The Cotton Industry in Kenya: Problems, Prospects, and Revival Strategies

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Abstract
Cotton is presently grown in twenty-two counties in Kenya spread across Central, Coast, Eastern, Nyanza, Rift Valley, and Western regions. Cotton production has been well below potential in recent years due to various constraints, including the non-availability of quality seeds and inappropriate production technologies, especially for smallholder farming, lack of access to credit, high cost of farm inputs, among other constraints. For the cotton industry to be revived, various strategies have to be put in place, including establishing efficient rural finance and credit supply system for smallholders and rural primary agro-processors; ensuring policies, institutional and legal frameworks are investor-friendly; facilitating long term investments in farm improvement technologies; and improving governance of co-operative sector by empowering farmers and farmer groups. This study is based on the principle that policy, institutional and economic content is the base upon which some of the problems in the cotton industry could be addressed in order to arrive at prospects essential in de-limiting the challenges. This will impact cotton industry revival and translate into increased incomes, thereby enhancing food security in cotton-growing areas. Primary data was obtained through field survey using questionnaires and interviews by stratified random sampling method in cotton-growing zones. Secondary data from various sources (KALRO, CODA, & MOA reports) was looked at, compared, and analysed using descriptive and qualitative methods to come up with prospects and strategies for solving production and marketing problems. The qualitative data analysed showed that the cotton industry face problems such as: lack of access to quality seeds; high cost of inputs; competition with other farm enterprises over scarce resources; and collapse of irrigation schemes and ginneries. The prospects suggested include acquisition of new seed varieties, increased employment in cotton industry, and improved economy as well as reduced poverty. The revival strategies included: maximization of African Growth Opportunity Act initiative by United States government that was extended from 2015 to 2025 to make local farmers benefit more; implementing the cotton bill and enforce cotton regulations; expanding cotton acreage/yield; and empowering cotton associations such as KCGA/HAWESA. It was concluded that there was need to address outlaid problems; avail resources for acquisition of quality seed, purchase of farm inputs and rehabilitation of collapsed irrigation schemes and ginneries; and invest in the cotton industry by the government, private sector, and the international community for cotton industry revival.

Keywords: Cotton, problems, prospects, revival strategies

Introduction
In Kenya, the cotton industry is among existing agricultural opportunities that offers best alternative for increased employment, poverty reduction, rural development and generation of

increased incomes in agricultural areas and in arid and semi-arid areas (GOK, 2002:2013). The cotton sub-sector has been identified as one that helps bring about rapid economic development in Kenya and is classified as a core industry. The sub-sector has significant linkages with textile processing and manufacturing industry and manufacturers of soap and detergents, animal feeds, chemicals, fats, and oils. These linkages are particularly important for the exploitation of market opportunities presented by the African Growth and Opportunity Act (AGOA), European and other markets (AFA, 2017).

Kenya is endowed with a well-developed cotton industry that requires a constant supply of cotton lint (World Bank, 2005). However, this industry has been operating below capacity, partly due to the low supply of domestic cotton lint (CODA, 2012). In 2000, a preferential trade agreement under AGOA was signed with U.S. Government, which eliminated all duties and quotas on Kenyan textile exports to the U.S. market. As a result, Kenya's textile exports to U.S. have increased significantly over the past decade, peaking at 300 million USD in 2004 (U.S. DoC & ITC, 2012). Despite this growth in exports, Kenya's local cotton producers have realized very few benefits because the cotton industry and textile sub-industry continue to import most of its factory inputs rather than purchase domestic cotton lint. According to Cotton Development Authority (CODA, 2012), the annual national demand for cotton lint equalled to about 111,000 tonnes of seed cotton, while the average annual production of seed cotton was only about 18,000 tonnes during the period 2005-2010. Therefore, the cotton industry and textile sub-industry largely depend on cotton lint imports to meet its annual demand (FAOSTAT, 2012).

Since market liberalization in 1991, the cotton-to-garment value chain in Kenya has lacked the structure and institutional dynamics required to compete with global players like China, or even with regional competitors and is far from realizing its true potential. According to the World Bank (2005) and MOA (2017), some of the problems responsible for the cotton sector's poor performance in the past and to some extent today include periodic drought, volatile producer prices, delayed payments to farmers, lack of access to quality seeds, high cost of pesticides, competition with other farm enterprises over scarce resources and collapse of co-operative societies and former state-owned textile firms. Others include competition from synthetic fibre substitutes and cheap imports of new and second-hand clothes (MOA, 2018).

In the industry, cottonseed processing stands as a downstream sub-industry for the cotton sector, offering several potential business opportunities with respect to oil, animal feed, and energy production. The Export Processing Zones Authority has identified Kenya's large unmet demand for vegetable oil as an opportunity to further expand and develop its seed cotton processing industry, especially since vegetable oil is the country's second most imported commodity after petroleum and its derivatives (EPZA, 2015). To revitalize the cotton industry in Kenya, the Ministry of Agriculture (MOA) passed the Cotton (Amendment) Bill in 2000, which provided the legal framework to re-organize the sector, allowing stakeholders to regulate the industry through CODA, under the supervision of MOA (Development [CGD Digest], 2005). Although seed cotton production grew after the Bill was adopted, growth was largely due to a small increase in the number of producers, rather than an increase in productivity (Gitonga et al., 2007).

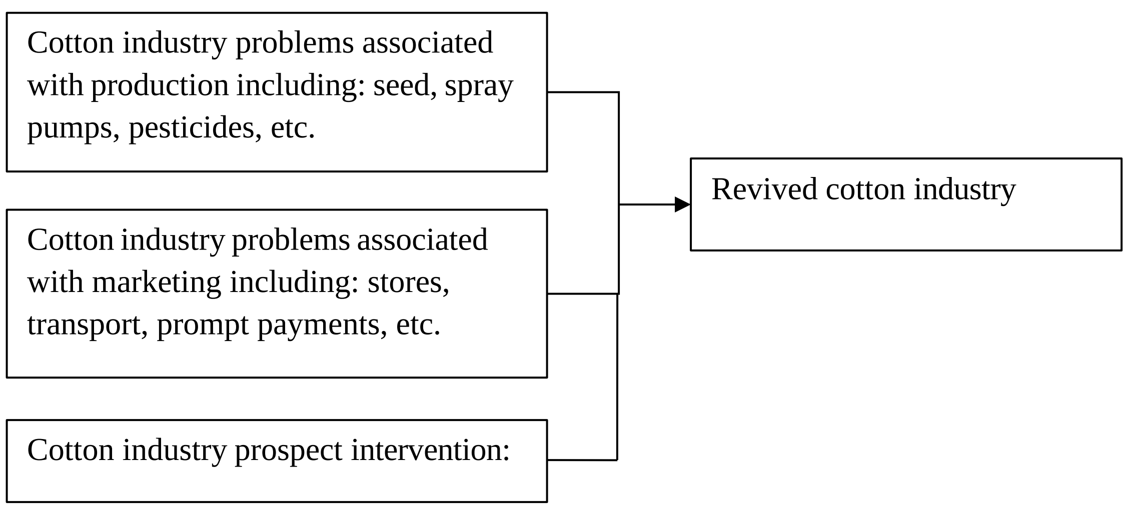
In the early 1970s and 1980s, cotton was grown by 200,000 small-scale farmers distributed in over six out of the eight regions of Kenya. The annual production at that time stood at over 70,000 bales. This production sustained local demand consisting of 24 ginneries, 52 textile firms, 110 large-scale garment manufacturers and spinners and 78,000 small-scale apparel manufacturers hence this provided good employment opportunities and income to a large number of people including the 200,000 farmers and their households (GOK, 2005).

Despite the sector's decline in recent years, cotton is still considered one of the few cash crops with real potential for increasing employment opportunities and food security through income generation in many agricultural lands, including the Arid and Semi-Arid Lands (ASALs) of Kenya (CODA, 2008). Thus, revitalizing the cotton industry is one of the government's key development and industrialization initiatives to be implemented mainly in ASAL and other potential areas as envisaged in Kenya's Vision 2030 Strategic Plan and its' Medium-Term Plan, 2018-2022 (GOK, 2018). Therefore, for the cotton industry to be revived, various strategies have to be put in place.

Objectives of the Study under a Sustainable Livelihood Framework

The general objective of the study was to outline the cotton farming and performance of the cotton industry in Kenya. The specific objectives were; to establish the cotton industry problems in Kenya, find out cotton industry prospects in Kenya, and outline cotton industry revival strategies in Kenya.

The descriptive sustainable livelihood framework was used to come up with what was happening in the cotton industry in Kenya. This included surveys, questionnaires, field visits, interviews, and reports that provided historical problems in the cotton sector. Methods employed in descriptive analytics were observations, case studies, and surveys. The descriptive model was used because it makes it simpler to quantify relationships in data in a way that enabled the user to classify data into problems encountered in the industry and the available prospects, intervention put into groups for the revival of the cotton industry. The research model is presented in figure 1.



Independent factors Dependent factor

Fig 1: Research Model

From figure 1, the following is noted:

H1: There is a positive association between solving cotton production problems and the revival of the cotton industry

H2: There is a positive association between solving cotton marketing problems and the revival of the cotton industry

H3: There is a positive association between cotton industry prospect intervention and revival of the cotton industry

Research Methodology

Field visits and survey were done to collect data where questionnaires were administered and interviews made on a sampled 100 cotton farmers (20 farmers per cotton-growing zone) and 5 CODA and 5 MOA staff (1 staff each zone) in the five cotton growing catchment zones of Salawa-Baringo, Mwea-Kirinyaga, Mulwanda-Busia, Kibos-Kisumu, and Ndere-Siaya. A stratified random sampling method was used in data collection. The study relied on primary data (survey, questionnaires, and interviews) and secondary data from various sources (Cotton Development Authority-CODA and Ministry of Agriculture-MOA reports), which were looked at, grouped as per research questions (associated with (ploughing, planting, weeding, pest control, harvesting, and transportation of seed cotton to the market by farmers, ginneries and textiles), and analysed based on the present evidence from the cotton-growing areas in Kenya.

Analysis of primary and secondary data was done by descriptive and qualitative methods in the current study (see table 1). It focused on recent and past status of Kenyan cotton sector derived from the questions asked which were grouped based on the industry's problems and prospects intervention. This information was used to come up with revival strategies for the cotton industry in Kenya. Reports and literature were looked at from previous research by KALRO and others researchers. Further, various references of different studies by different people were looked at and conclusion and recommendation made.

Table 1: Data Analysis Output from Cotton Growing Catchment Zones

No.	Problems	Cotton Catchment Zones				
		Salawa-Baringo	**Mwea-Kirinyaga**	**Mulwanda-Busia**	**Kibos-Kisumu**	**Ndere-Siaya**
1	Untested soil fertility/ fertilizer application levels	High	High	High	High	High
2	Variety mix-match	Very high	Very high	Very high	Very high	Very high
3	Collapsed irrigation/ schemes/facilities	Low	Medium	Low	Low	Low
4	Collapsed/under operational ginneries	Medium	Low	Very high	medium	Very high
5	Policy issue problems	Low	Medium	Low	Low	Low
6	High cost of inputs	Very high	Very high	Very high	Very high	Very high
7	Poor agronomic practices/untimely planting	High	Medium	High	High	High
8	Inadequate quality seed	Very high	Very high	Very high	Very high	Very high
9	Cotton facing uncompetitive challenges from e.g., food crops and similar low-cost polyester items	Low	Medium	High	Medium	High
10	Inadequate skilled labour supply for textile industry	Low	Low	Low	Low	Low
No.	**Prospects**					
1	Increased cotton use	Very high	Very high	Very high	Very high	Very high
2	Acquisition of New varieties /selection of superior traits	Medium	Very high	low	medium	Low
3	Increase in employment in cotton industry	High	High	High	High	High

Volume 1, Number 1, 2022 ISSN N0 2791-1926

4	Improved economy and reduced poverty	High	High	Medium	Very high	High
5	Increased cloth from EPZ	Medium	Very High	High	Very high	medium
No.	**Revival Strategies**					
1	Implementing AGOA initiative	High	High	High	High	High
2	Implement cotton bill and enforce cotton regulations	High	High	High	High	High
3	Streamline cotton commodity chain	Medium	Very high	Medium	High	Medium
4	Expand cotton acreage/yield	Very high	Very high	Very high	Very high	Very high
5	Integrated crop management/farmer-research link	medium	Very high	High	Very high	medium
6	Enhance CODA through e.g., more finance allocation, staff recruitment to cotton growing counties etc	Very high	Very high	Very high	Very high	Very high
7	Empower cotton associations e.g., KCGA/HAWESA	Medium	High	High	High	Medium

KEY: Number of participants =1-5 (Low); 6-10 (medium); 11-15 (High); 16-20 (very high)

The next section of this paper discusses the findings of this study. The findings are done according to the objectives of the study and are subsequently grouped under three subsections; problems in the cotton industry in Kenya, prospects of the cotton industry in Kenya, and the revival strategies for the cotton industry in Kenya.

Problems in the Cotton Industry in Kenya

Data output from this research (see figure 1) indicate that from independence up to the 1980s, Kenya was a major East African producer of seed cotton for local consumption and export (GOK, 1995; 1999). Other data also show that today the potential of the cotton industry in Kenya remains high. However, poor production methodologies due to diverse problems like lack of appropriate technical skills in agronomic practices and deficient marketing systems for cotton, has resulted in a failure to meet the stakeholders' expectations of cotton demand, quality and pricing (Fibre Crops Directorate, 2018). To mitigate this, the Cotton Development Authority (CODA) under the fibre crops directorate in the Ministry of agriculture, has been setup to coordinate rehabilitation of the cotton industry (MOA, 2017).

Volume 1, Number 1, 2022 *ISSN N0 2791-1926*

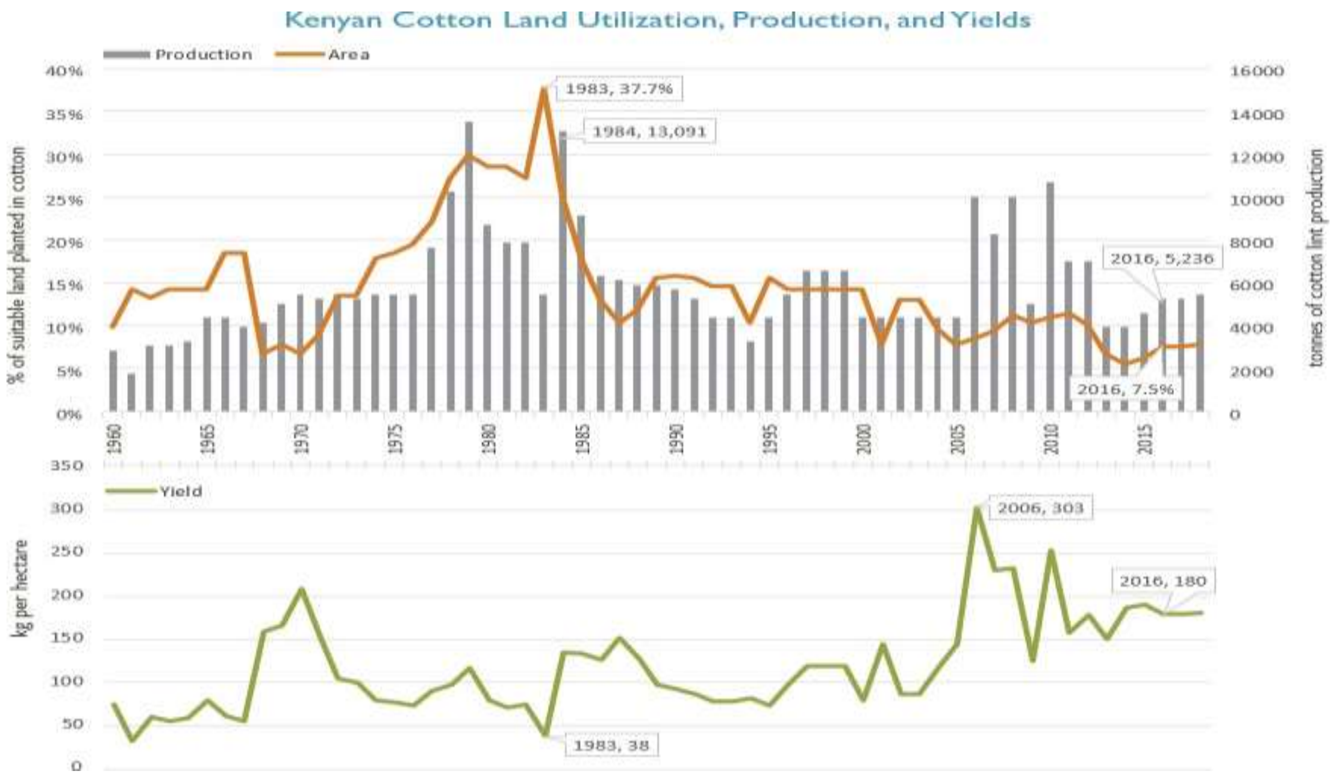


Fig. 1: Trends Oscillating in Land Utilization, Production, and Yields in Kenyan Cotton from 1960-2018

Untested Soil Fertility and Fertilizer Application levels

The research shows problem of untested soil fertility in cotton growing regions that needs soils to be sampled and soil analysis done to ascertain their fertility status. Thereafter, recommended fertilizer and manure application levels for each zone are laid out. Most farmers in cotton growing zones are not aware of their soil fertility status and recommended fertilizer application levels to use in their farms in relation to their farm soil types (MOA, 2018). Research by KALRO (2018) indicates fertilizer and manure use depend on soil type and extent of depletion of nutrients in specific agro-ecological zones. Soil analysis has been carried out extensively in various areas of the country (Fibre Crops Directorate, 2017). To address this problem, proper applications rates of manure and inorganic fertilizer use in specific locations need to be outlaid. Soil analysis is recommended before use (KALRO, 2018: MOA, 2017).

Collapsed Irrigation Schemes or Lack of Irrigation Facilities

The other problem is that of collapsed irrigation schemes that were once vibrant in seed cotton supply up to the 1980s-90s. This includes Hola and Bura irrigation schemes in the coastal region, and Pekerra and Barwessa irrigation schemes in Baringo in Rift valley region. These schemes accounted for over 30 percent of seed cotton production in Kenya (Fibre Crops Directorate, 2018). Their collapse is nearly zero cotton supply and cotton is now mostly grown under rainfall conditions. Data from this research indicate that Kenya has potentially irrigable land areas of 1.3 million ha with the potential to produce over 350,000 bales of cotton lint annually, yet only 105, 800 ha so far have been developed, producing 20,000 bales of lint annually (MOA, 2018). This is way below the requirement for local consumption which is estimated at over 200,000 bales annually. The remedy is increased cotton production done through combination of certified seed production and use of irrigation or availing irrigation facilities that leads to a substantial increase in yields (KALRO, 2017; MOA, 2017).

Collapsed or Under-operational Cotton Ginneries

The other problem is that of collapsed ginneries or the ginneries operating below capacity, partly due to various problems like the low supply of domestic cotton lint and irregular electricity supply which leads to reduced output and damage to equipment and products. In the cotton industry, electricity constitutes up to 60 percent of total costs in some ginneries, spinners, and textile operations (KIA, 2012). Currently, there are 24 ginneries in Kenya with an installed annual ginning capacity of about 140,000 bales that cannot be sustained by the meagre cotton supply of only 20,000 bales annually (GOK, 2018); this has forced many cotton industry stakeholders to collapse.

High Cost of Input

The research outlaid the problem of high cost of inputs, especially chemicals. The cost of purchasing cotton pesticides is exorbitantly high (up to 52%) in Kenya compared to the cost of such chemicals in Uganda and Tanzania. For instance, a litre of pesticides in Kenya goes for about Ksh.1,500 while the same goes for Ksh.700 and Ksh.1000 in Tanzania and Uganda respectively. Farmers cite high input costs, poor quality seed, weather, and low farm gate prices as challenges that prevent re-investment in the sector (FAOSTAT, 2018). Additionally, farmers lack access to finance for high-quality inputs and other investments for farm improvements. Pesticides account for almost a third of farmers' input costs, yet the majority of cotton farmers fail to spray even half of the recommended number of times per season (Ingram, 2005).

Inadequate Quality Seed

Research output indicates there is always inadequate quality seed available to farmers for planting (Fibre Crops Directorate, 2015: KALRO, 2016). A seed bulking and certified support program was started in 2007 by KALRO to try and address this problem. However, this is currently inadequate and requires strengthening in terms of trained manpower and financing. The results have been devastating to the small–scale cotton farmers as yields have declined from expected 1,500kg/ha to 500kg/ha leading to low earnings and reduced interests in cotton production.

In 1979, KARI released a new variety called KSA 81M with average yields of 2,000kg/ha and in 1989 released HART 89M with a production potential of 2,500 kg/ha under rain fed and over 4,000 kg/ha under irrigated conditions (KARI, 2012; CODA, 2012). The two varieties are recommended for commercial production. Their potential is however far from being achieved with current result average yields being 572 kg/ha. Due to lack of seed regulatory systems, the open buying system by ginners and lack of proper seed supply mechanisms has resulted in mixing of seed in the field thereby lowering seed quality due to frequent re-use of cotton seed. To reduce this problem, the government has been buying cotton seed ginned at ginneries and distributing free to farmers for planting as one of the campaign tools for revitalizing the cotton industry in Kenya.

Volume 1, Number 1, 2022 ISSN N0 2791-1926

Prospects of the Cotton Industry in Kenya

The national cotton production reached a peak of 38,000 metric tons of seed cotton in 1984/85 and thereafter declined to 14,000 MT by 1995 (as already seen in figure 1) following liberalization of the sector and withdrawal of Government from provision of credit and inputs concurring with Waturu (2001). The Cotton Development Authority in the Fibre Crops Directorate (2017) reports estimates that there are 350,000 ha in Kenya suitable for cotton production and is not cropped, with a potential cotton production of 50,000 tons annually. Before government initiatives to encourage cotton growing began to take effect in 2005, national production stood at only 5,000 tons from 30,000 ha.

In 2008/09 fiscal year, production was estimated at 10,000 tons from 46,000 ha and was reported also by CODA (2012) periodicals. This means that there are high hopes that with the current revitalization strategy of putting in place CODA and cotton Act 2005, the industry could see increased production concurring with MOA (2018) reports. The revitalization of cotton industry will enable all 24 ginneries, 52 textile firms, 110 large-scale garment manufacturers and spinners and 78,000 small-scale apparel manufacturers to work and operate at their installed capacities. These revived industries would create demand for more cotton lint of 60,000 bales per annum on-top-of the current annual demand of 120,000 bales thereby increasing demand for cotton products. Locally, textile manufacturing supplies only 45 percent of Kenyan textiles market while imported new and used clothes account for 37 percent of the market. Demand for textile products in Kenya is estimated to be growing at 3.78 percent annually. This supports reports by EPZA (2010) that more cotton up scales local demand and also concurs with earlier research by Ikiara and Ndirangu (2002) that Kenya has high prospect of cotton industry revival in its dormant fertile agricultural areas.

Acquisition of New Varieties and Selection of Superior Traits

With the revitalization of the cotton industry, there are prospects for provisions of quality and high-yielding cotton varieties as put forward by KALRO (2018) with recently approved Bt cotton variety. Acquiring new varieties, characterizing, evaluating and multiplying seed give breeders a vast Germplasm for the selection of superior varieties. This is done either through direct acquisition or selection from those already maintained at the National Gene Bank of Kenya (NGBK). For example, data output show that at KALRO, 34 new Deltapine lines/varieties (table 1) were obtained from Monsanto in 2008 and are currently being evaluated for performance. It is expected that drought-tolerant and Bt cotton from other countries like India and China will be acquired within the next few years to boost cotton industry revitalization in Kenya. This prospect will enhance cotton yields thereby enhancing volume for the cotton industry.

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Table 1: Evaluation Characteristics of Promising Cotton Varieties/Lines at KALRO-Mwea

Variety	Bolls per plant	Days to 1st flowering	Ginning outturn %	Plant height (cms)	Mean weight (g) of 1 boll sample	Yield in Kg/ha
KSA 81M	139	70.00	39.94	114.43	4.9	2,900
A540	141	73.00	39.39	121.23	4.6	3,700
F962	137	73.50	43.45	110.3	5.1	3,110
Vered	137	75.00	41.67	119.83	5.3	2,420
HART 89M	141	74.25	40.30	122.33	4.6	3,650
Pb (70) 1	135	71.75	39.56	125.3	4.9	2,760
Sicala v- 1	130	71.00	43.73	108.15	4.6	2,600
K3400-7	130	72.25	38.68	356.50	4.5	3,450
E790	136	74.25	42.49	112.33	4.9	3,140
L433.15	134	73.75	41.88	129.00	5.3	2,810
Cs189+	134	70.25	41.86	112.7	4.5	2,930
Ny (72) 26	141	70.50	41.54	108.08	4.9	2,930
L142.9	136	72.00	44.17	19.10	4.8	3,180

Source: KALRO, 2018

Increased Level of Employment in the Cotton Industry

There is a prospect of an increase in jobs in the cotton industry and its related sectors with the revival of the cotton industry. For instance, reports by MOA (2018) show that the cotton industry used to employ many people in its value chains right from the cotton farms, to the apparels and non-apparel making factories thus creating many job opportunities to many. The same report also indicates that thousands of people were laid off their jobs in Kenya with the closure of many garment making factories like Kisumu Cotton Mills (KICOMI), Raymonds, and Kenya Textile Mills-Thika among others. In the year 2000, there were 10,000 jobs in the textile sector alone. These rose with the enactment of AGOA to 15,000 jobs in 2001, and 30,000 in 2002, and 36,000 in 2003 (ICAC, 2002, 2003). This indicates that cotton sector employability was improving upon regulation and streamlining of Kenya's cotton industry. These are only direct jobs that have a multiplier effect in areas like cotton fields, ginneries, suppliers of cotton seed and farm inputs, and other textile raw materials suppliers thereby indicating prospect of jobs creation with revival of cotton industry in Kenya.

Improved Economy and Poverty Reduction

There are prospects of an improved economy by the cotton industry in Kenya. For example, a vibrant and competitive cotton industry in Kenya would mean to some extent, a reduction of imports, thus improving the balance of trade. Cotton can be exported in linty form or final cotton products themselves. This would earn Kenya foreign currency to boost the economy and even stabilize the falling shilling. Kenya could also work with regional partners to fill in supply gaps based on comparative advantages. Sub-Saharan countries, including Kenya, can take advantage of regional production sharing to boost their economies, which is permissible under AGOA. Moreover, more research needs to be done to determine how much and what kind of fabric is used

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and needed by textile companies in the region to target specific investors or take full advantage of regional resources and boost our economy.

Coupled with streamlined cotton production and management technologies, marketing, and research policies in place, this would mean that farmers become empowered financially by proceeds from the sale of cotton, thus reducing poverty levels.

Clothing the Nation from Growth in Kenya's Textile/Apparel Products in EPZ

With the revival of the cotton industry, Kenya can cloth its population and even have enough for export to both far markets and neighbouring markets. This is possible with growth in the Kenya textile/apparel sector currently witnessed in the Export Processing Zone (EPZ), which has a well-established Export Processing Zone (EPZ) and Manufacturing under Bond (MUB) framework which can absorb the extra seed cotton produced supporting report by MOA (2018). Research points out that exports from apparel industry contributed 75 percent of Ksh.20.6 billion which Kenya earned from total export into the USA in 2008 (U.S. DoC & ITC, 2012). Over 80 percent of apparel produced in Kenya for US market is made by companies under the EPZs which are a very good target for the revitalized cotton industry (EPZA, 2010). The same source indicates textile and apparel manufacturing as well as textile accessories that constitute 31 percent of all EPZ activities and employ approximately 20,000 Kenyans. These employment figures are however twice as much compared to five years ago although they have since been declining gradually. This decline is associated with cotton industry problems thus concurring with reports from EPZA (2015) on the need to revamp the cotton industry.

Revival Strategies for the Cotton Industry in Kenya

The revival of the cotton industry leads to the opening of closed mills, rehabilitation of ginneries, and spurring growth in related industries. Its revival also catalyses import substitution and increases exports, thus generating higher foreign exchange earnings for economic growth. Kenya has the potential to produce over 350,000 bales of cotton lint, but it is currently producing less than 45,000 bales of lint. This is way below the requirement for local consumption, which is estimated at over 200,000 bales annually (MOA, 2018). Various strategies can be used to increase output including increased cotton crop production through provision of certified seed, use of irrigation, addressing research issues on low yields and lint quality among others. This will assist boost stakeholder confidence in the cotton industry to join in its revival since enough cotton will be available for use in apparel products making. To revive the cotton industry, some of the strategies to be put in place to encourage players in the sector to participate in bringing the cotton industry to its feet again are discussed.

Implementing African Growth and Opportunity Act Initiative (AGOA)

The cotton industry can be revived through the African Growth and Opportunity Act (AGOA) which is a trade preference programme initiated in year 2000 by US government and currently involving 39 designated Sub-Saharan African (SSA) countries. The act provides preferential market access to more than 6,500 product tariff lines, including apparel/textile, a variety of agricultural products, chemicals, and so on. AGOA has expanded duty-free benefits, which were previously available under the Generalized System of Preferences (GSP), with a special provision for textile/apparels as reported in AGOA website (www.agoa.gov). This provision is to expire in 2025. Since Kenya's accreditation under AGOA in January 2001, there has been a re-opening of three garment factories previously closed, and establishing six new ones. Eighteen companies are

Volume 1, Number 1, 2022 ISSN N0 2791-1926

in the process of re-opening. This research found out that most of the closed ginneries have been privatized and some revived, for example, Makueni Ginnery is already ginning and selling to the Export Processing Zone (EPZ) in Athi River.

Implementation of Cotton Amendment Bill and Enforcement of Regulations

In trying to revive the cotton industry, the Kenya government introduced the Cotton amendment Bill of 2006 (that became Act) that provided the legal framework for Government supported re-organization of the cotton sector by establishing Cotton Development Authority (CODA). To enforce the regulations, CODA has recruited inspectors, whose obligations under the cotton Act and the cotton (Amendment) Act 2006 are to; monitor cotton growing and cotton ginning, inspect cotton plants for disease and pests, and carry out quality control of planting seed and raw among others. As a result of this, there has already been some impact for instance with national production rising to 9,800 tons in 2006 from 5,090 tons in 2005 as reported by MOA (2007). However, this increase was mainly due to an increase in the number of producers (hectares under cultivation) rather than any substantial increase in productivity as seed cotton yields remain at 400-600 kg/ ha as reported by MOA (2017).

Expanding Cotton Growing Areas and Productivity

Another way of reviving the cotton industry is through expanding cotton-growing areas by targeting potential areas. Vigorous campaigns can be directed for farmers to increase acreage on cotton. Since cotton in the country is mainly grown in arid and semi-arid areas, irrigation can be done to increase cotton production and productivity. In Kenya, for instance, cotton yields in 2017 averaged 572 kg/ha of seed cotton or 191 kg/ha of lint, which is estimated as 23 percent of the potential yield of 2,500kg/ha as per KALRO, (2018). Poor yields from smallholder cotton farmers in Kenya have been a long-standing problem that has not been significantly altered by the release of new varieties or by other recommendations made based on research findings.

Empowerment of Cotton Related Associations like Kenya Cotton Growers Associations (KCGA) and Handloom Weavers Association (HAWESA)

KCGA is a non-political, not-for-profit, and the only national cotton farmer's representative body formed in the year 2000 out of the need to address the plight of exploited and disempowered cotton farmers. The objectives of KCGA are: providing an advocacy voice for cotton farmers in furtherance of their interests by advising, lobbying and making representations to other stakeholders on matters of policy, legislation, financing and matters pertaining to cotton production; supporting capacity development to the national and county associations; and strengthening and coordinating farmers' roles in acquisition of resources, inputs, grants and other support to cotton production and marketing (CODA, 2006). These will assist in revitalizing the cotton industry.

The other strategy is empowering HAWESA, which comprises forty (40) enterprises drawn from all regions in Kenya, including individual cottage industries, workshops, and groups. The objectives of the association are to create a linkage between the people who trade in handloom woven cotton products and markets members’ products under category 9 of AGOA pact through exhibitions and trade shows. They also collaborate with Kenya Industrial Research and Development Institute (KIRDI) to manufacture handlooms and spinner machines for use in the cotton industry, hence spread the market for cotton products, thereby enhancing the industry revitalization process (CODA, 2006).

Conclusion and Recommendation

It is concluded that the cotton industry faces problems of untested soil fertility and fertilizer application levels, lack of access to quality seeds, high cost of inputs/pesticides, collapse of irrigation schemes and former state-owned textile firms and ginneries, non-execution of cotton policies, poor agronomic practices, competition from synthetic fibre substitutes, and inadequate skilled labour supply for the textile industry. The prospects of the cotton industry include; increased cotton use, acquisition of new seed varieties/selection of superior traits, increased employment in cotton industry, improved economy as well as reduced poverty and increased products such as cloth from EPZ. The revival strategies included: implementation of the cotton bill and enforcing cotton regulations, expanding cotton acreage/yield, streamlining cotton commodity chain, integrating crop management and farmer-research link, enhancing Cotton Development Authority, empowering cotton associations such as KCGA/HAWESA, and putting in place policy and regulatory framework that leads to the maximization of the African Growth Opportunity Act initiative by the United States government that was extended from 2015 to 2025 to make local farmers benefit more. Lastly, it is concluded that there is need to address outlaid problems, avail resources for acquisition of quality seed, purchase of farm inputs and rehabilitation of collapsed irrigation schemes and ginneries and the government, the private sector and the international community to invest in the cotton industry for seamless entrenchment of revival strategies in the cotton industry.

It is recommended that cotton stakeholders including the government address prevailing problems to enhance trade prospects under AGOA thereby benefiting all in the cotton industry right from the farmer, ginner, spinner, weaver and textile industry. This will lead to cotton revitalization and which will in turn offer the best alternative for increased employment, poverty reduction, rural development, and increased incomes with enhanced textile and manufacturing industries.

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