders, will enhance efforts to mainstream HIV/AIDS awareness and participate in efforts to improve nutrition to the infected and affected.*

## 4.4. Land

In Kenya, land and land use related problems could be traced back to the colonial period where the indigenous population owned little or no land while the white settlers owned large pieces of land. Land related challenges include limited access to land, land sub-division into uneconomical sizes, poor land-use practices, and wildlife-human-livestock conflicts. These issues have constrained the development of a sustainable dairy industry in the country.

*To address these challenges, the government will ensure that the dairy development policy is constantly reviewed to be compliant with the Land Policy. In addition, where there are wildlife-human conflicts, the Government will work with the relevant stakeholders to identify and apply measures to prevent such conflicts.*

## 4.5. Water

Water is an important component in dairy development, however; reliable and clean water is not adequately available for dairy animals, especially during the dry seasons. There have been cases of water conflicts posing a challenge to dairy activities.

*To address these challenges, the Government will ensure implementation of the Water Policy to facilitate access to adequate water for forage and livestock use*

## CHAPTER 5: INSTITUTIONAL FRAMEWORK

### 5.1. Introduction

There are many organizations both private and public that are involved in the development of the dairy industry. The public institutions are involved in standard setting, regulation, promotion and policy. The private sector comprising of formal and informal groups mainly involved in dairy production, processing, marketing and input supply. The existing institutional and regulatory framework in the sector amounts to a multiplicity of actors with multiple roles. The main challenge has been the informal groups that have no voice in decision making. For a sustainable growth to be achieved in the dairy industry, increased participation by the private sector is required.

*For the above change to be achieved, the Government will create and maintain conducive environment for both public and private sector investment in dairy production, processing, marketing and delivery of key support services. The anticipated government' exit from commercial activities will be gradual to ensure a smooth transition. Stakeholders will have to be organized to take a more active role in service provision and funding of the dairy industry.*

### 5.2. Kenya Dairy Board (KDB)

The KDB has been instrumental in promotion, co-ordination, lobbying, trade negotiations, formulation of dairy policy, regulatory and inspectorate services for the dairy sector, research and development of private enterprise. The activities coordinated by KDB have improved producer price of milk, lowered consumer price and increased milk intake by the processors. However, there is need for a clear separation of regulatory and developmental roles of KDB for the benefit of the industry.

*The KDB functions will be streamlined, enhanced and focused towards a stakeholder-managed institution. At the same time, self-regulation, promotional and developmental activities will be promoted by the stakeholders that include the Government and the private sector.*

### 5.3. Dairy Co-operatives

The co-operative movement plays an important role in dairy production and marketing in Kenya. Dairy co-operatives have been instrumental in collection, bulking, and sale of farmers' milk to either processors or local consumers. Through bulking, the co-operatives have been able to reduce the cost of milk marketing and the dairy farmers have realised higher returns in addition to provision of an assured, reliable and remunerative milk market. However; most operational cooperatives have weak management structures, inadequate capital base, and low economies of scale limiting their growth.

*In this respect, priority areas of emphasis will be the implementation and enforcement of the new management tenets as stipulated in amended Co-operative Societies Act of 2004. Partnerships between cooperatives and other private sector players will bring about promotion of bulk purchases of farm inputs by to minimize costs and improve competitiveness. Finding ways of protecting producers and producer organizations from the effects of collapsed firms will be encouraged.*

## 5.4. Dairy Sector Financing

Availability of adequate financial resources at production, processing and marketing levels is crucial for a sustained development and productivity of the dairy industry. At production level, the major constraints affecting access to financial services are high interest rates and complex collateral requirements. At the institutional level, KDB operates on 20 cents cess per litre that is paid by milk producers in addition to Government grants, however; this amount of funding is insufficient to meet the services to stakeholders.

*In order to improve the capacity of the financial sector in financing the dairy industry stakeholders, the Government undertakes to institute policy and institutional reforms that will encourage increase lending to the dairy industry. It will also review and repeal legal provisions that govern producer contributions to dairy sector financing, including those that have continued to undermine the private sector banks' lending portfolio to the industry. The Government will also rationalize the activities of the AFC to improve its performance in the provision of affordable credit to dairy producers.*

*The growth in financial resources will be private sector driven. Financial resources will be mobilized from the stakeholders to fund dairy industry operations, such as generic promotion and research, through the revival of the Dairy Development Fund. The Government will ensure accountability in revenues generated from the sector.*

*Livestock insurance will also be promoted to cover dairy actors along the dairy value chain.*

# CHAPTER 6:

## SUMMARY TABLE SHOWING THE PROPOSED POLICY INTERVENTIONS

Policy Issue	The Problem	Policy Constraint	Proposed Policy Intervention
<b>6.1 Dairy Production</b>			
<b>6.1.1 Dairy Breeding</b>	Diminishing quality of animal genetic resource	i. Inefficient breeding programs ii. Long calving intervals that sometimes stretch to over 600 days. iii. Inefficient insemination iv. Poor quality and low numbers of replacement stock v. Limited genetic evaluation vi. Inadequate skills in breeding vii. High cost of AI services and breeding stock	i. Strengthening of Breeders associations/organization ii. The government to maintain the good regulatory and supervisory roles in breeding iii. Establishment and maintain a livestock gene banks iv. Develop and strengthen breeding strategies for other dairy species such as camel, v. Strengthening of Animal Identification and registration program
<b>6.1.2 Extension and Advisory Services</b>	Dwindling farmer to staff ratio	i. Low funding provision for extension services ii. Low capacity of dairy farmers to invest on new technologies iii. Underdeveloped extension service infrastructure	i. Extension and advisory services to be provided by private agents, cooperatives and processor-controlled extension systems ii. Government to develop the legal framework for restructuring extension and advisory services as per the National Agriculture Sector Extension Policy (NASEP) iii. Government to develop a performance impact evaluation system. iv. Linkage between research and extension to be strengthened v. E-extension methodologies to be strengthened.

<b>Policy Issue</b>	<b>The Problem</b>	<b>Policy Constraint</b>	<b>Proposed Policy Intervention</b>
<b>6.1.3 Animal Health and Veterinary Services</b>	Ineffective disease and pest control, leading to high incidences of livestock diseases and a veterinary system unable to adequately deliver high quality animal health services	<ul style="list-style-type: none"> <li>i. Poor delivery of animal health and veterinary services</li> <li>ii. Weak management and low funding of animal health and veterinary services</li> <li>iii. Tick control challenge</li> <li>iv. Conflicting and ineffective legislation to deal with disease control</li> <li>v. Poor management of zoonotic diseases</li> </ul>	<ul style="list-style-type: none"> <li>i. Privatization of animal health services</li> <li>ii. Reform the regulatory framework and attendant institutions for efficient delivery of animal health services.</li> <li>iii. Modalities for registration and licensing of animal health service providers to be reviewed.</li> <li>iv. Amend the Veterinary Surgeons Act to allow Para-veterinary workers with diploma, certificate training and experience to treat animals.</li> <li>v. Convert the Veterinary Department from provider of subsidized services to a quality controller, and promoter and facilitator of private practitioners.</li> <li>vi. Amend the Pharmacy and Poisons Act to allow veterinarians to dispense veterinary medicines;</li> <li>vii. Amend the Cattle Cleansing Act to provide for tick control methods other than dipping.</li> </ul>
<b>6.1.4 Dairy Feeds and Feeding</b>	<ul style="list-style-type: none"> <li>• Inadequate feeding.</li> <li>• High cost of feeds compounded by introduction of Value Added Tax on supplementary feeds.</li> <li>• Feed fluctuation with seasons</li> </ul>	<ul style="list-style-type: none"> <li>i. Lack of animal feedstuff policy</li> <li>ii. Livestock feed industry is regulated through the Fertilizers and Animal Feedstuffs Act (Cap 345) which is absolute.</li> </ul>	<ul style="list-style-type: none"> <li>i. Promotion of alternative feed formulations and research to produce crops, including maize and cassava for animal feed.</li> <li>ii. The Government should zero rate VAT on feeds</li> <li>iii. Increased private sector investment in small-scale and farmer-based animal feed supplement formulation</li> <li>iv. Increased investment in dry season feed preservation and local production of concentrates, minerals and micronutrients</li> <li>v. The Government to enact the Animal Feedstuff Act to strengthen the monitoring of feed quality at the point of sale.</li> <li>vi. Self-regulation in the feed industry through a strengthened Association of Kenya Feed Manufacturers (AKEFEMA) and other stakeholders in the feed industry.</li> </ul>

<b>Policy Issue</b>	<b>The Problem</b>	<b>Policy Constraint</b>	<b>Proposed Policy Intervention</b>
<b>6.1.5 Dairy Research</b>	Underutilization of the existing dairy research capacity	i. Poor prioritization of research agenda ii. Inadequate funding for dairy research iii. Lack of comprehensive approach to disseminating available research findings iv. Research focus has mainly been on production, with little focus on other areas of the dairy industry v. Research has rarely been client based	i. The government to facilitate the strengthening of research-extension-client linkage, feedback mechanisms and institutionalize dairy research priority setting mechanisms; ii. Restore and strengthen dairy research to address issues of responsiveness and efficient technology development and transfer. Prioritized research areas will include dairy product development, milk packaging and dairy standards; iii. Accelerate the formation of a Kenya Livestock Research Institute; iv. Increase budgetary allocation for livestock research; v. Enhance commercialization of research products, including contracts and royalties for sustainability; vi. Expand and diversify sources of dairy research funds
<b>6.2 Milk Marketing, Dairy Business Environment and Value Addition</b>			
<b>6.2.1 Milk Collection</b>	Unreliable milk collection system	i. Lack of responsible institutions. ii. Expensive and undependable dispute resolution mechanisms. iii. Poor infrastructure iv. Difficulties in collecting evening milk.	i. Revive milk marketing cooperative societies and motivate dairy farmer groups formation ii. Facilitate marketing cooperative societies and dairy farmer groups to set up rural milk collection centres iii. Promote business practices, contracts, contracts enforcement and low cost and dependable dispute resolution mechanisms to ensure collected milk is regularly paid for. iv. Regular feeder roads maintenance

<b>Policy Issue</b>	<b>The Problem</b>	<b>Policy Constraint</b>	<b>Proposed Policy Intervention</b>
<b>6.2.2 Milk Cooling and Grading</b>	Milk spoilage, especially the evening milk	<ul style="list-style-type: none"> <li>i. Inadequate milk preservation facilities.</li> <li>ii. Absence of electric power.</li> <li>iii. Electric power tariffs too high.</li> <li>iv. Tendency by informal sector to use unapproved chemical agents to preserve milk.</li> <li>v. Quality insensitive price mechanism.</li> </ul>	<ul style="list-style-type: none"> <li>i. Speed up rural electrification programme in milk producing enclaves</li> <li>ii. Explore viability of alternative sources of energy, such as solar, wind, mini hydro plants and organic fuels.</li> <li>iii. Reduce electricity tariffs for reduced cost of milk cooling</li> <li>iv. Promote investment in cold chain infrastructure by marketing cooperatives, and private investors through providing the necessary incentives e.g by zero rating VAT on milk equipment to encourage investment on the same</li> <li>v. Undertake research on alternative methods of milk preservation for groups of small-scale farmers in areas where cooling is not feasible.</li> <li>vi. Encourage processors to appropriately reward milk quality by applying a quality sensitive pricing mechanism.</li> </ul>
<b>6.2.3 Milk Processing</b>	Unstable processing sector	<ul style="list-style-type: none"> <li>i. Low production of long-life products to aid rural and regional markets penetration.</li> <li>ii. Processors operating at less than the installed capacity.</li> <li>iii. Low demand for pasteurised milk.</li> </ul>	<ul style="list-style-type: none"> <li>i. Cooperatives and private sector operators to continue to benefit from tax incentives on new investments.</li> <li>ii. Zero rating of taxes on inputs in liquid milk processing with regard to value added tax.</li> <li>iii. Support investment in long-life milk products.</li> <li>iv. Encourage milk processors to engage in milk collection in the rural areas.</li> <li>v. Encourage producer price differentials based on differences in quantities of milk delivered to stimulate large-scale dairying.</li> </ul>

<b>Policy Issue</b>	<b>The Problem</b>	<b>Policy Constraint</b>	<b>Proposed Policy Intervention</b>
<b>6.2.4 Milk Packaging</b>	Unhygienic and environment-unfriendly packaging materials	i. High cost of packaging material ii. Shift to use of inappropriate packages and unpackaged milk	i. Promotion of the development and adoption of cost effective milk packaging that is of acceptable standards and addresses health concerns ii. Discourage use of packaging materials that are environmentally unfriendly iii. Encourage local initiatives that use locally available materials in milk packaging
<b>6.2.5 Quality Control and Assurance</b>	Low quality of raw milk Poor Hygiene and quality standards of milk handled by informal marketing channels	i. High cost of milk testing equipment ii. Inadequate skills on the use of the equipment iii. Inadequate milk quality assurance iv. Institutional gaps	i. Dairy processors and manufacturers to put in place quality testing and assurance systems ii. Provision of incentives for milk testing equipment procurement and installation e.g. by removal of VAT levied on the equipments iii. Stakeholder sensitisation on the importance of safe use of antibiotics and other veterinary drugs at farm level iv. Training on milk testing and operation of testing equipment v. Strict enforcement of quality standards both for raw milk and dairy products.
<b>6.2.6 Dairy Cooperatives</b>	Collapsed cooperatives resulted in increased cost of milk marketing	i. Weak management capacities ii. Inadequate capital base iii. Low economies of scale iv. Inappropriate government involvement.	i. Enforce the new management tenets embodied in the amended Co-operative Societies Act of 2004 ii. Encourage partnerships between cooperatives and other private sector players, especially processors iii. Promote bulk purchases of farm inputs by co-operatives to minimize costs and improve competitiveness iv. Formulate ways of protecting producers and producer organizations from the effects of collapsed firms

<b>Policy Issue</b>	<b>The Problem</b>	<b>Policy Constraint</b>	<b>Proposed Policy Intervention</b>
<b>6.2.7 Informal Milk Marketing</b>	Consumer health risk	<ul style="list-style-type: none"> <li>i. Expensive pasteurised milk</li> <li>ii. Inadequate enforcement of regulations</li> </ul>	<ul style="list-style-type: none"> <li>i. Facilitate the transformation of informal milk trade towards the formalization of the small enterprise sub-sector in the industry.</li> <li>ii. Development of low cost and appropriate technologies for small investors</li> <li>iii. Invest in and support training programmes on safe milk handling</li> <li>iv. Work with stakeholders to improve the standards of milk processing in the informal sector</li> <li>v. Institute public education campaigns on the merits of consuming properly handled raw milk</li> <li>vi. Facilitate compliance to standards by the informal milk traders through provision of incentives for improved milk handling</li> <li>vii. Establish a supportive milk dealer certification system.</li> </ul>
<b>6.2.8 Imports and Exports</b>	Need to expand milk products market while safeguard against dumping of sub-standard milk products	<ul style="list-style-type: none"> <li>i. Competitiveness</li> <li>ii. Milk quality standards</li> </ul>	<ul style="list-style-type: none"> <li>i. Promotion of export of dairy products in the regional and international markets,</li> <li>ii. Rationalise export and import of dairy products to account for production cycles,</li> <li>iii. Involve the dairy industry in regional and international trade negotiations</li> <li>iv. Gather, analyse and disseminate up-to-date market information to relevant stakeholders</li> <li>v. Promote production of quality milk products, right from farm level</li> <li>vi. Imported dairy products quality standards will be enforced</li> <li>vii. Classify dairy products as sensitive according to WTO criteria</li> </ul>
<b>6.2.9 Dairy Business Environment</b>	Lack of strong business ethics in dairying	<ul style="list-style-type: none"> <li>i. Responsible business practices, contracts, contract enforcement and low cost dispute resolution mechanisms</li> <li>ii. Unpaid farmer milk deliveries</li> <li>iii. Weak regulatory institutions</li> </ul>	<ul style="list-style-type: none"> <li>i. Guide the industry towards self-regulation path</li> <li>ii. Development of contractual norms, low cost dispute resolution mechanisms, and industry codes of practice</li> <li>iii. Facilitate the formation of a stakeholder driven ethical committee to handle arbitration issues in the industry.</li> <li>iv. Facilitation of the organization of interest groups along the value chain to improve performance in the sector.</li> <li>v. Support the setting up of an industry umbrella association within</li> <li>vi. The sector where stakeholders can dialogue and lobby.</li> </ul>

<b>Policy Issue</b>	<b>The Problem</b>	<b>Policy Constraint</b>	<b>Proposed Policy Intervention</b>
<b>6.2.10 Market Instability and Milk Strategic Reserves</b>	Milk production seasonality	i. Smoothing milk supply throughout the year	i. Encourage processors to offer premium prices during dry seasons. ii. Promote the processing of affordable long-life milk products. iii. Include dairy products in strategic national food reserves.
<b>6.3 Consumption</b>	Low per capita milk consumption that does not meet nutritional requirements among low income groups	i. Low consumer incomes. ii. Inadequate awareness on the nutritional importance of milk and milk products.	i. Increase awareness of the nutritional and health benefits of milk consumption. ii. Promote wholesome milk consumption. iii. Encourage production of a diversified range of milk and milk products that meets the wide array of consumer tastes and preferences.
<b>6.4 Dairy Information</b>	Inadequate access and use of dairy information	i. Lack of an information center equipped with a data base facility ii. The existing data is not well coordinated and the stakeholders are not co-operative	i. Government to implement the ICT and e-government policy. ii. Government to facilitate the setting up of a dairy sector information center.
<b>6.5 Institutional Framework</b>	Existing institutional and regulatory framework results into multiplicity of bodies with multiple tasks	i. Government involvement in regulatory and service provision ii. Weak extension-farmer linkages iii. Unorganized groups of stakeholders, such as producers, informal milk traders, consumers and retailers iv. KDB undertaking many activities	i. The Government to exit from direct service provision. ii. The Government's role will be creation and maintenance of a conducive environment (policy) for private sector investment. iii. Stakeholders to be organized and prepared for the challenge of gradually taking up the active role of service provision. iv. Clear separation of the role of KDB and eventual transfer of the regulatory and inspectorate role to a new institution in line with the national livestock policy.

<b>6.6 Dairy Sector Finance</b>	Dairy producers have poor access to financial services. In addition, the whole industry is under-funded	<ul style="list-style-type: none"> <li>i. High interest rates and complex collateral by banks</li> <li>ii. Low industrial funding. KDB runs on only Ksh. 0.20 per litre of milk</li> </ul>	<ul style="list-style-type: none"> <li>i. The Government to review and repeal legal provisions undermining the bank's lending portfolio to the sector</li> <li>ii. The Government to rationalize the activities of the AFC to improve its performance of providing affordable credit</li> <li>iii. Mobilize the development of the Dairy Development Fund, where the stakeholders, Government and development partners can contribute</li> </ul>
<b>6.7 Cross cutting issues</b>			

<b>Policy Issue</b>	<b>The Problem</b>	<b>Policy Constraint</b>	<b>Proposed Policy Intervention</b>
<b>6.7.1 Environment</b>	Environmental degradation	i. Disposal of chemicals used in dairy production ii. Poor agro-forestry practices iii. Overgrazing iv. Poor disposal system for materials from packaging of dairy products.	i. Government and stakeholders to pursue sustainable natural resources management (NRM) practices ii. Government to enforce adherence to the Environmental Management and Co-ordination Act.
<b>6.7.2 Gender and Youth</b>	Lack of access to productive resources for women and youth.	i. Cultural prejudice.	i. Government and stakeholders to incorporate gender issues in dairy Agricultural Extension.
<b>6.7.3 HIV/AIDS</b>	Negative impact of HIV/AIDS on dairy, affecting the producers and service providers.	i. Reduced labor productivity ii. Diversion of labor and finance from the dairy sector to medical care	i. Reduced labor productivity ii. Diversion of labor and finance from the dairy sector to medical care.
<b>6.7.4 Land</b>	Uneconomical land sizes that are dependent on rain for production	i. Small and uneconomic land sizes ii. Lack of grazing pastures iii. Human-Wildlife conflict over water and other resources	i. The Government to review the dairy sector policy from time to time to take care of emerging land policy issues ii. Government to facilitate access to adequate water for dairy farming especially to deal with dry periods iii. The Government to recognize the role of indigenous knowledge in conflict resolution
<b>6.7.5 Water</b>	Inadequate water for dairy, pasture and fodder development	Unavailability of sufficient water	Encourage access to water in line with water policy



