

Overview of Sugar Industry in Kenya and Prospects for Production at the Coast

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Abstract

This paper utilized national data obtained mainly from published sources as well as information obtained from field visits, key informant interviews, reports and records in the coastal region of Kenya. It is a sector review of the sugar industry in Kenya, with special focus on opportunities for expanding production in the coastal region. Sugar, or sugarcane (*Saccharum Hybrids* spp.) is among the top six commercial crops grown in Kenya. The others are tea, cut flowers, vegetables, coffee and maize. Industrial sugar was introduced in Kenya in 1902 and the first processing factory opened in 1922. In the 1960s, new government policy encouraged expansion of commercial sugar production with new factories opening in western Kenya. By the mid-1970s, Kenya was a sugar exporter. But from the 1980s, the sugar sector started to decline both in production and profitability, with the country becoming a net sugar importer by the 1980s. Although the area under sugarcane has expanded over the years to cover 220,000 ha, productivity is low achieving only 55 tonnes/hectare. Meanwhile, production costs have been increasing, averaging US \$1007/tonnes in 2018. Over 80 percent of the sugar is grown rainfed by smallholder farmers mostly in western Kenya using low inputs, with consequent poor productivity. The sugar sector has numerous challenges including: agronomic, technological, economic, management and policy limitations. This paper traces the main issues impacting the sugar industry in Kenya. It finds a sector in turmoil that requires significant reforms. It explores prospects of the next sugar revolution emerging from the coast. The coastal region has land available for rainfed and irrigated sugarcane, a warmer climate and possibilities to grow short-maturing cane varieties of higher sucrose concentrations. But other constraints are also inherent at the coast. These must be overcome for sugar to become a major cash crop in the region.

Keywords

Sugar, Industry, Production, Kenya, Coastal Region

1. Evolution of the Sugar Industry in Kenya

Sugarcane (*Saccharum Hybrids* spp.) was an indigenous crop grown in Kenya before the advent of the colonial era. Local sugarcane varieties were grown by agrarian communities along riparian lands. The crop was chewed as food or used in making traditional beer [1]. Sugarcane as an industrial crop was introduced in Kenya in 1902, when the first trials were planted in Kisumu [2]. The first sugar factory was established at Miwani, near Kisumu, in 1922 [3]. Policies on sugar production from the early 1900s up to independence in 1963 were based on colonial law, which dictated that only Asians were allowed to grow sugar. The policy reforms of the Swynerton Plan [4] which allowed Africans to grow certain cash crops did not affect sugar. That changed with the enactment of Sessional Paper No. 10 of 1965 [5], which allowed Africans to grow industrial sugar.

After independence in the 1960s, the government decided to invest in sugar factories, mostly in western Kenya. Sugar production increased between 1966 and 1980 [2]. In 1973, the Government established the Kenya Sugar Authority (KSA). By 1976, domestic sugar production had reached 296,000 tonnes while consumption was 253,000 tonnes [6]. However, this trend was short-lived as Kenya soon became a net sugar importer. For instance, between 1981 and 2004, total sugar production grew from 368,970 tonnes to 517,000 tonnes while domestic sugar consumption increased from 324,054 tonnes to 669,914 tonnes [7]. By 2015, there were 15 sugar factories in Kenya with a milling capacity exceeding 6 million tonnes/year, but available cane was 5,407,427 tonnes/year (Table 1). To date, sugar production has remained below the milling capacities.

2. Data Collection and Sources

This paper utilized national data and information obtained from both primary and secondary sources in Kenya. These included published government record and reports as well as review of global literature. The primary data were collected between 2017 and 2018, from the coastal region in Kenya through field visits, key informant interviews, meetings and review of records and reports at Kwale International Sugar Company Limited (KISCOL), Sugar Research Institute (SRI) based at Mtwapa and County Government offices at Kwale and Kilifi.

3. Contemporary Status of the Sugar Sector in Kenya

3.1. Sugar Production

Currently, sugar is grown mainly in western Kenya around Nyando, Migori, Mumias, Busia, Nandi and the coastal region. There are about 250,000 small-scale sugarcane farmers who supply most of the cane milled in Kenya. The sugar industry supports the livelihoods of about six million Kenyans directly or indirectly, contributing to rural household economies [10].

Sugar is among the top commercial crops in Kenya, alongside tea, coffee,

Table 1. Sugar factories establishment in Kenya and their capacities.

No.	Name of Sugar factory	Year Established	Area under cane (ha) (2015/2016)	Mill Capacity (tonnes) (2015/2016)	Available cane (tonnes) (2015/2016)
1.	Miwani Sugar Company	1922	1860	-	28,718
2.	Muhoroni Sugar Company	1964	17,503	360,800	339,258
3.	Chemelil Sugar Company	1965	18,442	451,000	187,234
4.	Mumias sugar factory	1973	36,582	1,312,000	1,054,759
5.	Nzoia Sugar Factory	1978	29,022	492,000	807,651
6.	South Nyanza Sugar Factory	1979	16,186	410,000	475,900
7.	West Kenya Sugar Company	1981	30,104	688,800	734,609
8.	Butali Sugar Mills	2005	29,551	410,000	479,311
9.	Soin Sugar Factory	2006	1769	24,600	28,929
10.	Kibos Sugar & Allied Industries	2007	6847	492,000	149,016
11.	Kwale International Sugar Company Limited (KISCOL)	2007	5500	295,200	274,316
12.	Busia Sugar company	2008			
13.	Kisii Sugar Factory	2009			
14.	Transmara Sugar company	2011	16,445	656,000	615,176
15.	Sukari Industries Limited	2011	9155	459,200	232,552
Total (tonnes)			218,966	6,051,600	5,407,427

Data sources: [8] and [9].

flowers, vegetables and maize [11]. The area under sugarcane in Kenya is about 202,000 ha, with total production averaging 5.262 million tonnes of cane supplied to factories per year (Table 2). In addition, average yields of sugarcane have been declining from about 66.4 t/ha in 2015 to 55.1 t/ha in 2018 (Table 2). This compares poorly with the global average of 63 t/ha [10]. Reasons for the reduction in productivity include; low quality sugarcane varieties, poor agronomic management, high cost of inputs practices, delayed harvesting and disillusionment from the industry [12].

3.2. Sugar Imports and Exports

In recent years, sugar production has declined from about 635,700 tonnes in 2015 to 491,100 tonnes in 2018 of milled sugar. Meanwhile, sugar imports have been increasing (Table 3). The annual domestic demand is over 900,000 tonnes, meaning the country is a net importer of sugar. Even then, Kenya exports small quantities of sugar mostly to South Sudan and Somalia. Marketed sugar is mostly for domestic consumption, generating about USD5 billion annually [13], underpinning the importance of the sugar sector.

Table 2. Sugarcane production trends in Kenya for the period 2014-2018.

Sugarcane Area and production	2014	2015	2016	2017	2018
Area under cane ('000 Ha)	211.3	223.6	220.8	191.2	202.4
Area harvested ('000 ha)	72.2	77.8	85.8	67.7	73.1
Total Production ('000 tonnes)	6409.9	7164.8	7151.7	4751.6	5262.2
Production non-contracted farms ('000 tonnes)	1977.1	1995.8	1816.7	1004.3	1233.1
Average yield (tonnes/ha)	61.4	66.4	62.2	55.3	55.1

Source: [9].

Table 3. Production, imports and exports of sugar in Kenya, 2014-2018.

Year	Production (tonnes)	Imports (tonnes)	Exports (tonnes)
2014	592,700	192,100	400
2015	635,700	247,400	100
2016	639,700	334,100	100
2017	376,100	989,600	400
2018	491,100	284,200	2000

Source: [13].

3.3. Sugar Distribution and Marketing

Processed sugar in Kenya reaches consumers through a network of wholesalers, retailers, importers and distributors. The ex-factory price paid by wholesalers incorporates the cost of the sugarcane, milling, processing, factory operations, packaging, retailers' profits and government levies, which include a 16 percent Value Added Tax (VAT) and a 4 percent Sugar Development Levy (SDL) imposed by the KSB [14]. The average ex-factory price of sugar in Kenya is about US\$800 per tonne, which compares poorly with world market price of US\$280 per tonne [15]. This means that Kenyan consumers pay too much for sugar.

According to the Agriculture and Food Authority [16], some 56 companies are registered as sugar importers. Thus, importers are more than all the sugar factories in Kenya combined. Quite often, domestic sugar prices are inflated, partly due to tariffs and quotas applied to Kenya's raw sugar imports, making sugar expensive. Most retail stores undertake in-house packaging and branding. Retail sugar prices range between USD1.20 to USD1.50 per kilogram. With a production price of at least USD0.8/kg, most local millers cannot make a profit due to high overhead costs, resulting in cash-flow problems [14]. The poor oversight of sugar importation leads to unrealistic profit margins for importers compared to locally produced sugar [17].

3.4. Challenges Facing the Sugarcane Sector in Kenya

Sugarcane production in Kenya has declined due to several challenges. At the farm level, sugar productivity is low due to poor seed of long maturing varieties,

smut disease, high costs of inputs and delayed payments to farmers [18]. Sugar-cane in western Kenya takes 18 to 24 months in the field. By contrast Sudan grows early maturing cane varieties that mature within 14 months. Also, the production costs of sugar have increased, from about US\$676 per tonne in 2014 to US\$1007 per tonne in 2018. This compares poorly with production costs of USD 350 per tonne in Malawi and USD 400 per tonne in Zambia.

In the sugar factories, mismanagement has contributed to inefficiencies [10]. Most of the state-owned sugar mills are operating below capacity and are burdened by huge debts. They have inefficient, poorly maintained machinery which suffer frequent breakdowns [19]. Although the Government has privatized most of the sugar factories, e.g. Mumias, they still make losses. As a result, locally produced sugar remains uncompetitive with the cost of production reportedly being 60 percent higher than in Uganda and Tanzania, and 50 per cent higher than in Zambia [20]. Instability in world sugar prices and trade barriers impact the sugar industry [19] which also faces competition from low-cost sugar produced within COMESA and low world market prices [6].

Another problem facing the sugar industry is corruption and mismanagement of the institutions in the sugar-sub-sector [21]. The issues range from tendering, issuance of licenses, sugar importers, milling factories and traders [22]. Political interference in the appointment of managers of milling firms has led to lack of professionalism and accountability in management boards and importation of illegal sugar, distorting business [21]. Therefore, unless and until corruption and mismanagement are tackled across all levels, the sugar industry in Kenya will continue to decline.

4. Consideration for Sugar Production beyond Western Kenya

Western Kenya is the largest producer of sugar in Kenya, supporting about 170,000 smallholder farming households. About 80 percent of sugar production in Kenya is from smallholder farms. In some areas, sugarcane covers three times more land than other crops [23].

The land holdings under smallholder sugarcane in western Kenya are getting smaller due to redistribution and fragmentation [24]. In Nyando, the average farm family has about 2 acres (0.8 ha) of land. By contrast, out-growers at Ramisi at the coast have at least 50 acres (20 ha). Generally, the sugar industry has led to increased poverty for smallholder farmers in western Kenya. There is need to look elsewhere for improving production.

5. Opportunities for Sugar Production at the Coastal Region

There are unexploited opportunities for both rainfed and irrigated sugar production in the coastal region of Kenya [25]. In Kwale County, rainfed sugarcane growing is practiced around Ramisi, where about 10,000 ha is under cultivation. The Ramisi area is sub-humid, receiving about 1100 mm annual rainfall, which

falls in about 9 months between January and September. Generally, sugarcane requires 1500 mm/year of rain, meaning that although sugar will grow around Ramisi, the crop suffers moisture stress during the dry season.

In terms of land potential, sugar production could expand to Tana delta areas, but it requires irrigation. The Tana Delta has fertile loam soils that hold water much better than the sands found in Ramisi. Due to the hot climate, cane varieties that mature at 10 - 12 months are possible and unpublished reports indicate that yields can be as high as 200 t/ha. However, water scarcity is a major challenge, and is one of the reasons the potential has not been exploited.

Irrigated sugar production is possible in much of the coastal region. There is potential in the middle Tana sub-zones and Tana Delta using water from the Tana River [26]. In Tana delta, irrigated sugarcane requires about 20,000 m³/ha/annum of water [27]. Direct river diversion could irrigate about 15,000 hectares, but this area could be increased to 40,000 hectares of sugarcane if water storage and efficient irrigation methods were applied.

Based on information obtained from discussions with the Manager of the Sugar Research Institute based at Mtwapa in the coast, early maturing sugarcane varieties are suited to the coastal region. Here, the first crop matures after 12 months, while the ratoon crop matures after 10 months. The minimum water requirement for sugarcane at the Kenyan coast is about 7 mm/day, assuming drip irrigation (*i.e.* minimum losses). Another advantage is that sugarcane once planted can be harvested over a long period, for about 7 to 8 years, on cutting back each year.

However, there are challenges to the expansion of sugarcane at the coast. For instance, sugar cane farming is considered a threat to the natural ecosystems such as the mangroves, forests and endemic wildlife species [28]. Conservation groups opposed large-scale sugar plantations in the Tana Delta, e.g. the proposed Tana Integrated Sugar Project [27], as the delta holds unique flora and fauna, and was designated a Ramsar site in 2012. In 2008 Kenyan conservationists prevented Mumias Sugar Company from developing a sugarcane farm in excess of 20,000 ha in the Tana Delta wetland [29]. Moreover, some areas further north of the Delta suffer insecurity due to banditry and terrorism. These factors have discouraged would-be investors. As a result, not much investment has gone into sugar plantations in the coastal areas.

6. Conclusions and Recommendations

The demand for sugar in Kenya is growing and the crop can be grown in the country. At the same time, the sugar industry requires a number of reforms to turn it around and to improve productivity and profitability. There is need to motivate smallholder out-growers by revamping extension services, improving cane varieties, field operations, transport, marketing and timely payments. Generally, the laws to protect farmers or support the sugar industry exist. What has been lacking is professionalism and accountability across all levels of the sugar

value chain. The revised Crops Act [30] covering regulations for the sugar sector have been enacted, but it has to be fully applied. There is need for overhaul of the sector to enforce laws and best practices.

There is scope to expand sugar production in the Kenyan coastal region. However, a number of issues must first be resolved such as land rights, developing irrigation infrastructure, improving in-field water management and developing viable sugar value chain to include: input and output markets, factories, transport, socio-economic safeguards, policy and institutional support, for sugar production to be sustainable.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Abbreviation Notation

AFA	Agriculture and Food Authority
KACC	Kenya Anti-Corruption Commission
KISCOL	Kwale International Sugar Company Limited
KNA	Kenya National Assembly
KNBS	Kenya National Bureau of Statistics
KSA	Kenya Sugar Authority
KSB	Kenya Sugar Board
NEMA	National Environment Management Authority
SRI	Sugar Research Institute