



**MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT
STATE DEPARTMENT FOR CROP DEVELOPMENT**

Policy on Revitalization of the Sugar Industry

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FOREWORD

The agricultural growth and development in Kenya is crucial for her overall economic and social transformation. Agriculture directly contributed an average of 24.1% (2015-2021) to the Gross Domestic Product (GDP), about 75% of industrial raw materials and 65% of the export earnings. The Government has outlined the key role of the agriculture sector under the economic pillar in the Kenya Vision 2030 and in the Agricultural Sector Transformation and Growth Strategy (ASTGS) 2019-2029. The strategies in these two documents aim at accelerating the transformation and growth of the agriculture sector in order to improve the standard of living of Kenyans as well as substantially improving their food and nutritional security.

The Agriculture sector realized KSh 527 billion in 2021 as the value of marketed production. Crops sub sector contributed up-to 70% of this cash realized with the sugarcane contributing 5.4% to the Crops contribution in 2021. (Economic Survey, 2022). The sugar industry continues to support the livelihoods of at least 17% of the Kenyan population. It is a dominant employer and source of livelihoods for most households in 15 counties in Kenya traversing Nyanza, Rift Valley, Western and Coast regions.

There is high potential for irrigated cane production in the Coast region. At full capacity of operation, the industry can produce over 1.3 million metric tonnes which would meet the domestic demand. However, the industry only utilizes 70% of the installed processing capacity.

Past efforts towards development of the sugar industry in Kenya concentrated in specific nodes of the value chain. This approach has not succeeded in making the sugar industry vibrant and able to meet the country's requirements. The Government of Kenya has undertaken to transform the economy in accordance with Kenya's Vision 2030 and her commitments to the Sustainable Development Goals (SDGs). In this regard, the Government is designing and implementing programs for a sustainable sugar industry growth and development. The enactment and implementation of the Crops Act No. 16 (2013) and Agriculture and Food Act No. 13 (AFA, 2013) promoted the need for Sub Sector Policy formulation.

The purpose of this policy is to develop a guideline that will facilitate revitalization needed for sustainable sugar and other allied industries growth and development. It endeavours to identify the salient relationships and linkages between the key stakeholders in the sugar industry, as well as provide a framework to guide specific policy actions/interventions, key one being Government share divestiture. In addition, it offers policy makers and the private sector a coherent direction to guide coordinated performance and implementation of the policy. It will also provide a platform for various regulators to effectively act on enforcement for smooth operations of the industry.

Hon. Mithika Linturi,
Cabinet Secretary,
Ministry of Agriculture and Livestock Development

PREFACE

Kenya continues to face fluctuating sugarcane and sugar supplies for her needs and for export. Over the years, the performance of the industry has been constrained by a number of challenges. These include; high cost of production, inadequate cane supply, low sugarcane productivity and quality, inefficient processing of sugar, low value addition initiatives, delayed payment to cane farmers, illegal sugar imports, poor technology dissemination and adoption, high levels of indebtedness especially among public owned mills and inadequate support services and infrastructure.

Domestic sugar production has been fluctuating and has always fallen below requirement despite the potential. Consequently, this policy draws the Government's roadmap on the revitalization and development of a vibrant sugar industry. The objectives of the policy are directed towards guiding sugar industry that will economically empower all stakeholders in the value chain and also bring competitiveness in a sustainable way. It also seeks to facilitate establishment of an efficient seed cane system, enhancement of demand driven research and technology development and dissemination. The policy also aims at ensuring development and enforcement of produce and product standards.

The overall objective of the policy is to revitalize the sugar industry and make it competitive and sustainable. The policy will ensure sustainable and adequate supply of quality sugarcane, guarantees favourable returns on farmers' investment, promote a favourable business environment both locally and internationally, create a vibrant and modern research sector responsive to the needs of the sugar industry and establish robust institutional arrangements, a legal and regulatory framework that facilitates good governance and efficiency in sugar industry operations.

Development of this policy has taken into account past attempts to improve the industry and involved all stakeholders. Stakeholders in all the sugarcane growing regions have been consulted and their concerns taken into account. Consultation was also extended to other agencies whose operations by law interact with sugar industry players somewhere along the value chain. It is expected that the implementation of this policy will unlock the potential of the industry and lead to a highly competitive and thriving sugar industry able to address the Country's need in sugar and sugar co-products as well as surplus for exports.

Lastly, I wish to affirm my commitment to mobilize adequate human and financial resources to implement this policy. I therefore call upon all stakeholders to support its implementation.

Kello Harsama,
Principal Secretary,
State Department Crop Development

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ACRONYMS AND ABBREVIATIONS

ACFC	- Agro-Chemical and Food Company
AfCFTA	- The African Continental Free Trade Area
ASTGS	- Agricultural Sector Transformation and Growth Strategy
ACP-EU	- African Caribbean Pacific-European Union
AFA	- Agriculture and Food Authority
AFC	- Agricultural Finance Corporation
AFFA	- Agriculture Fisheries and Food Authority
AFFA –SD	- Agriculture Fisheries and Food Authority- Sugar Directorate
ASDS	- Agricultural Sector Development Strategy 2009-2020
CBO	- Community Based Organization
CDF	- Constituency Development Fund
CET	- Common External Tariff
CoK, 2010	- Constitution of Kenya 2010
COMESA	- Common Market for Eastern and Southern Africa
EAC	- East Africa Community
EBA	- Everything But Arms
EPA	- Economic Partnership Agreement
EPZ	- Export Processing Zone
EU	- European Union
FRP	- Fair and Remunerative Price
FTA	- Free Trade Area
GDP	- Gross Domestic Product
GIS/RS	- Geographical information System/Remote Sensing
ICT	- Information Communication Technologies
ILO	- International Labour Organization
KALRO	- Kenya Agricultural and Livestock Research Organization
KENPHIA	- Kenya Population-Based HIV Impact Assessment
KeRRA	- Kenya Rural Roads Authority
KESMA	- Kenya Sugar Manufacturers Association
KISCOL	- Kwale International Sugar Company Limited
KSSCT	- Kenya Society of Sugarcane Technologists
KURA	- Kenya Urban Roads Authority
LDC's	- Least Development Countries
MDGs	- Millennium Development Goals
MoU	- Memorandum of Understanding
PDS	- Public distribution system
RECs	- Regional Economic Communities
SADC	- Southern Africa Development Cooperation
SDF/ SDL	- Sugar Development Fund/ Levy
SRI	- Sugar Research Institute
SURTEC	- Sugar Research and Technology Evaluation Committee
TC:TS	- Tons Cane to Tons Sugar ratio
TFTA	- Tripartite Free Trade Area
VAT	- Value Added Tax
WTO	- World Trade Organization

EXECUTIVE SUMMARY

The Sugar Subsector continues to play significant economic and social roles in both the agriculture sector and the national economy. The Subsector has fourteen sugar companies currently operating. The Subsector is the socio-economic backbone of the sugarcane growing communities supporting about 300,000 farmers. In addition, over eight million Kenyans draw their livelihoods directly from sugar production and indirectly through linked enterprises in supply of goods, related services and social amenities.

The Subsector has the potential to make great contribution to the economy by way of employment creation, saving of foreign exchange earnings, providing livelihood to the sugar growing communities and raw materials for agro-industry. Over the years, the performance of the industry has been constrained by a number of challenges. These include; low sugarcane productivity and quality; inefficient processing of both sugar and a narrow range of diversification; high cost of sugarcane and sugar production; inadequate sugar technology development, dissemination and adoption; high levels of indebtedness especially among public owned mills, poorly maintained support infrastructure, weak market structures for sugar and sugar co-products; inadequate technology generation dissemination and adoption along the sugar industry value chain; inadequate financing in the sugar subsector; inadequate support infrastructure; crosscutting issues that adversely impact industry performance; and institutional, legal and regulatory framework that does not adequately respond to industry needs.

The subsector has however been operating without a comprehensive policy to guide its growth and development and this informs the Government's quest to have one in place. The Sugar Policy forms the conceptual framework that provides guidelines for addressing the challenges in the sugar industry and exploiting the opportunities to bring greater competitiveness and spur economic growth. The overall objective of the sugar policy is therefore to nurture and develop a competitive and sustainable sugar industry that contributes to the economic development and adequately remunerates all value chain actors.

The effective implementation of the Sugar Industry Revitalization Policy will result in achievement of specific outcomes that include: sustainable sugarcane productivity; improved efficiency in sugar production; grower economic empowerment; improved coordination among institutions and an enabling environment for investment and business; increased sugar production to meet domestic market and surplus production for export; market and price stability; product quality; environmental sustainability; enhanced value addition and product diversification.

Policy implementation will require proper coordination of institutions and stakeholders in the industry to implement the outlined policy intervention measures. To achieve a thriving sugar subsector, an enabling legal and regulatory framework and fiscal measures such as a favourable taxation regime and other incentives shall be provided. In addition, an effective policy coordination, monitoring and evaluation framework shall be put in place to track implementation and facilitate review of the policy.

It is expected that the implementation of this policy will unlock the potential of the industry and lead to a highly competitive and thriving sugar subsector able to address the sugar and sugar co-products needs for domestic use and export markets.

CHAPTER ONE: INTRODUCTION

1.1 Role of Agriculture in the Kenyan Economy

The agriculture sector is important to the overall economic growth and development of Kenya. The agriculture sector remained the dominant sector accounting for 22.4% of the overall GDP in 2021. (Economic Survey, 2022).

Industry related activities and service activities accounted for about 17.0 per cent and 60.6 per cent, respectively in 2021. Nominal GDP increased from KSh 10,716.0 billion in 2020 to KSh 12,098.2 billion in 2021 while Gross National Disposable Income increased from KSh 11,058.4 billion in 2020 to KSh 12,588.2 billion in 2021. Gross domestic per capita increased by 11.4 per cent from KSh 220,132.2 in 2020 to KSh 245,145 in 2021. (Economic Survey, 2022). The sector is therefore not only the driver of Kenya's economy, but also a means of livelihood for majority of the Kenyan people. In the national development agenda, agriculture is expected to play a significant role in the growth and structural transformation of the economy.

Kenya's Vision 2030 targets to attain *“a globally competitive and prosperous country with a high quality of life by 2030”*. The Vision identifies agriculture as one of the six key economic sectors expected to drive the economy to a projected 10 percent economic growth annually by 2030. This goal will be realized by promotion of an innovative, commercially-oriented and modern agriculture. The achievement of the Vision requires a strong focus on the following strategic areas; transforming key institutions in the sector; increasing productivity; land use management; promoting irrigation; improving market access for smallholders and promoting product diversification and value addition.

The Agricultural Sector Development Strategy (ASTGS) 2019-2029, building on lessons learned from prior strategies, takes an evidence-based approach, as well as a sharp focus on implementation and delivery with the counties at the centre. It targets to modernize on farm production, increase output and shift production towards more value addition for both small scale and large-scale farms. Agricultural transformations is critical for increasing incomes and grow the economy, reduce the cost of food, alleviate poverty and therefore deliver 100% food and nutrition security.

1.2 Contribution of the Sugar Industry to the Kenyan Economy

The Sugar Industry plays an important role in the socio-economic development of the country.

The sugarcane industry provides raw materials for other industries such as bagasse for power co-generation and molasses for a wide range of industrial products including ethanol beverages, confectionery and pharmaceuticals. The industry has potential to provide furfural for resins and use in plastic industry, pulp for paper, particle boards and charcoal briquettes.

The sugar subsector supports over eight million Kenyans who draw their livelihoods directly from sugar production and indirectly through linked enterprises in supply of goods, related services and social amenities. The industry is the socio-economic backbone of the sugarcane

growing communities supporting about 300,000 out-grower farmers. Unlike leading sugar producing countries where sugar cane production is dominated by highly mechanized and irrigated large scale plantations, Kenyan production is characterized by smallholders with average land holding of 0.7 Ha, low level of mechanization and rain-fed farming.

1.3 Sugar Industry Development: Historical Perspective

The first sugarcane factory was built at Miwani Kim North of Kisumu in 1922 and later a second one at Ramisi in the Coast Region in 1927. After independence, through Sessional Paper No. 10 of 1965, the Government outlined the importance and role of the sugar industry. The Sessional Paper underscored, among others, the following:

- 1) Accelerating socio-economic development
- 2) Redressing regional economic imbalances
- 3) Promoting indigenous entrepreneurship
- 4) Promoting foreign investment through joint ventures

In pursuit of the above goals, the Government invested heavily in sugar factories by constructing and holding majority shares in five factories as follows; Muhoroni (1966), Chemelil (1968), Mumias (1973), Nzoia (1978) and South Nyanza (1979). The establishment of the publicly owned factories was aimed at:

- 1) Achieving self-sufficiency in sugar with a surplus for export in a globally competitive market
- 2) Generating gainful employment and creation of wealth
- 3) Supplying raw material for sugar related industries
- 4) Promoting economic development in the rural economy and beyond through activities linked to the sugar industry

In subsequent years more factories were constructed by private investors namely: West Kenya Sugar Company Limited (1981), Soin Sugar Company Limited (2006), Kibos Sugar & Allied Industries (2007), Butali Sugar Mills Limited (2011), Transmara Sugar Company Limited (2011), Sukari Industries Limited (2011), Kwale International Sugar Company Limited (2015), and West Kenya Sugar Company Limited - Olepito Unit (2017), Busia Sugar Industry (2019) and Naitiri Sugar Company (2022) bringing the total number of sugar mills to sixteen (16). In addition, a number of jaggeries have been established.

Ramisi sugar factory collapsed in 1988, Miwani and Muhoroni sugar factories were put under receivership (Miwani ceased operations in 2001). Soin Sugar Company Limited ceased operation in 2014 while Mumias was privatized in 2000 but stopped crushing cane in 2018, however it resumed operation in September 2022.

Since 1975 the Government promoted the establishment of out-grower companies to improve cane development and supply through delivery of services such as land preparation, input supply, cane transportation, provision of credit services and advocacy. The intended objective of establishing the out-grower institutions was however not realized and most of these institutions have since collapsed.

Further, the Government supplemented investment in the sugar industry through the Sugar Development Fund (SDF), which was set up as a revolving fund in 1992. As at April 2015, the Fund had disbursed Kshs. 21 Billion towards cane development, factory rehabilitation, research and infrastructure development. The SDL which was a source of funds for the SDF was revoked in 2016 and the Commodities Fund established under the AFA Act to fund crop subsectors. The revocation of the SDL reduced funding to the industry.

1.4 Justification for Sugar Industry Policy

Kenya remains a net importer of sugar despite having the potential to produce and meet her domestic consumption and surplus for export. The country continues to rely on imports to bridge the deficit. For instance, in 2022, sugar valued at KSh 23.923 B was imported. This is a drain to the country's foreign exchange. The sugar value chain has several economic opportunities to contribute to the Agriculture GDP and also support the livelihood of over eight million Kenyans. However, these opportunities have not been fully exploited due to several challenges facing the subsector.

The Sugar subsector has operated with no specific policy to guide the industry and this informs the Government's quest to have one in place. This policy aims at addressing the challenges facing the subsector and exploiting opportunities with a view to revitalizing the sugar industry.

1.5 Objective of the Sugar Industry Policy

The overall objective

The overall objective of the policy is to revitalize the sugar industry and make it competitive and sustainable. This will enable the industry to avail affordable quality sugar and co-products, adequately remunerate all value chain actors and contribute to economic development.

Specific Objectives

The Specific Objectives pursued under this policy are as follows

- 1) To ensure sustainable and adequate supply of quality cane that meets milling requirements and guarantee returns on farm investment
- 2) To enhance the milling efficiency and competitiveness of sugar and co products production
- 3) To promote favourable business environment both locally and internationally which guarantee sustainable supply of quality affordable sugar products.
- 4) To facilitate efficient and effective provision of industry support services including research, farm infrastructure financial and advisory services
- 5) To improve competitiveness of public owned sugar factories
- 6) To provide adequate support infrastructure to enhance efficiency of operations in the industry;

- 7) To enhance service delivery and promote sustainability by addressing socioeconomic constraints in the sector;
- 8) To establish robust institutional arrangements, a legal and regulatory framework that facilitates good governance and efficiency in the sugar industry operations.

CHAPTER TWO: STATUS AND CHALLENGES IN THE SUGAR INDUSTRY

2.1 Sugarcane Production

Commercial sugarcane production in Kenya is concentrated in the Western, Nyanza, Rift Valley and Coastal regions. Over 300,000 farmers supply sugarcane to the millers. Over 94% of the cane supply is by out-growers the difference being supplied by the Nucleus Estates owned by the various milling companies.

Sugarcane is the raw material used for commercial sugar production in Kenya, with a range of varieties that mature between nine (9) and twenty-four (24) months depending on altitude for the coastal and western regions, respectively.

The area under cane has fluctuating over the last decade, recording a low of 191,251 hectares producing 5,125,821 tonnes of cane in in 2017 to all-time high of 223,006 hectares producing 7,659,120 tonnes of cane in 2021. The average cane yield increased from 51 tonnes per hectare in 2019 to a high of 70 tonnes per hectare in 2021 (AFA-SD Year Book of Sugar Statistics, 2021). The area under cane and yields between 2012 and 2021 is captured in figure 1, below.

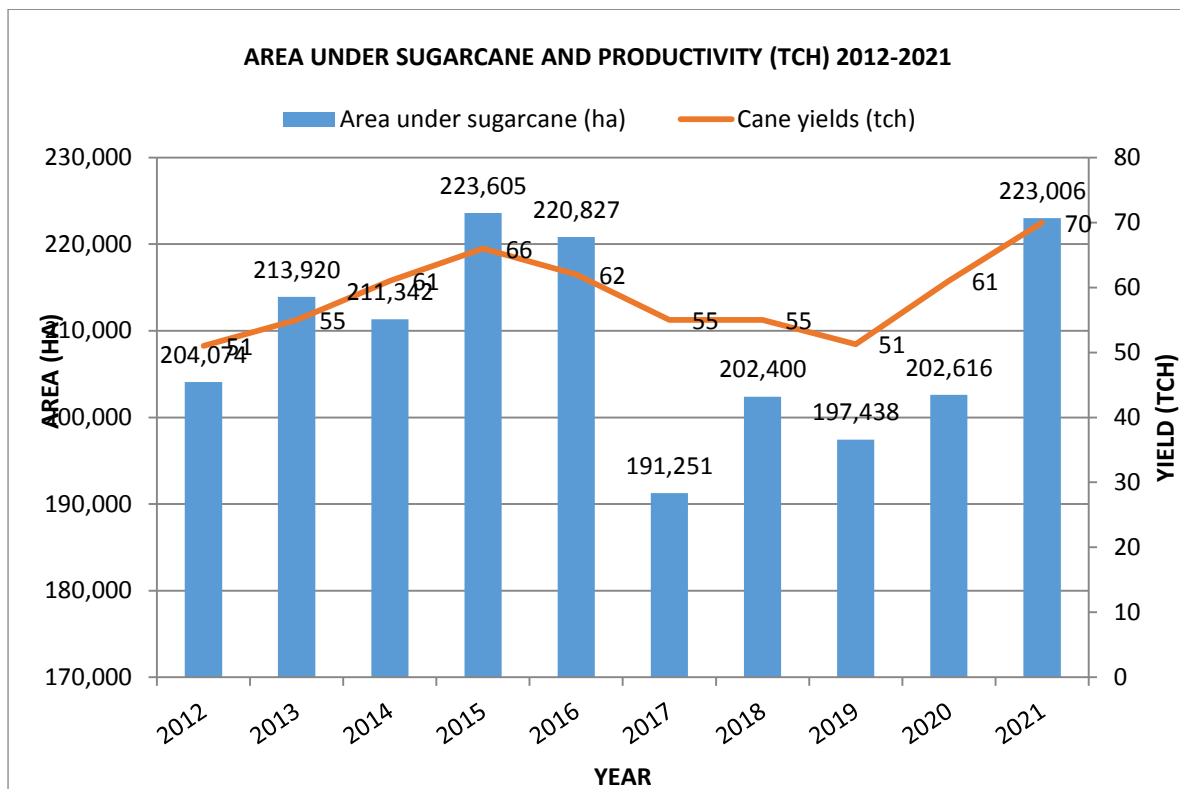


Figure 1: Area under cane and yields (AFA-SD Year Book of Statistics, 2021)

The key stages in sugarcane production involve land selection and farmer recruitment; land preparation; seed cane selection and planting; crop maintenance; harvesting; transportation; and cane weighing.

2.1.1 Farm Selection, Land Preparation and Crop Management

a) Sugarcane Land Selection and Farmer Recruitment

Farmer recruitment is undertaken by both the Millers and Out-grower Institutions through cane farming contracts. The land holding among the out-growers ranges from 0.1 Ha in the Western to 550 Ha, with the average holding in the industry being 0.7 Ha. Land selection and farmer recruitment for cane production is based on availability of land for cane development, household subsistence needs and the clustering of farms to attain acreages feasible for economic cane production. Availability of land is constrained by continuous subdivision of land. Some farmers undertake cane farming operations independently and usually have a cane supply contract with Millers of their choice. This arrangement is predominant among large scale farmers. Service providers have oligopolistic tendencies and wield enormous influence over millers and are able to influence prices of goods and services at times to the detriment of the farmers

b) Land Preparation

Land preparation comprises bush clearing, ploughing, harrowing and furrowing. The implements used and the frequency of operations are dictated by the status of the land such as, topography, vegetation cover and soil type. The cost of land preparation ranges from KSh. 20,000 to KSh. 45,000 per Ha and accounts for 6.5 to 15% of the total cost of cane production. This cost is highest (KSh. 45,000) in the Nyando sugar belt, where the soils are predominantly of the black cotton type and least in lighter red soils of the western sugar belt. Where new land is opened there is need for use of heavy machinery, especially in uprooting tree stumps and levelling the fields making the cost even higher. The efficiency and cost of mechanical land preparation is compromised by small land sizes.

c) Seed Multiplication, Distribution and Certification

Multiplication of seed is carried out by the Sugar Research Institute and the millers. The quantities of seed cane produced by the two institutions are inadequate, leading to the use of poor quality seed cane including that from ratoon crops and cane tops. Due to the lack of certified, seed cane selection is largely done by visual appraisal and simple disease survey. The use of poor-quality seed cane leads to poor sugarcane crop establishment and low yields. Seed cane is selected, harvested and distributed to the planting points using various means of transport, including human labour, animal draught power as well as motorised vehicles. The seed cane supplied to farmers is based on an estimated weight.

d) Soil Fertility Management

The soil fertility has declined in many sugarcane growing areas due to improper practices such as continuous use of DAP and UREA fertilisers over the years, mono-cropping of sugarcane, poor land preparation techniques, inadequate mechanisation of agricultural operations, burning of trash and poor soil conservation techniques. This has contributed to low yields due to loss of one or more soil functions.

e) Cane Planting

Cane planting is largely manual. The common practice is the use of placement of seed cane setts in the furrows. Failure to adhere to best practice at planting affects overall crop production.

f) Crop Maintenance

Field crop maintenance involves weeding, fertilisation and pest and disease management. There is over-reliance on manual weed control which is ineffective, labour intensive and costly. Different zones use different costing methods, either per row or unit area. Some farmers do not apply appropriate agronomic practices particularly efficient use of fertiliser leading to low yields.

g) Climate Change Adaptation and Mitigation

The negative effects of climate change have manifested in the sugar industry with changing weather patterns and emergent pests and diseases all with an impact on sugarcane crop yields and farmer incomes. The current adaptation measures for sugarcane farming are crop diversification, improved water use management, soil conservation, agroforestry, improved pest and disease management, weather forecasting, adoption of climate-resilient sugarcane varieties and capacity building of stakeholders. By adopting these adaptation measures, sugarcane farmers in Kenya can enhance their resilience to climate change, improve their yields and income, and ensure the long-term sustainability of sugarcane farming. The sugar industry is a contributor to Greenhouse Gases through various activities along the value chain.

2.1.2 Cane Harvesting, Transportation and Weighment

a) Cane Harvesting

Cane harvesting is mainly done manually by contractors assigned by various millers. Manually harvested cane is either piled, heaped, stacked or windrowed. Mechanical harvesting has been adopted by Kwale International Sugar Company Limited (KISCOL). It is common to have cane of different maturity harvested together. This compromises the optimal yield at the farm and sucrose content. The cane harvesting program is frequently affected by various factors that include unscheduled mill stops, cane fires and cane on small land sizes.

b) Cane Transportation

Transportation is currently carried out largely by contracted parties but the day-to-day programming and allocation of transport tasks is managed by the various transport departments of respective millers, whose key task is to match transport resources with cane demand. A few factories have their own transport fleets. In most mill areas the cost of transportation is based on 4 Km or 10 Km distance bands from the respective mills. These rates are reviewed from time to time by millers, transporters and farmers. Transportation costs generally average between 11% and 29% of the total cost of production per tonne and vary from one cane zone to another. In general, the average cost of transportation is unfavourable where low payload vehicles are used for haulage from far flung areas or where cane is

transported from small land sizes. Transportation of cane during wet weather is extremely difficult, more so in low lying terrains and in areas with poorly maintained roads where tractors require intensive winching.

c) Cane buying centres

Buying of the sugarcane is done at the weighbridges at factory gates. However, a number of sugar mills have installed off-site weighbridges at cane buying centres. The setting up of these cane buying centres is currently unregulated, encouraging cane side selling outside farming contract. The weighing process is often preceded by cane quality checks focusing on extraneous matter, maturity and general assessment of the cane for compliance to appropriate quality threshold. With the collapse of the Out-grower Institutions, lack of farmers' representation at the weighbridges has led to suspicion and complaints on recorded weights.

2.1.3 Cane Pricing and Payment

The current cane pricing is based on a formula which takes into account cane weight, TC/TS ratio, net ex-factory sugar price and farmer sharing ratio. However, this formula depends largely on changes in sugar price and not quality to the disadvantage of the industry players. The recovery ratio and farmer shares are fixed parameters while sugar prices are volatile leading to inequitable remuneration of players. Competition for sugarcane among the millers has also influenced cane prices, a factor extraneous to the cane pricing formula. The industry is in transition to a sucrose-based payment system which provides incentives for high quality cane and better sugar extraction.

2.1.4 Enterprise Diversification

Enterprise diversification is important for food security and additional income to the farmer. A number of farmer's intercrop cane with soya bean, normal beans and groundnuts while a few others intercrop with maize. While intercropping with legumes is mutually beneficial, maize intercrops creates competition on soil nutrients between maize and cane which may lead to low cane yields. Other activities that farmers are involved in as a form of enterprise diversification include dairy farming and poultry keeping.

2.1.5 Challenges in Sugarcane Production

The high cost of sugarcane production in Kenya is brought about by the following factors:

1) Low Sugarcane Productivity:

There is predominance of smallholder based sugarcane production and increasing land fragmentation in sugarcane growing areas, low adoption of improved varieties as many farmers still use low quality seed including setts from cane tops and ratoon crops, employment of poor agronomic practices including poor soil fertility management, inefficient use of fertilisers,, disease and pest control and overreliance on rain-fed

sugarcane production and changing/erratic rainfall patterns. Most farmers have consistently kept the land under cane, deteriorating the soils and consequently compromising the yields. Cane farming requires that the land periodically be left fallow to enable it to regenerate. In other sugar growing countries, regeneration has been enhanced by planting short term crops such as oats which are ploughed back into the soil before replanting sugarcane. This helps the successful maintenance of more ratoons.

2) Cane Harvesting, Transport and Weighment Inefficiencies:

Inefficient cane harvesting and transport systems impact negatively on the cane quality and increase farm and transit losses. The losses are mainly due to poor harvesting practices such as harvesting of immature cane, long collection period and transit wastage. The practice of harvesting in wet fields in the lowlands is common but destroys the cane stools thereby reducing proper ratooning of the crop. The cost of transport is increased by lack of cane trans-loading sites in far flung areas, small farm sizes, unregulated sugarcane transportation rates across zones and factory catchments among others factors.

3) Poor Cane Production Planning and Management: There is lack of synchrony in cane development to match mill rated capacity. At the farm level, there is poorly coordinated seed cane and other input supply and field operations with the planting season leading to surplus/deficit cane supply. The deficit in cane supply has forced some millers to establish cane buying centres in areas that infringe on the catchment regions of competing millers creating conflicts. In addition, illegal cane diversion (poaching of contracted cane) is common leading to poor recovery of loans advanced to farmers and disrupting cane availability. During periods of surplus cane, there is delay in harvesting, leading to loss of income to the farmer.

4) High cost of cane production leading to uncompetitiveness

The current total cost of cane production per Ha ranges between Kshs. 249,000 to Kshs. 290,000 per Ha. The costs include land development, input supply and credit among others. At an optimum yield of 70 TCH, the weighted average cost of sugarcane production per ton is KSh. 4,572 which is higher than the competing countries within the region.

5) Delayed Payment of Proceeds for Sugarcane Produce:

Delayed payment of sugarcane proceeds affects farm operations as farmers end up neglecting cane due to lack of resources to purchase further inputs and also meet their daily subsistence requirements. Delayed payment also negatively affects new investments in sugarcane production.

6) Low Farm Diversification in the sugarcane growing areas: Most sugarcane farmers have consistently engaged in mono-cropping despite the existing potential to diversify

by intercropping sugarcane with suitable food crops. This will not only diversify the farmer's revenue base but will enhance food security in the farming community.

- 7) **Limited Sources of Affordable Credit:** Sugarcane farmers have limited sources of credit. This is partly caused by unfavourable terms and conditions for accessing affordable credit, transparency and accountability, poaching, borrowing from multiple sources using the same collateral and delayed payments for cane supplied. This situation continues to compromise yields and quality of cane as farmers use poor agronomic practices.
- 8) **Losses arising from risk such as drought, Cane fires and flooding:** drought, Cane fires and flooding leads to significant losses in the sugar industry as these disrupt harvesting programmes and affect yield and quality of the cane.
- 9) **Unfavourable land tenure system:** The land tenure system and bureaucratic practices in land acquisition are an impediment towards investment in irrigation. Leasing of land by owners to prospective cane producers is common in sugarcane growing areas. These land lease arrangements are unstructured and in most cases non-binding leading to frequent violation of lease agreements and loss of cane production.

2.2 Sugarcane Processing and Co-products

2.2.1 Milling and Processing of Sugar and Co-products

There are 16 sugar mills in the country with a total processing capacity of 51,450 metric tonnes of cane per day but the current capacity utilization is about 56% (AFA-SD Yearbook of Sugar Statistics, 2021). The low utilization is due to inadequate factory equipment maintenance, fluctuating supply of cane and inappropriate processing technology. The mills with low sugar recoveries are operating old and inefficient machinery while the newly installed mills using modern and efficient processing technology post higher recoveries. The average cane-sugar ratio (TC:TS) in Kenya ranges from ten (10) to fifteen (15).

All sugar mills produce granular sugar as their main product with a sugar production of 700,241 metric tonnes against domestic demand of about 1,100,000 metric tonnes in the year 2021 (AFA-SD Yearbook of Sugar Statistics, 2021). The deficit is met by importation from the COMESA region and the international market. Jaggery is also produced by small and medium processors of various forms and grades.

Value addition and utilization of co-products of sugar is generally low. The production of molasses ranges between 3 and 4% per tonne of cane milled and used for production of industrial ethanol and a small percentage used as animal feeds. Production of bagasse ranges between 33 and 36% per tonne of cane milled and is predominantly used for internal power generation. Surplus bagasse is also used for briquette manufacturing and other products.

Currently only two sugarcane millers have diversified into ethanol production. In addition, there are several stand-alone distilleries that utilize molasses from the sugar mills to produce ethanol which is currently mostly used for industrial and potable use. One miller has export power co-generation capacity to the national grid. Cogeneration has not been found attractive by millers due to unfavourable tariffs.

2.2.2 Cost of Sugar Processing

The cost of producing a tonne of sugar in Kenya is USD 832, which is high as compared to other producing countries in the region. For example, CIF value of sugar in Kenya originating from Eswatini is USD 517, Zambia USD 542, Malawi USD 515 and Uganda USD 668. (AFA-SD Year Book of Sugar Statistics, 2021).

The cost of sugar production is manifested at farm and factory levels and therefore a competitively priced end-product has to be managed at the two levels.

2.2.3 Sugar and Co-products Processing

- 1) **High Cost of Sugar Production:** The cost of sugar production especially in public mills is comparatively high due to inefficiencies along the value chain, inadequate maintenance of factory machinery and equipment, low sugar recovery as a result of poor cane quality, inappropriate processing technologies and low skills competencies.
- 2) **Low Utilization of Milling Capacity:** Most of the sugar mills operate below their installed capacities with a national average of 56% due to factors that include scarcity of sugarcane, low factory-time efficiency, high tractor turn-around time, insufficient rehabilitation and maintenance and inappropriate processing technology.
- 3) **Limited Products Diversification:** The industry relies mostly on the production of mill-white/brown sugar as the key product while refined sugar is met through imports. In addition, co-generation for sale to the national grid has been affected by poor and unfavourable feed-in tariffs while ethanol production has been affected by the imposition of high and unfavourable taxation regime making it an unattractive diversification venture for most millers.

2.3 Marketing and Trade

2.3.1 Sugar and Co-Product Pricing

Prior to 1992, the Government controlled the marketing and distribution of sugar in the country through the Kenya National Trading Corporation (KNTC), regulating producer and consumer prices, distribution margins up to the retail level. The controlled pricing regime was liberalized in 1992 as part of the Structural Adjustment Programme (SAP). Liberalization not only meant that individual mills market their own sugar but also opened the local market to relatively cheaper imported sugar, mainly from the EAC and COMESA region. These changes

posed a challenge to sugar companies who were unprepared to deal with the marketing and distribution of sugar in the market.

In 2021, Kenya produced 64% of her domestic sugar requirement, making the country a net sugar importer. The total sugar requirement in the country is estimated at 1,100,000 MT metric tons, made up of 930,000 Tons Table sugar and 170,000 Tons of industrial use sugar. The industry has the potential of producing over 1.47 Million MT of sugar which would meet the domestic demand and provide a sustained surplus for export to the wider COMESA region which is generally a net importing region. Due to industry inefficiencies, this capacity is currently underutilized.

The figure below indicates the sugar production, consumption, Import and Export figures in the last ten years (2012 – 2021).

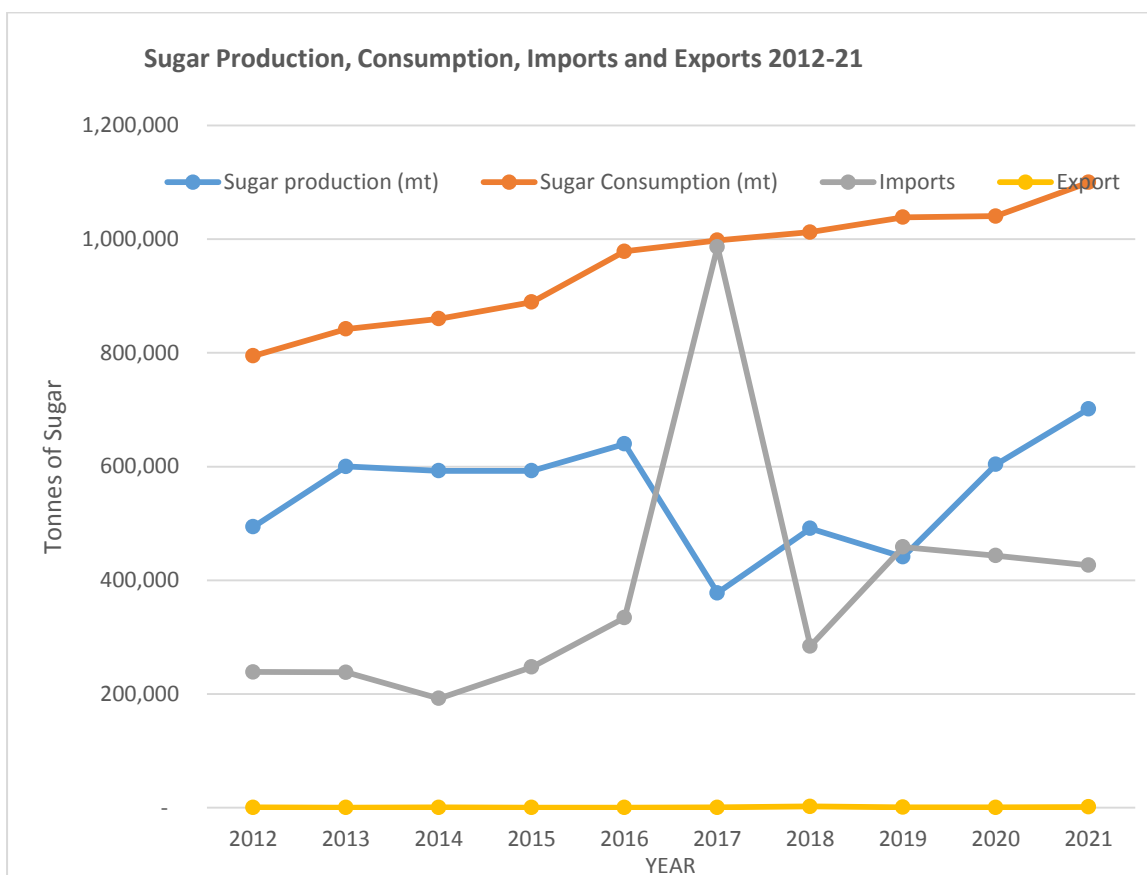


Figure 2: sugar production, consumption, Import and Export

Sugar pricing in Kenya is based on the cost of sugarcane, processing and mark-up which are relatively higher compared to the rest of the world. The present system of marketing of sugar is poorly structured, inefficient and dominated by distributors and middlemen.

Lack of a nationwide availability of local affordable sugar especially along the long porous borders encourage seepage of illegal sugar into the country. This sugar is not only cheaper but its quality cannot be vouched for, exposing consumers to health risks. Kenya does not produce refined sugar, it therefore has to meet this need through importation, creating an opportunity for diversion of the same to the consumer market.

The main co-products in the industry are ethanol and co-generated electricity. Pricing of these products is influenced by Government fiscal policy, considered unfavourable in attracting investments in these areas. Other co-products include paper, chipboard and Bio-fertilizers. The by-products include molasses, bagasse, and filter press mud. Molasses is used for animal feeds, ethanol, spirits, yeast and carbon dioxide manufacturing. Bagasse is used to produce steam for firing boilers and electric power generation, while filter mud is used as farm manure.

2.3.2 Sugar and Co-products Distribution

Sugar processing companies have created distribution networks to deliver their products and co-products to different destinations. Currently the sector is characterized by an extensive distribution network, and a vibrant, highly segmented retail market. Kenya is not self-sufficient in sugar production and relies on imports to bridge its deficit which at times leads to stabilization of retail prices. However, excess imports may cause market distortion leading to local sugar mills being unable to move their stocks resulting into cash flow problems.

2.3.3 Packaging, Branding and Traceability

Some companies repackage and brand their sugar without adhering to repacking standards making it difficult to trace the source of the sugar. The packed and branded sugar for the retail market is between 10%-30% of the total sugar produced in the country. Branded sugar is packaged in various sizes, ranging from 5gm sachets, 125gm, 250gm, 500gm, 1kg, 2kg and 5kg bag moving away from supplying larger quantity packages to pre-packed products. The branded sugar is normally sold at a premium price which is 10% more expensive than other local unbranded sugar aimed at increasing profits and expanding market niche through customer loyalty. Frequently some of the retailers buy unbranded sugar in 50 Kg bags and repackage in their own brands in 1-2Kgs in preference to millers' brands in order to promote their business interests.

2.3.4 Sugar Imports

Kenya is a net importer of sugar. Total sugar importation has fluctuated over the last ten years, with least imports in 2011 at 139,076 MT with a peak in 2017 at 989,619 MT. which was due to cane shortage and prolonged dry spell. The total imports reduced to 426,334 MT in 2021 as a result of improved industry performance that saw increased cane deliveries to factories leading to increased local production of mill white/brown sugar. The country relies 100% on imports to meet its refined white sugar requirements. Refined sugar imported from outside the COMESA region under the Duty Remission Scheme as a raw material for manufacturing is gazetted under the East Africa Customs Management Act (2004) and subjected to VAT.

Apart from official imports of sugar, Kenya has over the years contended with the challenge of uncustomed sugar that accesses the domestic market. Despite importation to meet the deficit in domestic demand, Kenya has in the last two decades protected its domestic market through the COMESA safeguards. In 2020, Kenya was granted a two-year sugar safeguard extension beginning March 2021 to February 2023.

All importers of sugar are subject to registration and licensing by AFA Sugar Directorate as per the provisions of the Crops (Sugar) (Imports, Exports and By-products) Regulations, (2020). The Directorate has fully automated the import/export process through the AFA Integrated Management Information System (AFA-IMIS) which is integrated with the Kenya National Single Window system (Kentrade) to improve service delivery.

2.3.5 Sugar Exports

Kenya was signatory to the ACP-EU Protocol and had an export allocation of 5,000 Mt to the EU. The country was able to fulfil this obligation for a few years but defaulted on account of higher domestic prices compared to the EU market. Other export destinations but of low significance are Democratic Republic of Congo, South Sudan, Rwanda and Uganda.

2.3.6 Trade Protocols

EAC: Kenya is a member of the East African Customs Union, alongside Uganda, Tanzania, Rwanda, South Sudan, DRC and Burundi. Within the EAC, a Common External Tariff (CET) of 100% import duty or USD 200/MT, whichever is the higher, applies. During periods of sugar deficit in EAC, Kenya has occasionally applied for a stay on CET to enable importation of specified quantities of sugar from outside the EAC Duty Free.

COMESA: Kenya is also a signatory to the COMESA Free Trade Agreement which provides for quota free and duty-free access of all commodities from Member States. Since 2002, Kenya has been under the Sugar Safeguards which place a quantitative cap on the amount of duty-free sugar to be imported from the COMESA region. The safeguard is provided for under Article 61 of the COMESA Treaty.

TFTA: The Tripartite Free Trade Area (TFTA) was launched on 12th June 2011. The TFTA seeks to pursue further integration of the African Economies in the Eastern and Southern African regions and establish a free trade area among the twenty-six Member (26) States of the three existing Regional Economic Configurations (RECs) in Eastern and Southern Africa that is, the EAC, COMESA and SADC. It also offers an opportunity to promote social and economic development of the region by creating a large and single market with free movement of goods and services; and eventually create a Customs Union. Through the harmonization of policies and programs of the three RECs, the TFTA is expected to resolve the challenge of multiple and overlapping memberships and expedite the regional and continental integration processes while promoting close cooperation in all sectors of the economic and social activities among member states. The sugar producing states of the TFTA are currently drawing the terms for a special dispensation for sugar due to its strategic role in the respective producer economies.

AfCFTA: The African Continental Free Trade Area is a free trade area founded in 2018, with trade commencing on 1st January 2021. It was created by the African Continental Free Trade Agreement among 54 of the 55 African Union nations. So far 44 Countries, including Kenya

had ratified the treaty as at October, 2022. Countries joining AfCFTA commit to removing tariffs on at least 90% of the goods they produce. This arrangement may affect local sugar production if sugar import from African countries is not tariffed.

EPAs: The Economic Partnership Agreements are an evolution of long historical ties between Europe and the Africa-Caribbean-Pacific countries. EPAs replace the previous market access regime of the unilateral preferences for ACP countries which were challenged in the WTO by other developing countries. EPAs provide for reciprocal market access provisions within a framework of sustainable development, compatibility with WTO rules, transparent and coherent trading regime. The EAC initialled the EPAs with the EU on 14th October 2014 and are in the process of addressing outstanding contentious issues which include governance as a condition for aid, export taxes and subsidies. Apart from Kenya which is a developing country, all the other EAC member states are categorized as Least Developed Countries which allows them quota and duty-free access to the EU market under the Everything But Arms (EBA) initiative.

2.3.7 Sugar and Co-products Marketing and Trade

1) High cost of locally produced sugar:

The price of sugar per tonne in Kenya in 2021 averaged KSh. 90,720 (832 USD) which was uncompetitive, making Kenya unattractive market for sugar imports from the region. In 2021 a number of countries within COMESA had low C.I.F landed values for sugar who included Madagascar brown sugar at KSh. 56,358/tonne (517 USD), followed by Malawi at KSh 56,462 (518 USD) and Eswatini at KES 56,704 (520 USD) per tonne.

2) Weak coordination and enforcement of regulatory requirements:

The importation/exportation of sugar and sugar by/co products involves a number of government ministries, agencies and departments each with specific roles and mandates. These institutions include ministries responsible for agriculture, trade, finance, national security and agencies responsible for customs, standards/quality and public health. These institutions often operate independent of each other thereby failing to realize the interests and objectives of the sugar industry.

3) Weak traceability and quality control:

Some traders repackage sugar using packages that do not meet labelling and traceability standards. This could be due to weak enforcement of standards.

2.4 Support Services in the Sugar Industry Value chains

Sugar industry support services include research and development, provision of inputs, provision of advisory services and financial services.

2.4.1 Research and Development

2.4.1.1 Status of Research in the Industry

Sugar research in the country is spearheaded by the Sugar Research Institute (SRI), an Institute under the Kenya Agricultural and Livestock Research Organisation (KALRO) established under the Kenya Agricultural and Livestock Research Act, 2013 in which KESREF was put under KALRO and renamed SRI. The Institute is headquartered in Kibos with sub-centres in Mtwapa, Opapo and Mumias. As at 2022, the SRI had a total of 94 staff comprising of researchers and technical staff of various cadre against 338, which is 28% of their requirement. Further, research has been constrained by limited operational resources. SRI has been instrumental in development of improved cane varieties.

The main source of funding for SRI research activities was 23.5% of the Sugar Development Levy, which was scrapped in 2016. For instance, an average of KSh 610 Million from SDL was dedicated to KESREF in the financial year 2013/14 compared to KSh 56 Million from the exchequer to SRI in the financial year 2017/18. This represented a 91% reduction in funding. Other sources include government grants and donor funding. Consequently, there has been limited research in areas such as varietal development, bio-fertilizers, biotechnology, farm mechanisation and transportation, sugar processing technology, utilization of co-products and market research. Other stakeholders have laboratories that are equipped and staffed based on their specific needs.

2.4.2 Provision of Farm Inputs

Farm inputs constitute seed cane, fertilizers, pesticides, mechanized farm services, other farm operations such as manual cane weeding and harvesting. Contracted farmers get farm inputs from their respective millers. Non-contracted farmers acquire inputs through independent arrangements. The inputs provided by millers are offered at cost, interest and management/administrative cost which are normally way above prevailing market rates. In addition, the timeliness and quality of the inputs is wanting. The services offered to contracted farmers such as mechanized farm services and other farm operations are offered by Miller-contracted companies. This arrangement is often prone to compromising the quality of the services delivered by the contractors.

2.4.3 Provision of Advisory Services

Advisory services include extension services offered by various Extension Service Providers (ESP) and any other information advisory nature offered by support service providers. Extension in the sugar industry is largely provided by millers' out-grower services departments and by county agriculture extension staff. Private extension services, especially those offered by millers are way more costly than public extension. Going by the level of technology adoption especially on improved cane varieties, sugarcane agronomy and yields per unit area of land, extension has not been as effective as expected. This can be attributed to the poor research-extension-farmer linkages and associated lack of feedback, low coverage of cane farmers, poor service delivery and inadequate funding for public extension.

2.4.4 Sugar Industry Financing and Insurance

Financing in the sugar industry entails the provision of financial resources for capital investment and credit in the industry. The Sugar Development Fund (SDF) was established in 1992 as a revolving fund, with the sole purpose of financing the activities of the Sugar Industry in Kenya. The fund, which was non-profit making, was financed through a 4% levy, (SDL) charged on both CIF and ex-factory values of imported and locally manufactured sugar respectively. The levy, net of what was placed in reserves, was utilized to extend loans for cane development (4-5% interest rate), factory rehabilitation (5% interest rates); and grants for industry infrastructure, research and AFA Sugar Directorate administration. As at April 2015, the Fund had disbursed KSh. 21 Billion towards cane development, factory rehabilitation, research and infrastructure development. The SDL was revoked in 2016 leading to reduced funding to the industry.

The Government has in the past introduced a sugarcane insurance programme to mitigate against risk in the Industry. The Sugarcane Crop Insurance Scheme (SCIS) that was introduced in 2010/2011 was meant to safeguard growers against losses of sugarcane crop in the event of accidental fire, drought and diseases. The adoption of the SCIS by farmers was very low due to high insurance premiums levied by the underwriters.

2.4.5 Challenges in the Provision of Industry Support Services

a) Challenges in Research and Development

- 1) Inadequate funding for Research:** Research financing relied on Sugar Development Levy allocation up to 2016 when SDL was revoked. This led to drastic reduction in funding research activities as it depended on government grants which are not sufficient to carry out sustainable research activities. Further, donors have shown little interest in funding sugar research. This has resulted in low research initiatives, poor infrastructure, non-attraction and retention of qualified researchers and lack of capacity building for staff and County extension staff.
- 2) Low adoption of improved technologies:** The uptake of new technologies in the sugar industry has been low. This is due to inappropriate packaging of the technologies, inadequate extension services, weak research-extension-farmer linkages in technology development and dissemination, inaccessibility of the technology by the value chain actors and the lack of investment drive and financial constraints. Examples of new technologies with low uptake include improved cane varieties, milling technology, bio-fertilizers and product diversification.
- 3) Inadequate participation of stakeholders in technology development:** The sugar industry lacks a comprehensive framework for coordination and stakeholder engagement in setting up research priorities, undertaking research activities and transfer of

technologies. Some institutions conduct in-house research to address their specific needs without involvement of stakeholders and some of these outputs may not be available to other industry players.

- 4) **Inadequate Research capacity:** The Industry has inadequate human, physical and financial capacity to undertake research that meets its requirements. The industry has inadequate technical staff in key research areas for example industrial, engineering and marketing. Some laboratories within the industry are not well equipped. Research financing has relied on Sugar Development Levy allocation, donor funding and government grants which are not sufficient to carry out sustainable research activities.

b) Challenges in Provision of Farm Inputs

- 1) **High cost of inputs:** The Seedcane, pesticides and fertilizers and other farm operation services required by farmers are expensive. In addition, credit facilities for input by millers attract high transaction costs. There is heavy reliance on inorganic fertilizers and pesticides and little use of more sustainable approaches to soil fertility management and pest control regimes making the proportion cost of inputs in farming relatively high.
- 2) **Late supply and delivery of inputs and other farm services:** The supply of farm inputs such as seedcane, fertilizers, pesticides and the provision of other farm operations services by the government, millers and farmer organizations are often done late leading to late planting and poor crop management that does not take advantage of the rainy season. The out-grower departments of the various milling companies get overwhelmed especially during the peak planting period
- 3) **Poor quality of supplied inputs:** The seed-cane with the required quality is not available leading to farmers using inferior planting materials. There are observed instances of use of substandard fertilizers resulting into poor yields. The other challenges include: inadequate guidelines and calibration for both machine-based and manual operations. Where such guidelines exist, there is no enforcement mechanism to ensure quality services such as ploughing, harrowing, planting and weeding.

c) Challenges in Provision of Advisory Services

- 1) **High cost of private extension and advisory services:** Sugarcane farming relies largely on extension services offered by millers. These services are expensive compared to public service extension. The millers also charge for other advisory services such as soil testing and analysis and load the cost on production.
- 2) **Poor research-extension-farmer linkages:** There is poor uptake of new technologies and innovations due to inadequate awareness among farmers and extension staff. In addition, there is limited interaction between generators and disseminators of technologies leading to poor feedback to inform technology improvement and review of approaches to extension methodologies.

- 3) **Poor coverage and service delivery to cane farmers:** The farmer-extension staff ratio is low and budgetary allocation for extension facilities and operations is inadequate especially for public extension services. Most farmer-based societies have no capacity to offer extension and other advisory services. There is heavy reliance on manual-based extension approaches which are expensive and time consuming.

d) Challenges in Provision of Financial Services

- (i) **Low access to farm credit.** The requirements by the financier for the small holder farmers to provide tangible collateral e.g. land as security to access loans locks out potential loanees. The absence of appropriate farm credit options has led to growers relying on inputs and services provided by millers on credit charged at high interest rates. Banks and other financial institutions have also shied away from providing financing to growers due to credit diversion and defaulting by loanees. This has resulted into some cane farmers not taking cane farming as a business and diverting cane deliveries to non-contracted millers to avoid servicing debt obligations.
- (ii) **Inappropriate financing options in the sugar industry:** There are inadequate and expensive financing options for industry capital investments and operations.
- (iii) **Weak Credit Management.** Credit to farmers advanced through intermediaries such as Millers, Out-growers Institutions or Contracted Agents for example AFC have not achieved the intended objectives. Some of the institutions do not have the capacity to administer funds advanced to them to lend to farmers. In addition, some of the intermediaries and farmers divert funds meant for specific activities.
- (iv) **Low adoption of sugarcane insurance.** This is attributed to absence of appropriate packages to meet farmer needs. The rates of premiums payable are high, there are too many exclusions and generally, low levels of awareness.
- (v) **High level of indebtedness by public-owned mills.** The debt burden is one of the most debilitating factors in the development of the sugar industry in Kenya. It manifests itself in the form of severe cash flow problems and constraints the ability of sugar companies to borrow in order to finance their day-to-day operations and capital investment. Most of the sugar companies are undercapitalized which renders them unable to finance important activities such as cane development and factory maintenance. This in turn leads to reduced performance. Consequently, this has made it very difficult for industries to attract fresh funds.

2.5 Infrastructure

2.5.1 The State of Infrastructure within the Sugar Industry

Infrastructure comprises the physical and non-physical basic facilities and installations that support the sector in its mechanical and technical productivity operations. For the Sugar

industry, infrastructure includes roads, bridges, culverts, trans-loading stations, irrigation infrastructure, weighbridges and ICT Networks.

a) Physical Infrastructure

1) Road and Railway Networks: Feeder roads in the sugar growing zones are key to cane delivery to the processing mills. Roads linking the sugar zones for delivery of sugarcane to the mills, sugar and co-products to the markets and inputs to the industry are important in efficient operations of the industry. In majority of the regions, the road network, bridges and culverts are inadequate in terms of coverage, design and maintenance. Many roads in the western region in particular, are impassable especially during heavy rains. In some situations, where all weather gravel roads do not exist, maintenance has been a handicap due to use of heavy machinery/tractors for transportation of cane

The state of infrastructure in the Kenyan sugar industry has affected growth, productivity and returns in the sector. Inadequate and poorly maintained infrastructure leads to the following:

- a) High turn-around time on delivery,
- b) High in-transit cane losses, and
- c) Overall, low efficiency and competitiveness of the industry.

2) Cane Buying Centres: Past initiatives to achieve farm gate weighing stations have proved impractical. Many millers are now going closer to the farmer by establishing cane buying centres with weighbridge, cane handling equipment and storage yard to facilitate aggregation and increase of payloads within the out-grower zones. Due to transition from weight based to sucrose based payment, there will be need to install a CTU. These centres serve to secure the cane and reduce the cost of transport to the grower.

3) Irrigation Facilities: Research trials have demonstrated the potential for increasing sugarcane productivity through irrigation. However, only KISCOL in the Coast has invested in irrigation on a commercial basis in their Nucleus Estate. Some millers for example Muhoroni, Nzoia and Chemelil Sugar Companies have initiated irrigation pilot projects using factory effluent water. The hilly topography hampers adoption of irrigation due to the cost implications and the small-holder nature of farming.

b) Non-physical Infrastructure

Information Communication Technology (ICT) seeks to enhance efficiency in the sugar industry through integrating information flow via networks comprising computers, telephony and software technology. Sugar industry institutions are at different levels of ICT development most having stand-alone systems.

2.5.2 Challenges in Infrastructure for the Sugar Industry

1) **Lack of clarity on coordination, responsibility and funding of the development and maintenance of rural access roads.**

Within the National and County Governments, there is a multiplicity of bodies responsible for infrastructure development and maintenance for example KeRRA, KURA, CDF, AFA – SD, County and sugar millers etc. These bodies are uncoordinated resulting in duplication, gaps and wastage.

2) **High start-up, operation and maintenance costs of irrigation systems.**

Financing irrigation and drainage is a broad issue comprising investment, operation, maintenance, renewal, rehabilitation and modernization as well as a good quality water service. Especially for small-holder farmers, the cost is high and beyond their reach.

3) **Unfavourable land tenure system.** The land tenure system and bureaucratic practices in land acquisition are an impediment towards investment in irrigation.

4) **Inadequate communication infrastructure.** Basic ICT infrastructure is a costly public good, requisite for further development and integration by industry players. With existing gaps in ICT infrastructure, sugar millers and other stakeholders are forced to invest significantly in fibre and other ICT connectivity systems.

2.6 Institutional, Legal and Regulatory framework

2.6.1 Status of Sugar Industry Institutions

The Institutions in the industry include the industry regulator, milling companies, farmers' cooperatives, unions and associations recognized under law as directly or indirectly impacting on the sugar sub-sector. Industry institutions are categorized under the following clusters:

- 1) **Grower institutions:** These include societies, cooperatives and the farmers' federations. The role of these institutions is to promote, represent and protect farmers' interests. Some of these institutions offer services to farmers. Most of the out-grower bodies are registered as companies and others registered as cooperative societies and associations. Organization and management of these institutions is weak and riddled with leadership challenges leading to poor performance. Besides, the institutions do not have an apex body to articulate their industry issues in one voice. In addition, the Outgrower Companies and some Cooperative Societies have huge debts.
- 2) **Manufacturers/Millers:** The main institution representing manufactures or millers is the Kenya Sugar Manufacturers Association (KESMA). KESMA is responsible for promoting the interests of the Millers. The association provides a platform for engaging other industries in the sector. However, not all millers are active members of the association. The millers are also members of the East Africa Sugar Industries Association (EASIA) which brings together all players within the East African Region.

- 3) **Contractors:** These are service providers and include sugar transporters and distributors; sugar cane transporters; input suppliers; land preparation contractors and other service providers. Contractors operate independently and do not have associations, making it difficult to have it structured engagements and to be regulated
- 4) **Sugar Industry Regulators and Other Government Agencies:** The lead regulatory agency is the Agriculture and Food Authority through Sugar Directorate (SD) established under the Agriculture and Food Authority Act 2013. The regulatory role includes the registration and licensing of players, quality assurance, compliance and providing oversight in the industry. There are other government agencies which have a role to play in the sugar industry, key among are NEMA, KEBS, KRA, OSH Dept and Public Health. However, there is weak coordination among the agencies leading to omissions and overlaps which at times cause disharmony and conflict.
- 5) **Financial Institutions:** These include the Commodities Fund, the Agriculture Finance Corporation and commercial banks, responsible for financing various aspects of the industry. These institutions have unattractive lending terms especially for small holder farmers.
- 6) **Research Institutions:** Sugar research is undertaken by the Sugar Research Institute (SRI) of the Kenya Agricultural and Livestock Research Organization; as well as public and private institutions of higher learning. However, sugar research is biased towards crop research, with limited industrial scope and additionally there is lack of coordination among sugar research institutions.
- 7) **The County Governments:** It is responsible for all aspects of agriculture devolved in accordance with the Fourth Schedule of the CoK, 2010. That is, the implementation of agriculture policy, crops husbandry, plant and animal disease control among others. The Intergovernmental Relations Technical Committee (IGTRC) and Council of Governors (COG) as mandated by the Intergovernmental Relations Act 2012 facilitate intergovernmental relations between the national and county governments and amongst county governments by ensuring consultation, coordination and cooperation. However, some functions are shared between the County Governments and National Government. For instance, in accordance with the Crops Act 2013, the County Governments and AFA are licensing Authorities in the agriculture sector for any scheduled crops listed under the Act. Sugar cane is grown in many counties with different levies and investment landscape which require harmonization for ease of doing business.

2.6.2 Legal and Regulatory Framework

The Constitution and other statutes guide the establishment and running of the industry and its players. The enactment of Crops Act No. 16 of 2013 and Agriculture and Food Authority Act No. 13 of 2013 provided for consolidation of the laws on regulations and promotion of Agriculture through formation of AFA. The Authority was established as a culmination of the

agriculture sector reforms that began in 2003 to consolidate the numerous pieces of legislations within the agriculture sector to address the overlap of functions, obsolete legislations and to benefit from economies of scale.

The regulations that govern industry have been gazetted. They will provide for operationalization of the AFA and Crops Acts and thus enable the regulator undertake her role effectively. In addition, other pieces of legislation particularly on matters environmental, competition, gender, labour and finance are also being used to guide the sector on respective operational aspects.

At the international level Kenya is signatory to various treaties, pacts, protocols and statutes that guide industry operations particularly on production, marketing and environmental conservation. These include COMESA, EAC, WTO, Kyoto Protocol and ILO. Implementation of these instruments sometimes present challenges that adversely impact on the sugar industry.

2.6.3 Challenges in the Institutional, Legal and Regulatory Framework

- 1) Poor corporate governance in out grower institutions
- 2) Not all millers are active members of KESMA, hence cannot take a collective decision
- 3) Contractors operate independently and do not have formal associations, making it difficult to have structured engagements and to be regulated
- 4) There is weak coordination among the government agencies that have a role to play in the sugar industry leading to omissions and overlaps which may cause disharmony and conflict.
- 5) Organization and management of outgrower institutions is weak and riddled with leadership challenges leading to poor performance. Besides, the institutions do not have an apex body to articulate their industry issues in one voice. In addition, the Outgrower Companies and some Cooperative Societies have huge debts.

2.7 Cross Cutting Issues

Cross cutting issues have a bearing on provision of services along the sugar value chain. The major issues in the industry have been identified as: Governance, Quality assurance, Food and nutrition security, Environmental safety, Occupational safety, Gender Mainstreaming and social inclusion and Human resource capacity development.

2.7.1 Governance Issues in the Industry

In the industry there exist governance issues such as lack of integrity during cane harvesting, cane weighing, transportation and payment. In addition, poor governance in farmer out-grower institutions and public owned mills has led to their non-performance.

2.7.2 Climate Change Adaptation and Mitigation

Sugar mills are categorized as high-risk projects which require submission of Environmental Impact Assessment study report which includes measures for pollution control (noise and effluent) and soil management. Mills have effluent treatment plants with water quality monitoring and evaluation programs in collaboration with regulators. However, there are cases of pollution in some of the factories especially with regard to effluent management and inadequate adoption of Cleaner Production Systems along the sugar value chain.

In the sugarcane growing areas, tree cover is less than the recommended 10% due to minimal efforts to plant more trees.

2.7.3 Occupational Safety

In the sugar industry, adequate health and safety equipment have not been provided to employees, thereby exposing them to risk of injuries at work. Further, some of the mills cannot afford to provide the requisite medical and work injury benefits insurance covers to the employees. Due to poor safety measures at the farm level, including inadequate protective clothing and poor use of pesticides, many farmers get exposed. Cane cutters get exposed to snakes and other dangerous wild animals while harvesting.

2.7.4 Gender Mainstreaming and Social Inclusion

Gender-based inequalities constrain sugar industry growth and poverty reduction measures by affecting labour productivity in terms of access to and control of productive resources. Currently women and youth are mostly labourers in sugarcane farms while cane proceeds go to the men. This creates an imbalance in income distribution in the sugar industry. Formal employment in the industry is skewed in favour of the male gender and does not comply with the 30% gender rule provided for in the CoK, 2010. In the sugarcane farms there is rampant child labour used in weeding and planting, in contravention of the Children's Act and Chapter 4 on the Bill of Rights in the CoK, 2010. The number of physically challenged employees working in the industry is negligible.

2.7.5 Human Resource Capacity Development

In the past the industry had a well-structured program for recruitment and training of staff. These included training both locally and internationally in enhancement and improvement of relevant skills to drive the industry. These programs were run collectively by the millers with some sponsorship from the Commonwealth, coordinated by the regulator for overseas training. Management trainees, technicians and artisans were trained and offered on-the-job training. There existed a vibrant member organization, The Kenya Society of Sugarcane Technologists (KSSCT), which trained low cadre staff and promoted technical exchange among scientists, technologists and millers. The KSSCT still exists but with little support from the Industry as far as its technical capacity building is concerned.

Currently, the industry does not have a comprehensive industry training plan. Training has been left to individual organizations and curricula offered by local training institutions is weak. The Masinde Muliro University of Science and Technology located in Western Kenya offers diploma and degree courses in sugar technology.

Challenges on Cross-cutting Issues

- a) **Challenges in Governance:** There is poor Governance across the sugar value chain
- b) **Challenges in Environmental Management:** Pollution in some factories especially on effluent management and the non-attainment of 10% tree cover
- c) **Gender Mainstreaming and Social Inclusion:** Female gender, youth and the physically challenged persons do not benefit equitably from sugarcane proceeds bringing a negative impact on crop husbandry.
- d) **Challenges in Human Resource Development:** Insufficient funding and poor coordination of training has led to inadequate human resource capacity.

CHAPTER THREE: POLICY STATEMENTS AND INTERVENTIONS

3.1 Improving Sugarcane Production

Policy Objective: To ensure sustainable and adequate supply of quality cane that meets milling requirements and guarantees favourable returns on farmers' investment.

Policy Statements: Government will institute measures to support sustainable sugarcane production and related services to ensure adequate supply of quality cane for milling.

In order to achieve the above policy objective, the following intervention measures will be implemented:

The National Government will:

- 1) Establish a Sugarcane Pricing Committee to ensure equitable returns to growers and millers

The County Government will:

- 1) Support efficient sugarcane production
- 2) Enhance farm diversification in the sugarcane growing areas

The National and County Governments will:

- 1) Promote efficiency in sugarcane harvesting, transportation and weighing
- 2) Support planning and management of sugarcane production system for sustainable supply of raw material for milling
- 3) Support the economic viability of sugarcane farming as a business
- 4) Facilitate access to affordable credit by farmers
- 5) Provision of risk mitigation measures to safeguard growers against losses from hazards such as drought, floods and cane fires
- 6) Facilitate the reduction of cost of production
- 7) Promote block farming

3.2 Enhancing efficiency in Sugar and Co-Products Processing

Policy Objective: To enhance production efficiency and competitiveness of sugar and co-products

Policy Statement: The Government will provide an enabling environment to improve production efficiency and enhance competitiveness of sugar and co-products.

Policy Interventions

The National Government will:

- 1) Institute measures that will lower the cost of sugar production through provision of targeted tax incentives on machineries and equipment used in sugar processing
- 2) Promote strategic partnerships in the establishment and management of sugar mills
- 3) Establish capacity building framework for skill development in relevant technologies
- 4) Review the regulatory and taxation regime to promote innovation and investments in ethanol, co-generation and other value added products
- 5) Promote the development and adoption of ICT Infrastructure in processing

The County Government will:

- 1) Support strategic partnerships in the establishment and management of sugar mills
- 2) Review the County by-laws and levies to promote innovation and investments in value addition

3.3 Improving Marketing and Trade

Policy Objective: To promote a favourable business environment which guarantees sustainable supply of quality and affordable sugar and coproducts to the consumer

Policy Statement: The Governments will foster the development of an efficient and competitive sugar market.

The National Government will;

- 1) Strengthen the regulatory framework and oversight mechanism for coordinating sugar import/export
- 2) Develop a sugar and sugar co/by-products traceability system
- 3) Review the fiscal regime and regulatory framework to support production and trading in fuel ethanol and co-generated electricity

The National and County Governments will promote value addition and sustainable utilization of sugar by and co-products

3.4 Providing Support Services in the Sugar Industry Value chains

Policy Objective: To facilitate effective provision of industry support services including access to research, farm inputs, financial and advisory services

Policy Statement: The government will promote provision of farm inputs, effective research, financial and advisory services

Policy Interventions

The National Government will:

- 1) Enhance funding for sugar research through introduction of sugar research levy, sugar research institutions' internally generated funding and co-funding by development partners
- 2) Promote structured collaborative research between public, private and other research institutions
- 3) Enhance research capacity through trainings, facility and equipment upgrading and accreditation
- 4) Broaden sugar research to include all aspects of the value chain such as industrial, market and irrigation research

The County government will:

- 1) Promote adoption of technologies through awareness creation, adaptive research and periodic evaluation
- 2) Promote access to quality and affordable farm inputs and other services
- 3) Strengthen public extension and advisory services, and facilitate private extension initiatives
- 4) Identify and operationalize various sustainable and affordable sources of funding and insurance services through establishment of credit facilities for the industry, in partnership with public and private financial institutions

3.5 Providing Support Infrastructure

Policy Objective: Provide adequate infrastructure to support efficient operations in the industry

Policy Statements: The Government will support investment in the development of road, railway, ICT and other supporting infrastructure within the sugar production and processing zones.

The National Government will:

- 1) Develop and implement alternative, cost-effective sugar cane transportation system e.g. light rail system
- 2) Develop and implement regulations for Quality-based sugarcane payment system

The National and County Government will:

- 1) Improve road network in sugarcane growing areas
- 2) Regulate the setting up of sugarcane buying centres
- 3) Support development of irrigation infrastructure

3.6 Addressing Cross-cutting Issues

Policy Objective: The Government to ensure compliance to good Governance, Quality control, Food and nutrition security, Environment and Occupational safety, Gender Mainstreaming and social inclusion and Human resource capacity development in the sugar industry

Policy Statement: The Government will institute measures to ensure compliance on good Governance, Quality control, Food and nutrition security, Environment and Occupational safety, Gender Mainstreaming and social inclusion and Human resource capacity development in the sugar industry.

The National and County Government will; Monitor and ensure compliance with requirements of good Governance, Quality control, Food and nutrition security, Environment and Occupational safety, Gender Mainstreaming and social inclusion and Human resource capacity development in the sugar industry.

3.7 Strengthening Institutional, Legal and Regulatory Framework

Policy Objective: To strengthen the institutional, legal and regulatory framework to facilitate good governance and efficiency in sugar industry

Policy Statement: The government will review and strengthen institutional, legal and regulatory framework to enhance efficiency in the sugar industry.

Policy interventions:

The National government will:

- 1) Undertake legal reforms that supports effective institutional coordination
- 2) Support institutional capacity development for enhanced industry performance
- 3) Review the legal and regulatory framework to clearly define the roles of the various agencies under the two levels of government and industry institutions in order to limit overlaps in mandates and functions.
- 4) Develop/review regulations and guidelines that promote best practices, efficiency and competitiveness in the sugar value chain

The National and county governments will enhance capacity for oversight on various industry institutions.

CHAPTER FOUR: POLICY IMPLEMENTATION

4.1 Policy Implementation Plan

The Sugar Industry has operated for a long time without coherent coordination. Implementation therefore requires identification of roles for key actors involved, establishment of coordinating structures for collaboration and partnerships between various stakeholders from both public and private sector, a framework for monitoring and evaluation to track progress of implementation. Further, implementation also requires a commitment by various stakeholders to avail resources required for implementation and finally periodic policy review to refocus it on realizing set objectives issues.

In order for the policy to succeed, the key players in the value chain must participate in its implementation. Previously, the national government was solely responsible for the policy, regulation and the operational direction of the agriculture sector in the country. However, with the promulgation of the Constitution of Kenya, 2010, the county governments were delegated certain functions in the agriculture sector. In this regard therefore, the county governments will have to domesticate this policy and ensure its implementation while the national government will monitor its implementation and initiate changes in tandem with any issues that may emerge. Further, grower institutions, millers and dealers in the industry will be expected to adhere to the policy in their respective operations.

4.2 Institutional Framework for Policy Implementation

The framework of the inter-governmental relations structure will be used to facilitate coordinated implementation of this policy. Both the national and county government will ensure that they have in place applicable structures for coordination and collaboration amongst the various players in the industry towards the successful implementation of the policy. This shall be achieved through stakeholder forums such as meetings, conferences and conventions.

4.3 Resources Mobilization for Policy Implementation

The National and County governments will seek avenues for generating funds towards the implementation of this Policy. The private sector will partner with government in financing joint activities in addition to investing in opportunities created within the industry for profit.

4.4 Policy Implementation Monitoring and Evaluation

The successful implementation of the policy will require a robust and fully functional Monitoring and Evaluation system. This shall require the formation and operationalization of a policy implementation monitoring committee composed of key industry stakeholders whose main role will be to assess the status of implementation and advise any necessary realignment. The committee shall periodically review objectives of the policy and endeavour to ensure closure of any gaps that may emerge from time to time between these and the implementation outputs.

Policy Intervention	Lead/Key Responsible Institutions	Expected Outputs/Outcomes	Timeline Short-term (≤ 3 years) Medium-term(3-7 years) Long-term (7-10 years) Continuous
1. Thematic Area: Sugarcane Production			
Specific Policy Objective: To ensure sustainable and adequate supply of quality cane that meets milling requirements and guarantee returns on farm investment			
Established a Sugarcane pricing committee to ensure equitable returns to growers and millers	National Government	Sugar Pricing Committee established	Short term (≤ 3 years)
Support efficient sugarcane production	County Government	Increased cane production	Continuous
Enhance farm diversification in the sugarcane growing areas	County Government	Other income generating enterprises introduced alongside sugarcane	Continuous
Promote efficiency in sugarcane harvesting, transportation and weighing	National & County Government	Minimize loss in quality and quantity of cane during harvesting & delivery to the mills	Continuous
Support planning and management of sugarcane production system for sustainable supply of raw material for milling	National & County Government	Synchronized cane supply & milling operations	Continuous
Support the economic viability of sugarcane farming as a business	National & County Government	Sustainable sugarcane industry	Continuous
Facilitate access to affordable credit by farmers	National & County Government	Improved investments in sugarcane farm enterprises	Continuous
Provision of risk mitigation measures to safeguard growers against losses from hazards such as drought, floods and cane fires	National & County Government	Reduced impacts from the hazards	Continuous

Policy Intervention	Lead/Key Responsible Institutions	Expected Outputs/Outcomes	Timeline Short-term (≤ 3 years) Medium-term(3-7 years) Long-term (7-10 years) Continuous
Facilitate the reduction of cost of production	National & County Government	duced cost of production	Continuous
2. Thematic Area: Enhance Efficiency in Sugar and Co-Products Processing			
Specific Policy Objective: To enhance production efficiency and competitiveness of sugar and co-products			
Institute measures that will lower the cost of sugar production through provision of targeted tax incentives on machineries and equipment used in sugar processing.	National Government	duced cost of sugar production for competitiveness	Continuous
Promote strategic partnerships in the establishment and management of sugar mills.	National Government	reased capitalizations and expertise in the sugar mills	Continuous
Develop/review regulations and guidelines that promote best practices, efficiency and competitiveness in the sugar value chain	National Government	proved compliance with regulatory requirements and standards	Short term (≤ 3 years)
Establish capacity building framework for skill development in relevant technologies	National Government	ter skills and technologies employed along the sugar value chain	Continuous
Review the regulatory and taxation regime to promote innovation and investments in ethanol, co-generation and other value added products	National Government	reased product diversification	Continuous

Policy Intervention	Lead/Key Responsible Institutions	Expected Outputs/Outcomes	Timeline Short-term (≤3 years) Medium-term(3-7 years) Long-term (7-10 years) Continuous
Promote the development and adoption of ICT Infrastructure across the value chain	National Government	Automation and digitization of processes for improved efficiency	Continuous
Support strategic partnerships in the establishment and management of sugar mills	County Government	Increased capitalizations and expertise in the sugar mills	Continuous
Review the County by-laws and levies to promote innovation and investments in value addition	County Government	Improved business enabling environment in value addition	Continuous
3. Thematic Area: Sugar Marketing and Trade			
Specific Policy Objective: To promote a favourable business environment which guarantees sustainable supply of quality and affordable sugar and coproducts to the consumer			
Strengthen the regulatory framework and oversight mechanism for coordinating sugar importation/ exportation	National Government	Improved regulatory coordination and enforcement	Continuous
Develop a sugar and sugar co/by-products traceability system	National Government	Fair and transparent trade practices and quality assurance	Continuous
Review the fiscal regime and regulatory framework to support production and trading in fuel ethanol and co-generated electricity	National Government	Improved revenue streams from diversified products and green energy	Continuous
Promote value addition and sustainable utilization of sugar by and co-products	The National and County Governments	Improved revenue streams from diversified products	Continuous

Policy Intervention	Lead/Key Responsible Institutions	Expected Outputs/Outcomes	Timeline Short-term (≤3 years) Medium-term(3-7 years) Long-term (7-10 years) Continuous
4. Thematic Area : Provide Support Services in the Sugar Industry Value chains			
Policy Objective: To facilitate effective provision of industry support services including access to research, farm inputs, financial and advisory services			
Enhance funding for sugar research through: introduction of sugar research levy, government allocations, sugar research institutions' internally generated funding and co-funding by development partners	National Government	Enhanced resources for research	Continuous
Promote structured collaborative research between public, private and other research institutions	National Government	Improved synergy in research	Continuous
Enhance research capacity through trainings, facility and equipment upgrading and accreditation	National Government	Enhanced capacity to undertake research	Continuous
Promote adoption of technologies through awareness creation, adaptive research and periodic evaluation	County Government	Enhanced uptake and utilization of research	Continuous
Promote access to quality and affordable farm inputs and other services	County Government	Enhanced sugarcane production and productivity	Continuous
Strengthen public extension and advisory services, and facilitate private extension initiatives	County Government	Improved production technologies and good agricultural practices	Continuous

Policy Intervention	Lead/Key Responsible Institutions	Expected Outputs/Outcomes	Timeline Short-term (≤3 years) Medium-term(3-7 years) Long-term (7-10 years) Continuous
Identify and operationalize various sustainable and affordable sources of funding and insurance services through establishment of credit facilities for the industry, in partnership with public and private financial institutions	County Government	Increased investments along the value chain in a secure environment	Continuous
5. Thematic Area: Support Infrastructure			
Policy Objective: Provide adequate infrastructure to support efficient operations in the industry			
Develop and implement alternative, cost-effective sugarcane transportation system e.g. light rail system	National Government	Improved efficiency in sugarcane transportation	Continuous
Develop and implement regulations for Quality-based sugarcane payment system	National Government	Cane payment based on sucrose	Continuous
Improve road network in sugarcane growing areas	National Government and County Government	Improved transport efficiency in sugarcane, sugar, by/co products, inputs	Continuous
Regulate the setting up of sugarcane buying centres	National Government and County Government	Improved efficiency in sugarcane transportation	Continuous
Support development of irrigation infrastructure	National Government and County Government	Broaden the areas which are suitable for cane production	Continuous
6. Thematic Area: Addressing Cross-cutting Issues			
Policy Objective: The Government to ensure compliance to good Governance, Quality control, Food and nutrition security, Environment and Occupational safety, Gender Mainstreaming and social inclusion and Human resource capacity development in the sugar industry			
Monitor and ensure compliance with requirements of good governance, quality control, food and nutrition security, environment and occupational safety, gender mainstreaming and social inclusion in the sugar industry.	National Government	Adverse impact of socio-economic, cultural and environmental issues in the sugar industry mitigated	Continuous
7. Thematic Area: Strengthening Institutional, Legal and Regulatory Framework			

Policy Intervention	Lead/Key Responsible Institutions	Expected Outputs/Outcomes	Timeline Short-term (≤3 years) Medium-term(3-7 years) Long-term (7-10 years) Continuous
Policy Objective: To strengthen the institutional, legal and regulatory framework to facilitate good governance and efficiency in sugar industry			
Undertake legal reforms that supports effective institutional coordination	National Government	An enabling environment created for an enhanced industry coordination	Continuous
Support institutional capacity development for enhanced industry performance	National Government	Enhanced industry performance	Continuous
Review the legal and regulatory framework to clearly define the roles of the various agencies under the two levels of government and industry institutions in order to limit overlaps in mandates and functions.	National Government	Enhanced performance of the institutional mandates and functions.	Continuous
Enhance capacity for oversight on various industry institutions.	National Government and County Government	Effective oversight on industry institutions	Continuous