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**ON**

**THE NATIONAL DAIRY DEVELOPMENT POLICY**

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

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## 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>CAIS</b>	Central Artificial Insemination Station
<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 Agricultural 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 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 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, standards, consumer safety, consumption, promotion of Kenyan dairy products exports among others. 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 the 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 others 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.

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## **CHAPTER ONE: INTRODUCTION AND BACKGROUND**

### **1.1 Introduction**

Kenya is one of the largest producers of dairy products in Africa with a herd of 3.5 million exotic cattle, 14.1million indigenous cattle, 27.7 million goats, and 2.9 million camels (2009 census). Cattle account for 88% of the milk produced while the rest comes from camels and goats. The country has the highest per capita consumption of milk in Africa with a consumption rate of about 90 kg per capita annually compared to an average of 25 kg per capita for Sub-Saharan Africa. This still falls short of the global annual per capita milk consumption requirement of about 220 kg per capita.

Liberalization of the dairy industry in 1992 led to the rapid growth of the informal milk trade that deals mainly with the marketing of raw milk. This market controls an estimated 80% of milk sold in Kenya. The situation poses challenges of quality control and standards that need to be addressed.

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) to regulate milk marketing, encourage private enterprise and production of quality milk. However, with the growth of the economy and the new constitutional dispensation, new challenges have emerged necessitating the review of KDB's role in the dairy industry.

On-farm milk production has remained low due to poor animal husbandry, low quality feeds, inadequate feeding, a declining genetic base, animal diseases, effects of climate change, diminishing land sizes in high potential areas among others. Primary marketing also faces infrastructure bottlenecks caused by poor road networks and lack of cooling and storage facilities. This causes 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 their milk. The move attracted private investors into the industry some, most of who wound up, leaving behind unpaid milk deliveries. The turbulence in

the industry left about 50% of the country's installed milk processing capacity being utilized.

Increased milk production together with entry into regional markets will spur growth in dairy production, resulting in increased income for dairy farmers. The expected growth needs to be driven by increased domestic consumption of processed milk and milk products. The country will need a good breeding policy, which can promote a vibrant domestic livestock breeding industry to diversify and promote exports of genetics. The dairy industry policy in Kenya was last reviewed in 1993. Over the years new opportunities and challenges have emerged in the industry necessitating the need to have 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.

## **1.2 Historical Perspective**

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

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

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

Major land ownership reforms in Kenya occurred immediately after independence. The reforms entailed acquisition of large-scale agricultural farms from the white settlers, followed by sub-division and distribution of these farms to small-scale farmers who

started engaging in dairy production. The Dairy industry development commission, chaired by the retired President Mwai Kibaki in 1964 opened up KCC to all producers by abolishing the milk delivery quota system. The move saw KCC expand its processing and 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, tick control, credit, veterinary 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 Artificial Insemination (AI) service to small scale dairy farmers and it was highly subsidized. The industry responded positively resulting in a large dairy herd and increased milk production.

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

The liberalization of the dairy industry was accompanied by policy changes that 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, they reverted to using bulls for breeding leading to poor quality stock and hence decline in milk production.

In 1992, milk marketing was liberalized following recommendations in the Dairy Master Plan (1991). The move ended the KCCs monopoly of milk marketing in urban areas, prompting KDB to license new processors and more dairy industry players. Liberalization opened up the market to sale of raw milk, in urban and peri-urban areas.

The Government countered liberalization by preparing the Dairy Development Policy of 1993. The policy allowed the government a smooth exit from services they supported. It also intensified the dairy production systems, increasing production in non-traditional

areas, and opening up milk processing to new investors.

KCC failed to thrive in a liberalized environment due to political interference and poor management. By 1999, KCC was bankrupt and on the verge of collapse, weighed down by debts they owed farmers and suppliers. Desperate farmers were left with no alternative other than selling their milk to the informal market and other private processors. Some of these processors also collapsed with millions of shillings owed to farmers. Excess supplies and lack of marketing infrastructure in the form of financially stable processors resulted in low farm gate prices that disillusioned producers.

The dairy industry suffered a credibility crisis after the collapse of KCC and subsequent processors. Farmers were either unwilling or unable to invest in production enhancing inputs like nutritive feed and improved genetics. Those, who were able to sell their milk, received low returns. Milk collection was often erratic, thus leaving farmers with large quantities of unsold surpluses.

The inefficient and unreliable milk marketing system gave rise to alternative marketing channels such as cooperatives and itinerant traders hawking in urban areas.

Despite the noble objectives of the Dairy Development Policy of 1993, the industry was unable to address the challenges of liberalization while the private sector failed to cater for support services and the supply of inputs, including breeding, veterinary clinical 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 also identified the agricultural sector as key to reviving economic growth, an aspect that is further articulated in the sector-wide Strategy for Revitalizing Agriculture (SRA, 2004-2014). SRA's Vision was 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 envisaged government's role as being limited to making policy, and emphasized separation of policy-making, regulation, commercial functions and service delivery. The revitalization period ended earlier than anticipated (2008) and we moved into development period as depicted in Agricultural Sector Development Strategy (ASDS). The vision of ASDS is a food-secure and prosperous nation. The goal is to achieve an average agricultural growth rate of 7 per cent per year over the next 5 years. The mission is innovative, commercially oriented and modern agriculture. 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 new National Livestock Policy (NLP) 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.

Kenyans consumed about 4 billion litres of milk in 2012, with consumption demand estimated to rise by 3 to 4% driven by increases in population, urbanization and income. It is anticipated that by the year 2018, the consumption will rise to 4.7 billion liters.

Currently Kenya produces about 5.2 billion liters which is envisaged to reach 12 billion liters by vision 2030. Government has projected an increase in milk production growing

by 4.5 to 5 % annually for the next ten years. Per capita consumption of milk recommended by FAO is 220 liters against Kenya's per capita consumption of 100 liters (a shortfall of 120 liters). There is potential to improve milk production and even produce more for export.

The focus of this policy is to create the framework, institutions, adequate investments and appropriate relationships necessary for an efficient dairy industry. The growth can only be achieved if the anticipated milk surplus can be fully marketed. Processed long shelf life dairy products provide an opportunity for marketing this surplus. There is need, therefore, to increase exports to the neighboring region and even beyond. However, this is only possible through an extremely efficient and competitive domestic dairy industry.

## **2.2 Policy vision.**

To have an efficient and commercially competitive dairy industry locally, regionally and globally.

## **2.3 Policy mission**

To develop and promote an efficient and 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. In line with this, 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 a premium on efforts to increase dairy productivity 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.

The policy examines how the dairy value chain can best meet consumer needs at affordable prices while ensuring acceptable returns to the industry players. For this reason, this policy brings out the interventions by the government together with stakeholders in the dairy industry. These interventions cover dairy research, milk production, 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 liters per day, and average production per lactation is between 2,000 liters and 2,400 litres. The figures are low compared to the leading global productivity per cow of 40 litres per day and up to

14,000 litres per lactation. The low productivity is attributed to inadequate and inefficient breeding services, inefficient dairy research, poor animal husbandry, inadequate extension and advisory services, inadequate feeding, low quality feeds, environmental, socio-economic/cultural factors, ineffective disease control and veterinary services, poor infrastructure, high cost inputs/labor among others. Poor access to output markets also contributes to low incentive to increase production, and hence low demand for the above requisite inputs.

### **3.2.1 Breeding**

The dairy sector in Kenya has experienced reduced productivity partly due to a declining genetic base, among a host of other factors. Early successes, through widespread adoption of Artificial Insemination (AI) through government backed Services, led to a high of 579,000 inseminations in 1979. However, between 1979 and 2002, the figure fell to a low of 68,339 inseminations. With the revival of the dairy industry, 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 for the industry.

Apart 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 requirement. 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 of government supported AI services relate to the actual cost of getting the semen to the cow and not the semen or the nitrogen in cooling kits. Following the withdrawal of the Government from direct provision of AI services in 1992, the usage of the AI services declined. Due to unavailability and the high cost of AI services, farmers have resorted to using bulls for breeding purposes, which pose challenges of inbreeding and spreading of breeding diseases.

The policy is expected to promote farmer, private and cooperative-based AI provision. This way the Government will retain the supervisory and regulatory roles in the provision of AI services. The Government is expected to make a 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 and 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 (private and public) and farmers involved in dairy animal breeding. However; they are not working in harmony towards the national breeding objectives. Therefore, there is need to promote synergy among the various dairy breeders.

Declining genetic pool is a result of poor record keeping by farmers and little emphasis on animal registration. Dairy productivity has also suffered from poor quality and low numbers of replacement stock resulting from inadequate nutrient uptake, poor housing and other routine management activities, and high mortality rate of the young stock.

The challenges posed by the low numbers of replacement stock can only be addressed when the government promotes proper animal husbandry practices targeting the development of young breeding stock.

*To address these shortcomings,*

*The government will audit all institutions in dairy animal breeding, to harmonize and consolidate their functions. The aim is to encourage proper animal record keeping and registration by strengthening the consolidated and harmonized breeding institutions and breed societies.*

*The Government will 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.*

*The government will ensure that there is linkage between breed societies, private breeding organizations, individual breeders and KAGRC.*

*There is also need to strengthen the breed societies, Dairy Recording Services of Kenya (DRSK), and the Kenya Stud Book (KSB).*

*The department of Veterinary Services (DVS) should be restructured and equipped 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 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 doctors. The system gives the Director of Veterinary Services (DVS) power to control the spread of disease, 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.

After independence, the Government trained a large number of veterinarians and Para-veterinarians who were in turn absorbed in government services and the private sector.

Among diseases that hinder dairy industry development include Bovine Pleuro-Pneumonia (CBPP), East Coast Fever (ECF), Foot and Mouth Disease (FMD) and Trypanosomiasis. The Government has formulated a National Livestock Policy, which has provided direction for the delivery, management and funding of veterinary services and disease control.

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-veterinary act of 2012 and the Pharmacy and Poisons Act (Cap 244). The Veterinary and Para-veterinary act of 2012 prohibits anyone to practice veterinary medicine unless he/she is registered by the Kenya Veterinary Board and specifies a degree in veterinary medicine as the minimum qualification for registration. The Pharmacy and Poisons Act prohibits all veterinary surgeons from stocking large quantities of drugs, unless a registered pharmacist is in direct control of the premises where the drugs are stocked and sold. The cattle Cleansing Act specifies dipping as a must for tick control but does not recognize other tick control methods. The above legislations need to be harmonized for better delivery of animal health services.

*In this regard, the Government will amend the Veterinary Surgeons Act to allow Para-veterinary workers with diploma and certificate training to treat animals, and the Pharmacy and Poisons Act to allow veterinarians to dispense veterinary medicines. The Cattle Cleansing Act will also be amended 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.*

### **3.2.3 Dairy Feeds and Feeding**

Proper feeding is paramount for dairy productivity because feeding alone accounts for about 70 percent of the 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 some of which goes to waste, while during the dry periods there are sometimes severe shortages. As a result of this, milk production fluctuates over the seasons. The quality of these forages varies with seasons where during the dry periods the quality is low. In addition, most dairy farmers are only able to access poor types of forage. There are little efforts if any for the farmers to conserve forages even during times of excess

Inadequate enforcement and monitoring of animal feed supplements quality has led to

the proliferation of low quality feeds. Consequently, some farmers have moved away from commercially manufactured feed supplements. 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.

The main constraint to adequate cattle feeding is the low quality and inadequate quantity of the available 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 animals.

*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,*

*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 to reduce costs and wastage. However; feed quality and safety issues will be addressed through producer capacity building in collaboration with KEBS.*

*The Government will also encourage co-operative, farmer groups and other private investors to put up small feed mills 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 Fertilizers and Animal Feedstuff Act so as to establish an Act specific to Livestock Feeds to enhance quality control.*

*Retail inspections and information awareness campaigns will be strengthened. The self-regulation will be done through the Association of Kenya Feed Manufacturers (AKEFEMA) together with other stakeholders in the feed industry.*

*The government and other stakeholders should make deliberate efforts to invest in strategic feed reserves.*

### **3.2.4 Extension and Advisory Services**

The government has been the main provider of extension and advisory services in the dairy industry but it is underfunded. The bulk of extension services costs are spent on staff remuneration leaving a small proportion for facilitation and development. However, staff farmer ratio (1:5000) is low therefore more dairy extension staff is needed. This inequitable resource allocation affects basic extension services, such as travel, transport, communication, demonstrations and 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 productivity.

There are other extension service providers mainly from the development partners, research institutions, universities, 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 which has improved extension service delivery. In addition to above pathways, there are other Infrastructure 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.

*To address these challenges: there should be a deliberate initiative to introduce public-private sector investment in the extension and advisory services within the dairy industry and the Government should limit its activities in dairy extension to regulatory*

issues. This will entail among others certification of the qualification 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 methods 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. The aim of the Government is to have an efficient and effective extension service delivery.

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. .... will guide extension provision.

### **3.2.5 Dairy Research and Development**

The uptake of dairy technologies has been low due to limited involvement of the clients in prioritization of research agenda, cost and relevance of the technology, inadequate funds and lack of a comprehensive approach for dissemination. Dairy research has focused mainly on dairy production, with limited emphasis on processing, product development and packaging. It is observed that dairy research has also not been client-based and therefore of limited relevance to end-users. The institutional capacity to conduct dairy research is limited and networking among the various actors is weak.

To address the dairy research concerns, the Government will come up with a new national body, whose main task would be livestock research. The body will be known as National Livestock Research Institute (NLRI). The organization will have dairy research centers. The Centers will give priority to dairy marketing, product development, milk packaging and dairy standards. The capacity of the NLRI 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 perishable, efficient and orderly collection, cooling and marketing systems are crucial to the overall viability and profitability of commercial dairying.

As milk is produced in rural areas, the ability to deliver milk quickly, at minimal cost and spoilage to the consumers is of importance to the dairy farmer. Available evidence shows that farmers lose about 95 million litres of milk annually due to waste and spoilage in farms and along the market chain. Inadequate milk preservation facilities in Kenya 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 strong business ethics in dairying. Responsible business practices, contracts, contract enforcement and low cost dispute resolution mechanisms in the sector have been lacking. Instances of unpaid or overly delayed payments for milk farmers have been common impacting negatively on 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 the formation of a stakeholder driven ethical committee to handle arbitration issues in the industry; facilitation of the organization of interest groups along the value chain to improve performance in the sector; and support to the 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**

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 an organized and orderly milk collection system by the KCC. However, this system collapsed in the 1990s, when KCC went under, leaving behind an erratic milk collection system. This 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 of milk producing areas are lacking milk bulking facilities and other support infrastructure such as electricity, transport and potable water.

Milk collections equipments used by the farmers also impact on milk quality. Most of the farmers use plastic jelly cans to transport milk to the processors and to consumers which affect quality.

*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 in the dairy industry.*

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

*The Government through Kenya Dairy Board should enforce the Good Manufacturing Practices and the producers and /or transporters should be made to carry their milk in clean aluminium cans*

### **3.3.3 Milk Cooling and Grading**

The bulk of marketed milk in Kenya is rarely cooled. To produce quality wholesome 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 some 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 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 some 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 organic fuels for use in milk cooling. Further, measures to reduce electricity tariffs for reduced cost of milk cooling will also be explored and recommended for adoption by the relevant authorities.*

*The Government will also encourage investment in cold chain infrastructure by 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 such business practices, the Government will encourage processors to reward milk that goes through the cold chain by applying a quality sensitive pricing mechanism.*

*There is need for producer groups to be supported with milk quality testing facilities e.g. milk analysis kits to milk 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 no major capital and lack management competence. Nonetheless, these low capacity processors provide necessary competition in the dairy industry. Currently, there are about 54 registered dairy processors with 34 operational. Installed capacity in dairy processing currently stands at 2.9 million litres per day. The milk processors are operating at half installed capacity and their sales account for 12 percent of fresh milk sales in urban centres. The main reason for this is low demand for pasteurised milk, 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, fresh milk is still the predominant product. Kenya has 1.2 million litres per day of installed capacity for Ultra Heat Treated (UHT) milk production, with more than half of this capacity being 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.

The conventional milk packaging materials result in high and unaffordable prices of packaged milk. As a result, there is a tendency to package milk in materials that are non-food grade, unhygienic and environmentally unfriendly. Also, there has been a shift from packaged to unpackaged milk in response to demand by the low-income groups, thereby prompting concerns with respect to health and standards.

*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 includes removal of recently introduced value added tax on inputs, zero rating of inputs used in liquid milk processing.*

*To address the dairy product 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, addresses health issues and are environmentally friendly. The government will also explore ways and means of encouraging local initiatives and use of locally available materials in milk packaging through local industrial research initiative.*

*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 of milk delivered by a given client (i.e. quantity premiums) will be encouraged. Such quantity premiums will encourage large groups or co-operative societies' participation in dairy marketing.*

### **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 are an essential component for the successful development of a competitive dairy industry value chain. The high cost of milk testing equipment, lack of proper skills on the use of the equipment, lack of milk quality management capacity and institutional gaps present a major hindrance to quality control and assurance.

*Consequently, priority measures will be introduced to ensure that dairy processors and manufacturers have put in place quality testing and assurance systems that conform to national and international standards. Such measures will include 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, relevant institution should 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 is the rapid growth of raw milk sales in urban centres. The growth of unprocessed whole milk market is attributed to preference for unprocessed whole milk by consumers because it

is 20 to 50 percent cheaper than pasteurized milk. The milk is cheaper due to fewer costs involved in its supply chain, better taste (high butterfat content), and sold in different quantities, allowing the poor communities to access milk. Consequently, the informal traders who deal mainly in unprocessed whole milk handle about 80 percent of marketed milk. This is a major proportion of marketed milk, which represents an appreciable employment opportunity. However, the manner in which the product is handled often raises public health concerns in dealing with the milk 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 the transformation of informal milk trade towards the formalization of the small enterprise sub-sector in the dairy industry will be pursued. Such measures will include: development, adoption of low cost and technology for small scale dairy investors; investment in training programmes on safe milk handling; linkages with dairy industry stakeholders to improve the standards of milk processing in the informal sector; instituting public awareness campaigns on the dangers of drinking unprocessed whole 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 the policy is to ensure that private and co-operative dairy processors and marketing agents are free to develop efficient mechanisms and processing capabilities to ensure that there is adequate supply for domestic demand and surplus for 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; involving 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 to take account of its significant contribution to food security and poverty alleviation.*

*The government will endeavor to meet world export standards and avoid dumping of sub-standard milk and milk products in the domestic market.*

### **3.3.8 Market Stabilization and Milk Strategic Reserves**

Farmers' dependence on rain fed dairy production occasions milk surpluses during the flush seasons and severe shortages during dry seasons. This leads to the wide variations observed in domestic milk production over the year. This phenomenon demands serious attention so that the country can stabilise milk production throughout the year.

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

### **3.4 Consumption**

Even though Kenya's milk consumption levels are among the highest in the developing world, there is a discrepancy 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 to be about 100 litres compared to the recommended per capita consumption of 220 litres (FAO). Its notable urban annual per capita milk consumption is much higher at 125 litres. Studies also indicate that per capita milk consumption in Kenya is typically 45-49 percent higher for urban consumers' vis-à-vis rural consumers. Milk consumption is skewed in favour of high-income groups, who consume about 45 percent of the milk sold in 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.*

### **3.5 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 this service through formal and on-the-job training. However, these institutions have been under-utilized due to poor funding. In addition, the curriculum cannot cope with the changing needs of the dairy industry. Although there exists 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.*

### **3.6 Dairy Industry Information**

Availability and accessibility of updated dairy industry information are critical for planning, managing and forecasting various issues in the industry. At the moment, KDB

and other stakeholders such as i-cow are piloting the e-dairy platforms for information gathering, analysis and dissemination to stakeholders. However; application of these technologies has not been embraced nationally due to lack of awareness, 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. Strong linkages will be promoted between universities, research institutions, extension financial institutions, dairy farmer association among others. In addition, the Government will set up a National Dairy Information Center at KDB that will be equipped with a databank facility to collect, analyze and disseminate information on the dairy industry.*

## **CHAPTER 4: CROSS CUTTING ISSUES**

### **4.1 Environment**

Dairy production contributes to environmental and natural resources degradation through greenhouse gas emission, disposal of dairy management chemicals, poor agro-forestry practices, poor disposal of dairy by-products, poor disposal of dairy products packages, improper management of pasture and forage, and overgrazing in the ASALs. 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 these shortcomings, the Government together with stakeholders, will pursue 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 as land and institutional credit, poor technical skills and poor access to extension services limit the participation of women and youth in dairy production.

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

### **4.3 HIV/AIDS**

The impact of HIV/AIDS has been felt within the dairy industry because HIV/AIDS affects the most productive segment of the population between 15-49 years age. In addition, HIV/AIDS also affects productivity of the dairy sector by diverting its finances to cater for medical expenses.

*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 tracts of land. Land related challenges include limited access to land, subdivision into uneconomical sizes, poor land-use practices resulting into land degradation, wildlife-human conflicts and lack of grazing pastures, especially during the dry seasons. These issues have constrained the development of a sustainable dairy industry in the country.

*To address the 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 a very 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.*

## **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, is mainly involved in 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 challenge has been that the informal groups have no voice in decision making. Growth and sustainability in the dairy industry requires an increase in participation by the private sector.

*For change to be achieved, the Government will create and maintain a conducive environment for private sector investment in dairy production, processing, marketing and delivery of key support services. The 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, realised higher returns for farmers and provided an assured, reliable and remunerative outlet for milk. Currently, most operational cooperatives have weak management structures, inadequate capital base, and low economies of scale.

*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.*

### **5.3 Dairy Sector Financing**

Availability of adequate financial resources at production, processing and marketing levels is critical for a sustained development and productivity of the dairy industry. At production level, major constraints affecting access to financial services have been 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.

*To improve the capacity of the financial sector to direct more resources to the dairy industry, the Government will undertake policy and institutional reforms that will encourage banks to 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.*

*The government will promote livestock insurance 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	<ul style="list-style-type: none"> <li>i. Inefficient breeding programmes</li> <li>ii. Long calving intervals that sometimes stretch to over 600 days.</li> <li>iii. Inefficient insemination</li> <li>iv. Poor quality and low numbers of replacement stock</li> <li>v. Limited genetic evaluation</li> <li>vi. Inadequate skills in breeding</li> <li>vii. High cost of AI services and breeding stock</li> </ul>	<ul style="list-style-type: none"> <li>i. Strengthening of Breeders organization</li> <li>ii. The government to maintain the regulatory and supervisory roles in breeding</li> <li>iii. Establishment and maintenance of gene banks by the Government</li> <li>iv. Develop and strengthen breeding strategies for other dairy species such as camel,</li> <li>v. Strengthening of Animal Identification and registration</li> <li>vi.</li> </ul>
<b>6.1.2 Extension and Advisory Services</b>	Dwindling farmer to staff ratio	<ul style="list-style-type: none"> <li>i. Low extension service provision funding</li> <li>ii. Low capacity of dairy farmers to invest on new technologies</li> <li>iii. Underdeveloped extension service infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>i. Extension and advisory services to be provided by private, cooperative and processor-controlled extension systems</li> <li>ii. Government to develop legal instruments and modalities for restructuring extension and advisory services delivery as per the National Agriculture Sector Extension Policy (NASEP)</li> <li>iii. Performance impact evaluation system.</li> <li>iv. Provide a link between research and Extension</li> <li>v. Outsourcing of extension services</li> </ul>

<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, weak management and low funding of animal health and veterinary services</li> <li>ii. Tick control challenge</li> <li>iii. Conflicting and ineffective legislation to deal with disease control</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>	High cost of feeds. Inadequate feeding	<ul style="list-style-type: none"> <li>i. Lack of animal feed policy</li> <li>ii. Livestock feed industry is regulated through the Fertilizers and Animal Feedstuffs Act (Cap 345) which is absolute.</li> <li>iii.</li> </ul>	<ul style="list-style-type: none"> <li>i. Promotion of alternative feed formulations and research to produce crops, including maize, specifically produced as feed.</li> <li>ii. Increased private sector investment in small-scale and farmer-based animal feed supplement formulation</li> <li>iii. Increased investment in dry season feed preservation and local production of concentrates, minerals and micronutrients</li> <li>iv. The Government to enact the Animal Feedstuff Act to strengthen the monitoring of feed quality at the point of sale.</li> <li>v. 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	<ul style="list-style-type: none"> <li>i. Poor prioritization of research agenda</li> <li>ii. Inadequate funding for dairy research</li> <li>iii. Lack of comprehensive approach to disseminating available research findings</li> <li>iv. Research focus has mainly been on production, with little focus on other areas of the dairy industry</li> <li>v. Research has rarely been client based</li> </ul>	<ul style="list-style-type: none"> <li>i. The government to facilitate the strengthening of research-extension-client linkage, feedback mechanisms and institutionalize dairy research priority setting mechanisms;</li> <li>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;</li> <li>iii. Accelerate the formation of a National Livestock Research Institute;</li> <li>iv. Increase budgetary allocation for livestock research;</li> <li>v. Enhance commercialization of research products, including contracts and royalties for sustainability;</li> <li>vi. Expand and diversify sources of dairy research funds</li> </ul>
<b>6.2 Milk Marketing, Dairy Business Environment and Value Addition</b>			
<b>6.2.1 Milk Collection</b>	Unreliable milk collection system	<ul style="list-style-type: none"> <li>i. Lack of responsible institutions</li> <li>ii. Expensive and undependable dispute resolution mechanisms</li> <li>iii. Poor infrastructure</li> <li>iv. Difficulties in collection of evening milk</li> </ul>	<ul style="list-style-type: none"> <li>i. Revive milk marketing cooperative societies and motivate dairy farmer groups formation</li> <li>ii. Facilitate marketing cooperative societies and dairy farmer groups to set up rural milk collection centres</li> <li>iii. Promote business practices, contracts, contracts enforcement and low cost and dependable dispute resolution mechanisms to ensure collected milk is regularly paid for.</li> <li>iv. Regular feeder roads maintenance</li> </ul>

<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</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	<ul style="list-style-type: none"> <li>i. High cost of packaging material</li> <li>ii. Shift to use of inappropriate packages and unpackaged milk</li> </ul>	<ul style="list-style-type: none"> <li>i. Promotion of the development and adoption of cost effective milk packaging that is of acceptable standards and addresses health concerns</li> <li>ii. Discourage use of packaging materials that are environmentally unfriendly</li> <li>iii. Encourage local initiatives that use locally available materials in milk packaging</li> </ul>
<b>6.2.5 Quality Control and Assurance</b>	Hygiene and quality standards of milk handled by informal marketing channels not guaranteed	<ul style="list-style-type: none"> <li>i. High cost of milk testing equipment</li> <li>ii. Inadequate skills on the use of the equipment</li> <li>iii. Inadequate milk quality assurance</li> <li>iv. Institutional gaps</li> </ul>	<ul style="list-style-type: none"> <li>i. Dairy processors and manufacturers to put in place quality testing and assurance systems</li> <li>ii. Provision of incentives for milk testing equipment procurement and installation</li> <li>iii. Stakeholder sensitisation on the importance of safe use of antibiotics and other veterinary drugs at farm level</li> <li>iv. Training on milk testing and operation of testing equipment</li> <li>v. Strict enforcement of quality standards both for raw milk and dairy products.</li> </ul>
<b>6.2.6 Dairy Cooperatives</b>	Collapsed cooperatives resulted in increased cost of milk marketing	<ul style="list-style-type: none"> <li>i. Weak management capacities</li> <li>ii. Inadequate capital base</li> <li>iii. Low economies of scale</li> <li>iv. Inappropriate government involvement.</li> </ul>	<ul style="list-style-type: none"> <li>i. Enforce the new management tenets embodied in the amended Co-operative Societies Act of 2004</li> <li>ii. Encourage partnerships between cooperatives and other private sector players, especially processors</li> <li>iii. Promote bulk purchases of farm inputs by co-operatives to minimize costs and improve competitiveness</li> <li>iv. Formulate ways of protecting producers and producer organizations from the effects of collapsed firms</li> </ul>

<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	i. High interest rates and complex collateral by banks ii. Low industrial funding. KDB runs on only Ksh. 0.20 per litre of milk	i. The Government to review and repeal legal provisions undermining the bank's lending portfolio to the sector ii. The Government to rationalize the activities of the AFC to improve its performance of providing affordable credit iii. Mobilize the development of the Dairy Development Fund, where the stakeholders, Government and development partners can contribute
<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	<ul style="list-style-type: none"> <li>i. Disposal of chemicals used in dairy production</li> <li>ii. Poor agro-forestry practices</li> <li>iii. Overgrazing</li> <li>iv. Poor disposal system for materials from packaging of dairy products</li> </ul>	<ul style="list-style-type: none"> <li>i. Government and stakeholders to pursue sustainable natural resources management (NRM) practices</li> <li>ii. Government to enforce adherence to the Environmental Management and Co-ordination Act.</li> </ul>
<b>6.7.2 Gender and Youth</b>	Lack of access to productive resources for women and youth	<ul style="list-style-type: none"> <li>i. Cultural prejudice</li> </ul>	<ul style="list-style-type: none"> <li>i. Government and stakeholders to incorporate gender issues in dairy Agricultural Extension</li> </ul>
<b>6.7.3 HIV/AIDS</b>	Negative impact of HIV/AIDS on dairy, affecting the producers and service providers.	<ul style="list-style-type: none"> <li>i. Reduced labor productivity</li> <li>ii. Diversion of labor and finance from the dairy sector to medical care</li> </ul>	<ul style="list-style-type: none"> <li>i. Government and stakeholders to mainstream HIV/AIDS awareness and enhance change in behavior.</li> </ul>
<b>6.7.4 Land</b>	Uneconomical land sizes that are dependent on rain for production	<ul style="list-style-type: none"> <li>i. Small and uneconomic land sizes</li> <li>ii. Lack of grazing pastures</li> <li>iii. Human-Wildlife conflict over water and other resources</li> </ul>	<ul style="list-style-type: none"> <li>i. The Government to review the dairy sector policy from time to time to take care of emerging land policy issues</li> <li>ii. Government to facilitate access to adequate water for dairy farming especially to deal with dry periods</li> <li>iii. The Government to recognize the role of indigenous knowledge in conflict resolution</li> </ul>
<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