

**Developing a Revival Strategy for Kenya's
Cotton-Textile Industry: A Value Chain
Approach**

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Abstract

This study was motivated by the huge potential of Kenya's cotton-textile sector in poverty reduction, its unprecedented decline since the second half of the 1980s and the market opportunities offered by African Growth and Opportunity Act (AGOA) and other trade initiatives. It sought to assess the industry's operating environment and identify interventions necessary for its revival and sustained development. The Ministry of Agriculture and Rural Development and the Ministry of Trade and Industry collaborated in the project in recognition of the fact that the industry is a chain—starting with cotton production and ending with sale of manufactured garments—in which both ministries are key players. The study applied the business systems approach and the value chain analysis (VCA) frameworks and used both secondary and primary data. Primary data were obtained from sample surveys of all actors in the cotton-textile chain. Stakeholder input, obtained from a series of workshops and conferences, provided interesting insights.

The study finds that cotton farmers are operating with negative gross margins to the tune of Ksh 3/kg of seed cotton produced, largely due to high production costs in an environment of tremendous global decline in lint prices. Major cost drivers are pesticides, lack of extension services and poor infrastructure. The environment in which cotton farmers operate is characterized by general disorder and failure, including the breakdown of regulatory, policy and market frameworks. Locally produced lint is internationally uncompetitive largely because of low capacity utilization, out-of-date equipment unsuitable for smallscale ginning and high electricity costs. Some ginneries have failed completely partly because of their crippling debts. The cotton-textile chain is clogged at the farm and ginning levels: farmers are not responding to supply demands because prices are too low, and ginners are unable to offer better prices because of low seed cotton supplies and inefficiency. Inadequate investment and poor technology are major problems in yarn spinning (and fabric manufacturing to some extent), which leads to high production costs and production of low quality fabrics. The high cost of electricity, high taxes and levies, market limitations associated with unfair competition from imports, and the high cost of borrowing are other important problems. Political and economic uncertainty is also seriously affecting investment decisions, making it difficult to attract the massive investment required in the industry.

Apparel manufacturing is the most vibrant part of the chain at the moment, largely because AGOA permits (until September 2004) imports of fabric from low cost producers in any part of the world. Nevertheless, electricity cost and availability; marketing, especially for non-exporting firms; competition from uncontrolled imports of second-hand clothes, counterfeit textile products and imports that evade duty; and handicaps in obtaining qualified personnel such as managers and designers exist. Governance of the cotton-textile-apparel chain also affects the operating environment. Retailers dominate the chain: they set prices, determine quality and delivery time, and often closely supervise the production of garments right from the development of fabric. Producer prices are therefore low, often below production cost. Lack of capital and its high cost when available are serious obstacles for micro and small garment producers.

Key bottlenecks affecting the whole chain include lack of coordination, institutional and policy failure and lack of competitiveness. Following its liberalization, Kenya's cotton-textile industry lost its coordinating structures, with serious implications on quality control and performance. Nothing much is for example being done to streamline the lower parts of the chain to respond to the requirements of the post-2004 AGOA era less than two years to the date. Institutional failure is manifested by lack of strong producer associations; weak or ineffective mechanisms for overseeing issues such as production and distribution of quality seed, provision of inputs to producers on credit, and the quality of inputs such as pesticides; and the virtual collapse of extension services. The sector was opened up completely and suddenly after liberalization without offering players time to adjust. The industry lacks policies for personnel or dynamic technology development, a regulatory and legal framework consistent with a liberal environment, and a comprehensive institutional and policy framework covering all aspects of the chain. There is also a glaring absence of strategic positioning policy.

The study recommends temporary financial support to cotton farmers, creation of an apex institution to play coordination and regulatory roles, creation of new and strengthening of existing stakeholder organizations, provision of fiscal and other incentives, temporary restriction of lint and yarn imports to unplug the system, introduction of interventions for cost reduction at all points in the chain, and effective enforcement of standards and regulations to eliminate counterfeit imports and tax evasion.

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Acronyms

ACP	African Caribbean and Pacific
AGOA	African Growth and Opportunity Act
CCGA	Commercial Cotton Growers' Association
CDO	Cotton Development Organization
CLSMB	Kenya Cotton Lint and Seed Marketing Board
CMB	Cotton Marketing Board
CODA	Cotton Development Agency
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
FAO	Food and Agriculture Organization of the United Nations
FKE	Federation of Kenyan Employers
GOT	ginning outturn
ICAC	International Cotton Advisory Committee
IPM	Integrated Pest Management
KAM	Kenya Association of Manufactures
KAMEA	Kenya Apparel Manufacturers Exporters Association
KARI	Kenya Agricultural Research Institute
KCGA	Kenya Cotton Ginners Association
KIPPRA	Kenya Institute for Public Policy Research and Analysis
MUB	manufacturing under bond
NCC	National Cotton Council
NIE	new institutional economics
SADC	Southern Africa Development Community
SAP	structural adjustment programme
SME	small-scale and micro enterprise
VCA	value chain analysis
WTO	World Trade Organization

1. Introduction

Since independence, Kenya's cotton-textile-apparel industry¹ has gone through major phases. At independence private ginners dominated the industry. Over the following 10 years the government helped cooperative societies to buy the private ginneries from the colonialists and instituted a regime of controlled margins and fixed farm-gate prices for cotton. It also invested in a number of textile mills that supplied the largely private apparel manufacturers. Under this regime, which was also characterized by large donor support, land under cotton expanded by 180% in the 1970s and processing capacity by 60%. Government and donor assistance started declining in the mid-1980s, resulting in a decline in lint production of 57% between 1984/85 and 1992/1993. The industry was in tatters by 1991 when the government began to re-liberalize it: cotton production had almost ground to a halt, many ginneries had either collapsed or had excess capacity, and many textile firms had collapsed. These problems were accelerated by liberalization, whose serious implementation started in 1993, and the ban by the US of textile imports from Kenya in 1994. These factors reduced lint production to an average of 20,000 bales annually, where it still remains even though the country's potential is large, estimated at 300,000 bales.

The government and the private sector have shown substantial interest in the last two or three years in reviving the industry. The motivation for this is partly attributed to the realization that the cotton-textile industry offers unique opportunities for increased employment, poverty reduction, rural development and increased incomes in arid and semi-arid lands. Cotton is one of the few cash crops suitable for marginal, low rainfall areas that cover about 87% of the country's land mass and are home to 27% of the population. In addition, it is grown by small-scale farmers, who are key targets of poverty alleviation efforts. Other incentives are the enormous market prospects presented by the African Growth and Opportunity Act

¹ Subsequently, we will use the term 'cotton-textile industry' to refer to this broader chain, unless otherwise stated.

(AGOA) passed by the US Congress in 1999, the African Caribbean Pacific-European Union (ACP-EU) Cotonou Agreement ratified in 2000, and the expected freeing of textile trade with the removal in 2005 of quota restrictions under the World Trade Organization (WTO) framework.

This paper looks at the structure and status of Kenya's cotton-textile industry, its operating environment (including the constraints facing it), the role of various stakeholders and trade opportunities. In addition it ponders on how the industry could be revived and its development made sustainable. The paper applies elements of the business systems value chain analysis and the global commodity chain approaches.

Besides published and unpublished secondary data, the study draws from primary data collected in a questionnaire survey covering cotton farmers, ginneries, textile and garment manufacturers, agrochemical and other input suppliers, research institutions and other relevant public institutions, and other industry stakeholders. The survey was carried out between August and December 2001 in several parts of the country. Information on global supply, price trends and governance was obtained largely from literature. Draft reports of the findings were presented at four provincial-level stakeholder workshops for discussion and evaluation.

2. Overview of Kenya's Cotton-Textile Industry

Cotton production was introduced in Kenya in the 1900s by the colonial administration; however, it was not until the early 1960s that the crop was introduced into many parts of the country, being encouraged in areas with low rainfall and therefore unsuitable for other cash crops. Currently the crop is grown in Nyanza, Western, Coast, Central, Eastern and Rift Valley provinces, largely under rainfed conditions. Irrigated cotton was produced mainly in Hola and Bura (Tana River District) and parts of Kerio valley, but these irrigation schemes are characterized by serious problems. The Hola irrigation scheme was started in 1956, and the Bura one in 1981/82. Cotton is mainly grown by small-scale farmers, estimated to be over 140,000 countrywide, on holdings of less than one hectare.

Cotton research in the country started in 1950 under East Africa's Cotton Research Corporation (CRC),² with the objectives of producing new varieties, identifying crops that could be intercropped with cotton and identifying the means of pest and disease control. In 1955 the Kenya Cotton Lint and Seed Marketing Board (CLSMB) was established under the Cotton Act to coordinate cotton production, processing and marketing. In addition the board collaborated with CRC on research. The act that established CLSMB also allowed the formation of cooperatives and unions to handle such primary activities as input supply, payment for cotton and cotton processing.

Kenya's cotton sector was still dominated by private colonial ginners by independence in 1963. But between that time and the end of 1990 the government systematically introduced controls into the sector: it helped cooperative societies buy ginneries from the colonialists, controlled marketing margins, fixed producer prices and invested heavily in textile mills.

² Initially known as Imperial Cotton Growing Corporation.

The cotton-textile industry received substantial assistance from the government and donor agencies especially in the 1980s. Assistance programmes included the Small Holder Credit Scheme sponsored by the US Agency for International Development (USAID), the new seasonal credit scheme, the farm input supply schemes financed by DANIDA, the Machakos Integrated Development Programmes funded by the European Union, and the Cotton Processing and Marketing Project funded by the World Bank. These enabled substantial expansion of production.

Over the 20 years between 1965 and 1984, annual lint production increased from 20,000 to 70,000 bales,³ and in the 1980s the textile-apparel industry became the country's leading manufacturing activity in both size and employment.⁴ This trend was not sustained: in the following years the industry suffered a downward trend as government and donor assistance started dwindling. By 1986 local cotton had become globally uncompetitive because of inefficiencies in cotton production, ginning and distribution accompanying the price control regime. By 1995 lint production had dropped to about 20,000 bales, a level from which it is yet to recover.

The government controlled the industry through CLSMB, which was renamed the Cotton Board of Kenya. The board was primarily responsible for buying seed cotton from farmers either directly or through cooperative unions and private sector agents, ginning it through its six ginneries and selling lint and seed. It also supplied inputs to farmers. Government policy over the period sought self-sufficiency in cotton through providing free seed and input credit and controlling producer prices.

With the disadvantages of control and protection becoming obvious, and public resources increasingly scarce, liberalization of the sector was begun in 1991. The industry was opened to the private sector, including the cooperative movement. The role of the Cotton Board of Kenya was

³ A bale weighs about 185 kg.

⁴ This is discussed in more detail in section 3.4.1.

substantially reduced and all its ginneries were sold to the private sector.⁵ Many private agents have entered the industry since then, especially in primary purchase, sale of pesticides and other farm inputs, transportation, ginning and manufacturing (mainly apparel). But these agents are operating in a suboptimal environment.

Liberalization has not yielded notable benefits for the industry; instead it has accelerated the sector's dwindling performance. Annual lint production remains at the pre-liberalization level of 20,000 bales against an annual domestic demand of 120,000–140,000 bales. The shortfall is met by imports of lint, seed cotton, yarn, fabric and second-hand and new clothes. Many ginneries and textile and apparel manufacturers collapsed following liberalization, leading to enormous job losses. The textile and apparel industry consequently lost its key positioning in the manufacturing sector and the economy. Although AGOA has created a new momentum in the industry, especially in garment making, big problems still remain. These problems are brought out in the following section, which analyses the various parts of the cotton-textile chain.

The market prospects offered by AGOA and the potential contribution of the cotton-textile industry to poverty alleviation efforts have motivated government interest in its revival. The government's objectives for the industry according to a draft Sessional Paper are to:

- Facilitate increased production of top quality cotton for local and export markets
- Diversify production in suitable agroecological zones to produce cotton for the export market
- Increase employment opportunities by introducing labour-intensive enterprises and the use of appropriate technology

⁵ The new role of the Cotton Board of Kenya has not been clearly defined to date.

- Enhance cotton production in arid and semi-arid areas through irrigation
- Generate income and alleviate poverty
- Contribute to the country's macroeconomic development

3. Operating Environment of the Cotton-Textile Industry

3.1 Conceptual Framework

The environment in which a firm⁶ (or industry) operates is an important factor in its conduct and performance. This environment could be local, national, regional or international depending on the firm's scope of activities, and it constitutes the numerous formal and informal institutions and their interaction with each other. Thus, local, national, regional or international institutions affect a firm's performance, as do firm-level institutions (such as management styles and employer-employee relations), market institutions (such as supplier, interfirm and customer relations) and society-level institutions (such as education, the state and other social systems).⁷ In Africa the state has the greatest effect on economic development, primarily through regulating markets (including the monetary system), enforcing laws and contracts, formulating and implementing various policies that affect businesses, and providing infrastructure and security (McCormick et al., 2001).

The new institutional economics (NIE) school of economic thought recognizes the importance of economic and non-economic (such as political and social structures) institutional environments in economic outcomes. Its main contribution is its emphasis on learning and change and the recognition that economic agents (households, firms, industries, and even entire economies) learn from change and adjust accordingly (McCormick et al., 2002). The business systems approach and the value chain analysis, two frameworks that borrow from NIE's theoretical paradigm, are useful in the analysis of the operating environment of Kenya's cotton-textile industry.

⁶ In this paper this term is defined broadly to include farming enterprises.

⁷ See Whitley (1992, cited in McCormick et al. 2001), for details on this categorization of institutions.

3.1.1 Business systems approach

This approach examines the economic, social and political institutions that shape individual firm (or business) behaviour and the general organization of business activity (McCormick et al., 2001). The approach is suitable for analysing the organization of the cotton-textile industry, the existing institutions and how the various institutions affect the industry.

3.1.2 Value chain analysis

Value chain analysis and the closely related concepts of global value chain and global commodity chain involve the analysis of all activities that take place from the time a product is conceived to the time it reaches the final consumer. These activities include design, sourcing of raw materials and all other inputs, production and distribution. Some of these may be located in different countries (hence the term 'global') or different parts of the same country. At each stage of the value chain, analysis involves (Johnson and Scholes 1993):

- Identification of chain players or stakeholders, their function, role and relationships.
- Determination of chain governance or leadership to facilitate chain formation and strengthening.
- Identification of value activities in the chain. Costs and added value are then assigned to each of the activities, highlighting for strengthening those that are key determinants of the organizations' competitive position.

Depending on its purpose, the analysis may concentrate on how value is added across different parts of the chain or on the material, service, knowledge and expertise, and power flows.

Actors in a given chain may face significant control from other actors, and those actors with control (or those that 'govern' the chain) command the lion's share of the profits generated in it. Some garment producers in Kenya, for example, may be in global chains that are governed by overseas-based

buyers who control the design, quality, quantity and price of the garments. Many chains are governed by lead firms, which often are multinationals, large integrated enterprises or product buyers (Gereffi, 1994; McCormick et al., 2001). The nature and governance of the value chain in which a firm or industry is engaged are therefore also important elements of its operating environment.

Value chain analysis is a tool that can provide important insights into the policy challenges confronting both private and public actors (Kaplinsky 2000). Specifically, it can:

- Help to identify the factors within both the firm or sector and the interlinked supplier, distribution and customer chains. Because of the integrated nature of the chain, the value or quality that customers attach to a piece of clothing, for instance, is not determined by the activities of the garment producer alone but also by what happens upstream and downstream in the chain.
- Indicate the role of policy and state regulations in enhancing or curtailing competitiveness, with a view to introducing reforms.
- Facilitate analysis of global dynamics of returns to different activities in the chain and changes in international purchasing power.
- Help to identify the roles of different actors, such as the private and public sectors, and factors such as mobile skills in a given chain.
- Aid the study of determinants of inter- and intracountry (among different regions, size of firms, households and genders) distribution of income.

3.1.3 Combined analytical framework

This study combines business systems and value chain frameworks to facilitate a rigorous analysis of Kenya's cotton-textile industry and consequently draw up a development strategy for it. While the value chain analysis facilitates the study of the industry's (or its various actor categories') proximate environment, the business systems approach permits

the analysis of the larger environment, including the important economic, social and political institutions. Important determinants of the proximate and broader operating environment of cotton-textile industries, which are useful as a guide for the analysis of the Kenya cotton-textile industry, include (Cotton Incorporated, 2001; Salinger et al., 1999):

- Extent to which the government supports private sector efforts in fundraising, staff training, modernizing facilities, productivity improvement, research and development for upgrading and developing differentiated products and for developing appropriate technology, information collection through market research and industry surveys, access to technological and other information, sales promotion, and environmental protection.
- Existence of an institutional framework to coordinate policies and facilitate timely policy adjustments to eliminate inconsistencies, incentive distortions and obstacles to efficiency and competitiveness. An experts' forum or (coordinating or umbrella) institution is necessary for the task of prioritizing issues and interventions. The role of such an institution embodies gathering information and data about the industry so as to grasp its problems and draw corrective proposals; coordinating sectoral policies with other policies, laws and regulations; coordinating the drafting of new laws and regulations and monitoring their implementation; and monitoring the performance and effects of policies, and revising them accordingly.
- Availability of various skills (marketing, technical, management and financial) and training programmes for all cadres, including incentives to encourage plant training and capacity building for experts.
- Availability of critical inputs and services such as engineering facilities and consultancy services, which could be provided by a cooperative.
- Existence of rational tariffs, taxes and labour laws and levies. Inappropriate laws and strong unions could force firms to overstaff or

pay higher wages than they can afford. High unemployment rates could lead to overstaffing. Labour laws and trade unions should allow introduction of productivity incentives for workers such as differential wage rates and piecework. Labour market flexibility (for example, different wage rates in different parts of the country and labour subcontracting rather than direct hiring) therefore is very important. Tariff structures that protect domestic raw material and input manufacturers against imports may affect competitiveness of textile and clothing firms.

- Existence of policies that encourage forward and backward integration, which is critical for internalizing quality concerns.
- Existence of advanced infrastructure for services such as electricity supply, roads, port facilities, transportation services, logistics and banking services. Good infrastructure is not only important in terms of production cost considerations but also with respect to on-time delivery, a key determinant of competitiveness.
- Distance to the major international markets (Europe and the USA). This is also an important determinant of the operating environment and, therefore, competitiveness.
- Access to trade agreements such as the Cotonou Agreement and AGOA.
- Incidence of HIV/AIDS, which affects the cost of doing business through high turnover, absenteeism and large insurance costs.
- Security.
- Macroeconomic management or economic policy stability. In particular, interest and inflation rates, foreign exchange policies, fiscal incentives, government assistance, wages, tariffs, profit repatriation policy and corporate taxation are important determinants of the attractiveness of the operating environment and, therefore, competitiveness. These

should be stable and predictable, and government incentives should be clear and easy to access.

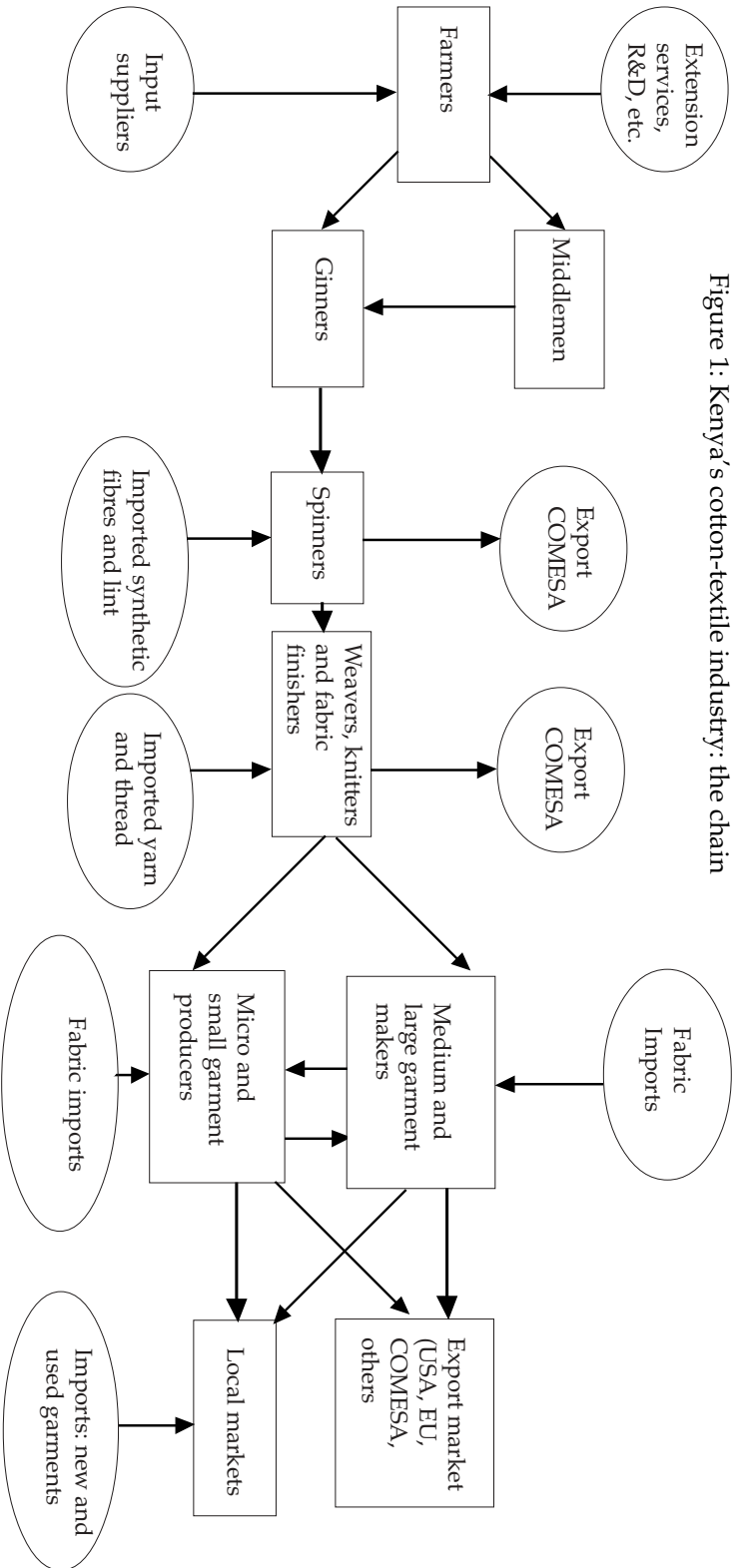
- Extent of market regulation. This determines competitiveness of the market and the ability to access quality inputs and services at internationally competitive prices. Such regulation would also determine the flexibility of operators to switch to alternative ways of doing business as circumstances change (such as moving a part or all of manufacturing offshore, developing new product lines, introducing new information management systems and new inventory control systems, and establishing new overseas market contacts and new forms of labour relations).
- Existence of positive market sentiments for the industry, demonstrated by a loyal customer base.
- Political stability.

Subsequent sections of this discussion assess the operating environment of actors in the country's cotton-textile supply chain based on these factors. Figure 1 shows the industry's broad structure.

3.2 Methodology

This study relies on both secondary and primary data. Secondary data were obtained from published and unpublished literature, official statistical publications such as the *Economic Survey* and *Statistical Abstract*, the Cotton Board of Kenya and industry associations. For comparison the literature covers Kenya and other countries both within and outside Africa. Primary data, which support the bulk of the study, are obtained from sample surveys of all actors in the cotton-textile chain: input suppliers, farmers, ginner (and other primary purchasers of cotton), spinners, weavers and knitters (and other fabric manufacturers), and garment makers (small, micro, medium and large). The samples were drawn as randomly as possible, given the lack of sampling frames. Details on the actual sample sizes and how they were drawn are reported in the relevant sections in this report.

Figure 1: Kenya's cotton-textile industry: the chain



Note: This figure depicts only one product from ginning: lint, not seed. Some of the seed is stored for planting in the following season, and the rest is used directly to feed animals or crushed to make cotton seed cake, an animal feed.

Structured questionnaires were used, and in several instances complemented with informal interviews with key informants, to improve understanding of the issues.

Draft reports were subjected to stakeholder scrutiny and input in a series of four provincial-level stakeholder workshops. The report was in addition presented at an international conference on clothing and footwear in Mombasa, a stakeholder workshop in Nairobi and a final national workshop attended by policy-makers and donor representatives.

3.3 Cotton production

This section presents findings of a survey carried out among cotton farmers and their input suppliers in different parts of the country. The crop is largely grown on small land holdings averaging about 1 hectare. On average, the area under cotton in our sample of farmers was about 35% of the total land held. It is estimated that Kenya now has 140,000 small-scale cotton farmers (GoK, 2000) compared with over 200,000 in the mid-1980s when the industry was at its peak. The Cotton Board of Kenya estimates that countrywide 350,000 hectares⁸ is suitable for rain-fed cotton production with the potential to produce about 260,000 bales of lint annually, and 34,500 hectares for irrigated cotton with the potential to produce 108,000 bales of lint annually. However, only about 40,000 hectares is under the crop, and the total annual lint production stands at only about 20,000 bales. By 1987/88, the government-run Hola and Bura irrigation schemes⁹ accounted for 39% of the national lint production. The Hola scheme collapsed in 1991/92 after the Tana River changed its course. Cotton is grown also in the Perkeria irrigation scheme in Baringo District.

⁸ The Ministry of Agriculture and Rural Development estimates the area under cotton to be 2.04 million ha: Coast (914,000), Western and Nyanza (370,000), Central and Eastern (670,000), and Rift Valley (89,000).

⁹ The Hola irrigation scheme was started in 1956, and the Bura one in 1981/82.

3.3.1 *Sample of farmers interviewed*

A total of 133 farmers were interviewed in all of the country's major cotton growing areas (table 1). Eastern Province was represented by Makueni, Kitui and Meru districts; Central by Kirinyaga district; Nyanza by Homa Bay, Kisumu and Siaya districts; Western by Busia and Teso districts; Coast by Taita Taveta, Mombasa, Kilifi, Malindi and Lamu; and Rift Valley by Baringo and Kerio Valley districts.

Table 1: Distribution of farmers interviewed by province

Province	Number of farmers	% of total number
Nyanza	23	17.3
Western	10	7.5
Rift Valley	21	15.8
Central	6	4.5
Eastern	20	15.0
Coast	53	39.8
Total	133	100.0

Source: Author's survey, 2001.

3.3.2 *Cotton production, costs and revenues*

The average yield of seed cotton for the sampled farms was 572 kg/ha, or 191 kg/ha of lint. Substantial variation in yield was observed across provinces, ranging from about 800 kg/ha in Rift Valley to 357 kg/ha in Nyanza (table 2). Lint yield has not only dropped from the estimated average of 250 kg/ha (ADEC 1998), but also it is very low compared with those of Pakistan (500 kg/ha), Mexico (1000 kg/ha), Israel (1400 kg/ha), and other parts of Africa, where it ranged from 300 to 370 kg/ha in the 1990s (Gibbon, 1998). It is less than a third of the world average (about 589 kg/ha for 2000/01).

Table 2: Yield and area under cotton, by province

Province	Yield (kg/ha)	Area under cotton (ha)	Proportion under cotton
Western	625	0.40	0.13
Nyanza	350	0.93	0.40
Rift Valley	800	0.78	0.27
Central	372.5	0.68	0.23
Eastern	403.5	1.20	0.38
Coast	657.7	1.10	0.35
Overall	572.5	0.95	0.35

Source: Author's Survey, 2001.

The varieties grown in the country (HART 89M and KSA 81M) have higher yield potential (2500 kg/ha) than their current yield. Some of the factors responsible for the low productivity include low producer prices, high cost of purchased inputs (resulting in low use of inputs), poor seed, bad weather, and the lack of credit (table 3). These factors reinforce or interact with each other. Low producer prices and the lack of credit, for example, translate into low input use. Intercropping cotton with other crops such as maize, beans, peas, cowpeas, sorghum or millet, which is practised in all the provinces but to varying degrees, also affects yields. For example only 52% of the farmers interviewed in Nyanza intercrop compared with 83% in Central Province. The percentage of farmers in the other provinces doing so lies between these two figures. Intercropping cotton with tall crops such as maize shades it, not only delaying its flowering but also reducing the number of flowers formed. Close to 50% of the farmers interviewed observed this effect. According to the Kenya Agricultural Research Institute (KARI), it is not intercropping per se that effects yield, but intercropping with tall and climbing crops.

Table 3: Factors affecting cotton yield, according to farmers

Causes of low yields	Percentage of farmers citing cause	Ranking
Low price of seed cotton	90	1
Cost of purchased inputs	86	2
Weather	77	3
Lack of credit	50	4
Poor quality of seed	96	3
Intercropping	50	4

Source: Author's Survey, 2001.

Late planting, often resulting from competition for labour from food crops, contributes to low yields. In Siaya District, for example, farmers sow beans at the onset of the rains that fall in March, the ideal time for planting. But cotton sowing, mainly as an intercrop, is delayed until after the first weeding of the beans when labour becomes available. By then the rains are largely gone.

Seed quality is an important factor, since seed is the basic input with the biggest effect on plant stand and ultimately on yield and quality of the fibre. Kenya's cotton seed supply system is weak and seed certification is nonexistent. During the 2000/01 season seed was mainly supplied by the government free of charge. This seed had been bought from ginneries without proper assessment of quality or variety. Information obtained from the ginneries indicates that some of the seed had been stored for almost five years, and that some of it may have been mixed with seed from neighbouring countries. Observance of storage period requirements and maintenance of moisture content at less than 10% are important determinants of seed quality. Moisture content levels were hardly observed during this long storage period. The poor seed quality that year resulted in poor germination rates, as low as 30% in some parts of Coast Province,

and almost total loss of crop in such places as Kilifi District, where farmers tried as many as three plantings before receiving modest success. Such problems drain the meagre resources of farmers, whose incomes can hardly withstand such shocks. The little that grew was late, further aggravating the yield situation.

Poor seed distribution puts Kenya at a disadvantage *vis a vis* neighbouring countries. In Uganda the responsibility of multiplying and supplying seeds (and pesticides) lies with the Cotton Development Organization (CDO). Farmers are provided certified seeds – parked conveniently for an acre – and on credit. This money is recovered during marketing of seed cotton.

Weeding and thinning also are important determinants of cotton yield and quality. Clean fields produce quality grades, and grassy and weedy fields accompanied by poor harvesting practices produce poor quality cotton. In addition timely weeding is important to avoid competition with weeds. Thinning, which is normally carried out within the first month after sowing, maximizes the quality of the bolls. In intercropped fields thinning may be compromised, as was the case in most of the farms visited. Even at harvesting time most of the fields were overgrown with weeds.

Timely harvesting is important for preserving fibre quality, as field weathering weakens and discolours the fibre. Cotton's highest fibre quality and best potential for spinning is obtained when the bolls are mature and freshly opened; this is the best time for harvesting. Harvesting practices were found to be poor among most farmers, as there were delays in picking open balls. At times cotton was stored in open piles on the ground, further increasing the chances of contamination with foreign particles.

A regression analysis¹⁰ sheds more light on the determinants of cotton yields (table 4). It confirms that the cost of inputs, in particular pesticides, is a statistically significant determinant of cotton yield. For example, a 10% increase in expenditure on pesticides per unit area leads to a 5.2% increase

¹⁰ Because of measurement difficulties only a few of these yield determinants were used in the regression.

in cotton output per area *ceteris paribus*.¹¹ The area of land under cotton is significant at 11%, indicating that there may be some scale effects in cotton farming. The only other significant result from the analysis is that yield rates differ significantly across locations. This may be attributable to differences in ecological conditions, the cotton varieties grown and the

Table 4: Determinants of cotton yields: regression results

Variable	Model I		Model II	
	Coeff., β	Std. Err.	Coeff., β	Std. Err.
Constant	2.858*	1.514	2.708	1.756
Ln (expend. on pesticide/ha)	0.330	0.209	0.523**	0.223
Ln (Area under cotton, ha)	0.285	0.249	0.469	0.288
Intercropping, dummy	-0.701*	0.380	-0.715*	0.380
Busia District, dummy			-0.514	0.923
Siaya District, dummy			-0.396	0.928
Homa Bay District, dummy			-2.552**	0.838
Makueni District, dummy			-0.840	0.999
Kitui District, dummy			-1.719*	0.990
Taveta District, dummy			-1.003	0.909
Lamu District, dummy			-1.104	0.774
Kirinyaga District, dummy			-1.836*	0.987
Baringo District, dummy			-0.812	0.744
Malindi District, dummy			-2.375**	0.742

Dependent variable is Ln (yield), Adj. R² = 0.057 Dependent variable is Ln (yield), Adj. R² = 0.225

* Denotes statistical significance at the 10% level, while ** denotes significance at the 1% or 5% level. Meru District is the base case dummy for district dummies.

¹¹ Using the quantity of rather than expenditure on pesticides, the results remain robust, although the explanatory power (adjusted R²) falls slightly (Model III in Appendix Table 1). The coefficient also falls to 0.17. This is not surprising, since the value of the pesticide has more information than the quantity, as it also captures the quality of the pesticide used. A farmer using a poor type of pesticide may be forced to use a larger quantity to achieve a given level of yield.

structure and dynamics of the primary market for seed cotton.¹² Surprisingly, the price of seed cotton and the number of years a farmer had been growing the crop did not emerge as robust determinants of cotton yields. It is possible that prices in the previous season rather than yields influenced the decision to grow cotton or the size of land to be put under the crop. It is also possible that farmers did not perceive the previous season's prices as good indicators of the following season's prices.

Achievement of yield potential could reduce the cost of cotton production, which currently stands at Ksh 23.80/kg of seed cotton (or USD 0.92/kg of lint). Surveys by the International Cotton Advisory Committee (ICAC) show that the cost of cotton production ranges from less than USD 0.50 to over USD 2.50/kg of lint (Chaudhry, 2001), showing that Kenyan cotton producers can be competitive internationally.

Structure of cost of cotton production and gross margin analysis

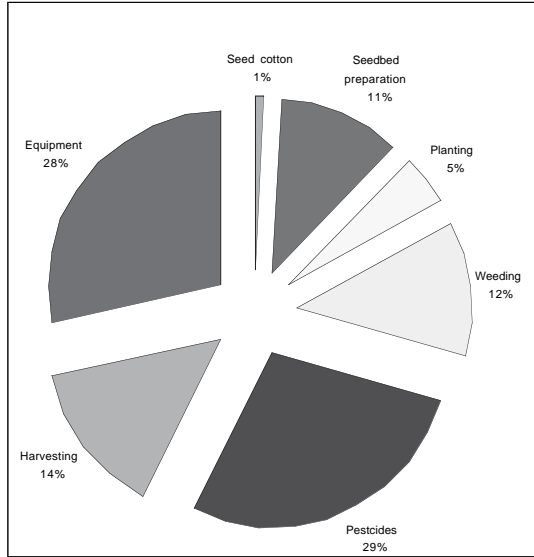
At 57%,¹³ pest control costs constitute the highest cost component of cotton production in the country (figure 2). This cost is composed of the pie for pesticides (29%), which includes the cost of insecticides and spraying, and the pie for equipment (28%). Most of the equipment used in cotton production is for spraying. Insecticides are an integral part of cotton production but the control operations (and therefore cost) vary according to pest pressure. Information from agricultural extension officers indicates that the average number of sprays for a properly managed crop lies between six and eight in most areas. The high cost of pesticides, however, prevents most farmers from spraying, thus their crop losses are high. For example, some farms in Nyanza Province suffered losses of up to 80%. Not controlling pests leads to relatively higher proportions of lower grade II cotton in the harvest. Grade 2 cotton generally sells for half the price of grade 1.

¹² In another variant of the model, we used dummies for agroecological zones instead of locations. Although one of the zone dummies was statistically significant, this variant of the model performed much poorer in terms of variable significance and explanatory power (Model IV, Appendix Table 1)

¹³ According to KARI, the cost of efficient pest control measures should not exceed 32%.

Other major cost items are harvesting, weeding, thinning and seedbed preparation. Planting labour costs and cotton seed account for 5% and 1%, respectively.

Figure 2: Structure of cost of cotton production in Kenya



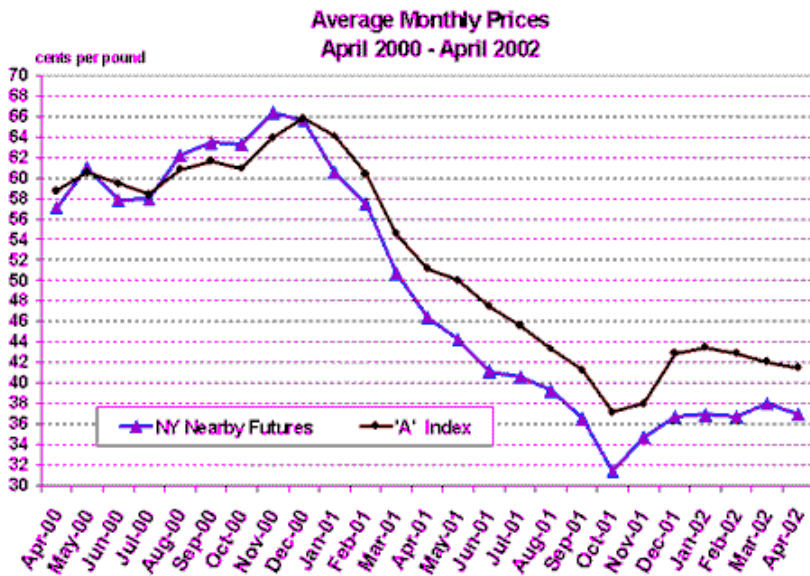
Source: Author's Survey, 2001

The world price of cotton in August–September 2001 (when that season's crop was being sold in Kenya) was about USD 1/kg of lint, which was equivalent to about Ksh 26/kg of seed cotton, assuming an outturn ratio of about 33%. The price has since been declining, as has been the case with the crop's real term prices since 1950. Between 1950 and 1998, for instance, prices fell by 60% in real terms, from USD 1.60/lb (USD 0.72/kg) to 0.65/lb (0.29/kg), according to a linear trend index known as the Liverpool index. Projections by ICAC secretariat suggest that in the 2001/02 season, the average world cotton prices would be at their lowest since 1972/73. Figure 3 shows price trends over the last three years and appear to support ICAC projections.

Competition from chemical or manufactured fibres is the biggest challenge facing the world cotton industry (ICAC, 2001). In the last five decades, global consumption of these fibres has grown by 50%, although they account for only 45% of the total fibre used in apparel production, compared with 53% for cotton (Coughlin et al., 2001).

Another important factor in the tremendous decline of world cotton prices is the increase in international supply, owing to the subsidies maintained by the world's leading cotton producers, mainly China, the EU and the USA. In 1998/99 and 1999/2000, for instance, cotton farmers in Brazil, China, Egypt, Greece, Mexico, Spain, Turkey and USA, which together account for 53% of world cotton output, received subsidies totaling USD 5.4 billion (Badiane et al., 2002). The level of support ranged from USD 0.09/kg of cotton in Egypt to USD 1.53 in Spain. The cost of depressed world prices is borne by producers who receive little or no government support. For instance, in the 2001 season US subsidies on cotton production led to export earning losses for sub-Saharan Africa estimated at USD 302 million (Oxfam 2002). An ICAC report (2001) shows that the area under cotton has been falling in countries without support.

Figure 3: Average monthly prices for cotton fibre: 2000–2002



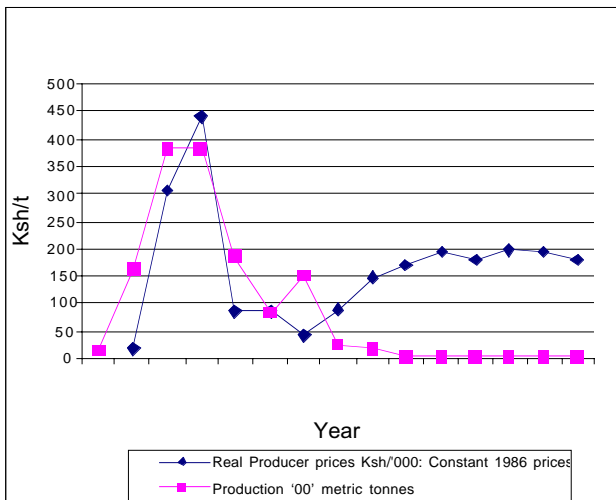
Source: US Cotton Market Monthly Economic Letter, May 10, 2002

From figure 3 (and at Ksh 78 per 1 USD), lint prices fell from Ksh 101.50/kg in April 2000 to Ksh 71.20/kg in April 2002. This had dropped further to Ksh 65/kg by June 2002.

A challenge facing many cotton producers worldwide is how to remain competitive in the face of declining world prices. Many countries have stopped producing cotton altogether owing to the high cost of production in the context of declining prices (Chaudhry, 2001). The trend for Kenya is shown in figure 4, which compares real gross producer prices and cotton production in Kenya between 1975 and 2000. While production closely tracked prices before 1991, there has been little response to prices since the mid-1990s.

There are a number of plausible explanations for this apparent lack of response. The first is the lack of price guidance (or guarantee), which was previously provided by the Cotton Board. When the board was operating it announced producer prices at the beginning of every season. The second could be the collapse of cooperatives that owned most of the ginneries leaving farmers without marketing outlets. The third is that improvement in prices after 1993 may not have been large enough to induce production, probably because prices remained at levels lower than production costs.

Figure 4: Trends in cotton producer prices and production levels (1975–2000)



Analysis of the gross margin for the farmers interviewed presents the following scenario (table 5): at the computed cost of production and average price of seed cotton (about Ksh 20.60/kg), the farmers' gross margins are negative. Unless the cost is reduced or the price seed cotton increased, farmers are likely to abandon cotton farming. Even when seed is not costed (since it was provided free in most cases), farmers still made a gross loss. But because farmers mostly use family labour, their costs may be lower than those in table 5. Nevertheless, we have considered the opportunity cost of labour. The computation does not consider the fixed cost of land (and land rental) or mechanization. The level of mechanization was very low, however, as most cotton farmers are small-scale operators. Leasing of land was not common.

Table 5: Gross margin analysis for cotton farmers

Cost component	Cost (Ksh/ha)
Cotton seed	120.30
Pesticides	3074.60
Equipment	3849.70
Labour	
Seedbed preparation	1527.20
Planting	656.75
Weeding	1694.70
Spraying	771.10
Harvesting	1924.90
Total labour cost	6574.70
Total cost	13619.15
Yield of seed cotton, Kg/ha	572.00
Cost, Ksh/kg seed cotton	23.80
Price, Ksh/kg seed cotton	20.60
Gross margin	(3.20)

Source: Authors' Survey, 2001

A study in Uganda showed cotton not to be very attractive to peasant farmers, because it competes with maize, requires more labour, is capital intensive and its management is problematic (Dijkstra and Van Donge, 2001). This study found cotton to compete with food crops such as maize and cowpeas.

One strategy for lowering the cost of cotton production would be to increase yields, which currently are only about 21% of the potential for the varieties grown in Kenya. Controlling cotton pests with minimal use of pesticides can cut costs and simultaneously increase yields. There are concerns about the long-term effects of pesticides, and the trend around the world is to adopt less pesticide-intensive production practices. Technology development is critical for this shift. For instance, research in Germany suggests that an extract from the neem tree is a cost-friendly technology that could replace pesticides. Research and development could develop cotton varieties that are resistant to pests. Integrated pest management (IPM) also is an option, although its adoption around the world has been slow. The Food and Agricultural Organization of the United Nations (FAO) has a project devoted to implementation of an IPM strategy in Bangladesh, China, India, Pakistan, the Philippines and Vietnam, which if successful can serve as a model for other countries. ICAC has similar but smaller projects. Biotechnology cotton and organic-based cotton-production systems should also be considered. What is needed in the short term is judicious use of chemicals to protect the environment and health and to save the scarce foreign exchange.

But substitution of chemical with non-chemical means of producing cotton could reduce productivity. A study in the USA (Gianessi, 1994), for example, found that eliminating chemicals caused a 39% decline in cotton yield. Other studies have found that chemical use could be reduced through biotechnology without sacrificing productivity. Studies in the USA between 1998 and 2000 showed that herbicide-tolerant cotton increases farm yields and farmers' profits, as does cotton with genes to control bollworm, which also requires lower levels of pesticides than does normal cotton (Pray et al. 2001). Pray et al. (2001) found in China that cotton with bollworm control

genres had higher yields, lower cost (by 20–35%) of production (particularly owing to its low pesticide and labour requirements), higher profits, a higher proportion of benefits (82.5–87%) for farmers, and environmental and farmer health benefits associated with reduced pesticide use.

On the issue of prices, the Kenya government should try to tap resources from the Common Fund for Commodities, which currently is financing a project to develop price risk management instruments for use by cotton producers in eastern and southern Africa (ICAC, 2001).

3.3.3 *Relationship between farmers and other stakeholders*

Lacking organized groups, cotton farmers are not able to interact effectively with other stakeholders in the cotton-textile industry and, therefore, they are the most disadvantaged and weakest link of the chain. Without negotiation power because of weak or nonexistent organizations, they simply take prices and other terms from input suppliers and buyers of seed cotton. Consequently, they bear the consequences of not only high input prices and low producer prices but also high prevalence of fake (or substandard) pesticides, unfavourable cotton-buying schedules and practices, and the lack of credit.

Relationship between farmers and input suppliers

Input suppliers are generally agrochemical outlets; they mainly have a buyer-seller relationship with farmers. Some suppliers felt that business would be better if farmers organized themselves into groups to buy inputs in bulk or even on credit. Such groups would also make the provision of advisory services by pesticide suppliers easier. Other farmers felt that the problems that caused the collapse of cooperatives must be avoided in future farmer groupings.

Out of the 35 suppliers interviewed, 6 were providing advisory services albeit on a small scale. One of them, a nongovernment organization (NGO) with several outlets around the country but mainly concentrating in western Kenya, was repacking agro-inputs, mainly fertilizers, in convenient

quantities for low-income farmers, and at times reconstituting fertilizers by adding deficient nutrients. To achieve this the NGO carries out farm research in collaboration with government extension officers. Ways of expanding this kind of service should be sought.

The government remains the main provider of extension services to cotton farmers, but 50% of the farmers interviewed reported that no such support was provided. The other 50% reckoned that the visits were much fewer than during the pre-liberalization period.

Most of the farmers (about 65%) preferred selling their cotton directly to ginneries, and indeed 75% did this. Others sold to intermediaries but felt that these could be exploitative. More than 50% of the farmers sold to a particular buyer, mainly for lack of alternatives. Lack of choice is a recipe for exploitation.

Agrochemical suppliers view of cotton farming

Input suppliers found the lack of knowledge on good husbandry practices to be a major constraint to their relationship with farmers. Part of this ignorance relates to chemical use, leading to complaints that pesticides were ineffective. Nevertheless, quite a number of the outlets (12%) acknowledged existence in the market of substandard (fake, expired or low quality) inputs. Other problems included low purchasing power of farmers, which caused low demand for inputs. This was observed by 34% of the outlets.

The suppliers also cited other constraints to growth of their businesses including unreliable supply from manufacturers and importers (21.4%), lack of finance (15%) and unfair competition (11%).

Half of the farmers felt that to improve business between farmers and the traders, the government should intervene in the industry to organize the input market so that agricultural inputs are available on time and are affordable to farmers, to ensure that only reliable inputs are in the market and to improve cotton marketing.

3.3.4 *Operating environment of cotton farmers*

The structural adjustment programmes introduced in the 1980s and 1990s adversely affected the governance of most commodity chains in developing countries. First, abolition of marketing boards forced producers to sell at astronomical prices to the emergent private traders. In the process the producers lost unity and the bargaining power associated with it. Second, the emergence of private traders competing to maximize profits seriously affected quality—since they did not differentiate the quality of farm products—as did the collapse of systems through which buyers provided inputs to producers on credit. With liberalization, the institutions that previously monitored quality and grading standards were dismantled (Larsen, 2001). Even though the parastatal or state-controlled, single-channel marketing system that existed before liberalization had substantial weaknesses, it had facilitated recovery of input credit (Larsen, 2001). Third, an important governance institution, agricultural extension, was eliminated from the bottom end of the chain, with disastrous impact on quality. Reduced revenues from commodity sales led to budget cuts in such critical areas as research, extension and promotion. Fourth, liberalization of domestic marketing had made it difficult to control stocks or exports, thereby adversely affecting the functioning of international producer organizations (Ponte 2001). In the case of coffee, growers' organizations have failed to organize coffee exports, for instance, as efficiently as governments did, a factor that has strengthened the position of roasters in consuming countries relative to other actors in the coffee chain (Ponte, 2001). As governments retreated from domestic regulation of commodity markets, moreover, farmers lost a political forum for negotiation.

There has also been a tendency for small producers to be increasingly marginalized, as some big buyers purchase only from countries or producers that can guarantee a reliable minimum amount of supply (Ponte, 2001). Such small producers, therefore, are left at the mercy of agents that can accept small quantities.

Kenya's cotton sector has suffered from all these liberalization-related bottlenecks. Its operating environment is characterized by general disorder and several failures, including those related to regulation, policy and marketing. Liberalization of the industry was not accompanied by a change in the regulatory policy defining new roles of the Cotton Board of Kenya. This left a regulatory and monitoring vacuum, which the emergent private players have failed to fill through self-regulation. The consequences have been seed contamination, inadequate control of lint quality and the collapse of input credit mechanisms. There is, moreover, inadequate regulation to prevent collusive behaviour among cotton buyers, which may adversely affect farmers. The absence of a regulatory institution is a serious concern, considering that more than other crops cotton's supply response is particularly sensitive to sophisticated organizational infrastructure (Dijkstra and Van Donge, 2001). In a country like Zimbabwe where private operators engaged in informal collaboration and coordination, liberalization of cotton marketing improved performance (Larsen, 2001). In that country the Commercial Cotton Growers' Association (CCGA) established different companies for ginning (Cotpro), trade and input trading, thereby improving the operating environment of its members. The association, moreover, enters into contracts with private ginners on behalf of producers, and into forward contracts with local spinners.

Policy failure is manifested by the lack of extension and other support services for cotton farmers; abrupt removal of producer price support; the lack of an institutional framework to coordinate the sector; a poor macroeconomic environment characterized by high cost of borrowing and low and declining purchasing power; increasing insecurity, such as banditry attacks and ethnic clashes that may displace farmers; and poor infrastructure, including the lack of access roads.

Market failure is manifested by the absence of effective competition among ginners or excessive competition that renders important mechanisms such as input credit supply schemes unfeasible, and inadequate investment in spinning, weaving and textile finishing. Inadequacy of investment in these

areas is a manifestation of the underdevelopment of financial and credit institutions. As has been the experience in many countries in Africa, contrary to neoliberal assumptions regarding deregulation and liberalization, state monopoly has been replaced with private oligopoly instead of spontaneous competition in primary purchase, processing and export (Larsen, 2001).

Although not addressed in this survey, the HIV/AIDS pandemic may be a concern in the operating environment for cotton farmers and other economic agents because of its effect on labour supply.

Zimbabwe is a good model of a country where liberalization has yielded growth in the cotton sector, as evident in Larsen (2001). Liberalization started with 'semi-commercialization' whereby the Cotton Marketing Board was transformed into a company, the Cotton Company of Zimbabwe (Cottco), initially fully owned by the government (Larsen, 2001). After about four years, Cottco was privatized through the local stock exchange, with the government retaining 25% shareholding. As liberalization was introduced, the government established a National Cotton Council (NCC) as a forum for stakeholder discussion and as a government advisory agency. An arbitration committee of NCC was empowered through the Agricultural Products Marketing Act to enforce agreements between stakeholders by penalizing violators. Some of the agreements reached through the NCC framework include those on common grade classification and grading procedure, distribution of polypropylene-free bags (to avoid lint contamination) at all buying posts regardless of ownership and initiatives to improve pest management at the local level, such as reporting to the authorities farmers engaging in stand-over cotton production.

Introduction of NCC's public-private institutional framework for coordination and regulation helped sustain the system after liberalization. Indeed, lint production expanded tremendously, ginning outturn rose to 43% and recovery rates in input credit schemes remained high. Unlike in many countries such as Kenya and Tanzania, where responsibility for regulation and quality control broke down with liberalization, NCC

represented collective coordination and regulation. The success of the informal agreements spurred by mutual interest is attributable to the fact that the number of buyers was small. In situations where many buyers entered the sector after liberalization, for example in Tanzania, it has proved difficult to enforce grading at the farm gate (Larsen, 2001).

Taking advantage of the established cotton-buying infrastructure, Cottco controlled 80–85% of cotton purchased in 2000, and offers price leadership (Larsen, 2001). Moreover, it expanded and upgraded ginning facilities, and diversified into spinning in 1998 through a joint venture with a local textile firm.

Governance of the global cotton commodity chain is an important variable in the operating environment of Kenyan cotton producers. The chain is driven by international trading agencies that oversee quality, supply timing, origins and volumes (Gibbon, 2001). The power of international traders has been augmented by the low level of concentration in the spinning industry. International traders have some vertical integration with producers and manufacturers of ginning machinery but not spinners.

Cotton producers have the potential to influence the chain. Their power emanates from a global quality classification system initially introduced by the US Department of Agriculture that generates a stratified pricing system (Gibbon, 2001). Under this arrangement producers of quality cotton such as the USA and Egypt are able to get premium prices of up to 50% above the price index.¹⁴ Timing of selling is also an important determinant of cotton prices.

In general, primary products (and increasingly manufactured ones) are seriously affected by low barriers to entry, global overproduction and declining terms of trade, with developing countries that specialize in their production consequently suffering declining income levels (Fitter and

¹⁴ The price index, known as the Cotlook A Index, is considered as the most authoritative index of international lint prices. Lint is classified on the basis of length, grade, strength and micronaire (Larsen, 2001).

Kaplinsky, 2001). For instance, coffee price in real terms in 2000 was only half that prevailed in mid-1960s (Fitter and Kaplinsky, 2001) and the producer countries' share of total income generated in the chain fell from an average of 20% in 1970s to only 13% by 1995 (Talbot, 1997). The world price of cotton fell by 60% in real terms between 1950 and 1998. There is concern now whether private actors will find it worthwhile to invest in the cotton industry sector, leave alone coordinate it, if the world lint prices continue to fall (Larsen, 2001).

It is obvious that literally all the elements of the operating environment of Kenya's cotton farmers are suboptimal in one way or another. Substantial effort will be required from all stakeholders to improve the situation.

3.4 Lint production

The survey covered almost all operating ginneries around the country, as shown in table 6. They varied substantially in size, ginning capacity, capacity utilization and technology. As a result of liberalization all ginneries except the two owned by farmers' cooperatives were under private ownership. But even these two were normally leased out to private entrepreneurs.

Table 6: Distribution of the ginneries interviewed by province

Province	Number of ginneries	% of total number
Nyanza	3	23.1
Western	2	15.4
Rift Valley	1	7.7
Central	1	7.7
Eastern	4	30.8
Coast	2	15.4
Total	13	100

Source: Author's Survey, 2001

Ginning separates seed cotton into lint and cotton seed. Ginneries are a focal point in the cotton industry, and their location, efficiency and organization are critical to it. The ginner's objective is to produce lint of satisfactory quality and to gin the cotton with minimum effect on fibre spinning quality. The latter requires contact with lint buyers and textile mills and knowledge of the latest technology. This indicates that vertical integration may, in fact, enhance quality.

Ginning, like husbandry practice, harvesting or storage, is an important determinant of the spinning quality of cotton fibre. The most important measures of that quality include strength, short fibre content, length uniformity, maturity, fineness, trash content, colour, seed coat fragment and stickiness. These factors affect the market price of cotton. The ginning process can significantly affect fibre length and uniformity, content of seed coat fragments, trash, short fibres and neps. Two ginning processes have particularly important implications on quality: ginning and cleaning, where regulation of fibre moisture and the level of gin cleaning are important.

The minimum components of ginning equipment¹⁵ consist of a dryer or a moisture-restoration device and a feeder to uniformly meter seed cotton into a gin stand. Though most of the ginneries in Kenya have this equipment some new (almost informal) ginneries lack drying and moisture-restoration devices. Consequently, the lint they produce contains imperfections and is not smooth in appearance.

3.4.1 Relationship between farmers and ginners

Interviews with ginners revealed that most of the seed cotton (about 77%) from farms was sold directly to ginneries, with private traders (intermediaries) selling the remaining 23%. This finding agrees with that from the farmers' interviews, which indicated that ginners bought close to 75% of the produce. In 80% of the cases the ginners approached the farmers for cotton, and in the remainder of the cases the farmers or intermediaries themselves approached ginneries to sell the cotton.

¹⁵ This minimum equipment lacks the versatility required to properly manage cotton with excessive moisture or trash.

Ginners control the farmer-ginner part of the chain and in many cases determine the farmers' price. Only in one occasion were farmers actively involved in price negotiation through a farmer's group. In this instance the group negotiated a 15% price increase (from Ksh 18 to 23/kg at the farm gate). Farmers were happy with the prompt (often on delivery) payment for their seed cotton deliveries but not with price levels. In some cases they were unhappy that the ginners' buying schedules are not strictly followed. There were complains that at times farmers waited long at the buying centre before the buyer arrived. In all the cases, moreover, buyers dictated the quality grade of the cotton, which the farmers considered unfair.

The relationship between farmers and ginners was mainly informal (as reported by 31% of the ginners), and often (46.2% of the cases) exchange was at arm's length (table 7).

Table 7: Nature of relationship between ginners and farmers

Type of relationship	% of ginners citing relationship
Formal	15.4
Informal	30.8
Both formal and informal	7.7
None	46.2

Source: Author's Survey, 2001

Formal relationships are rare among farmers and ginners, and where they exist they largely involve supply of pesticides on credit with the money being recovered from proceeds of seed cotton sales. The Kitui ginnery has started supporting farmers through this system. To improve the recovery rate, this ginnery is dealing with small groups of farmers whose members police each other assisted by the local extension agents. This is an important form of relationship, and ginneries around the world use it to increase their raw material supplies. In general such relationships have failed to develop in Kenya because of widespread fear among ginners that contracted farmers will default on payment when they choose to sell their

crop to intermediaries and competitor ginneries. Post-liberalization experience in many countries such as Tanzania, Uganda, Zambia and Zimbabwe shows that excessive competition among ginning and other industries in buying seed cotton kills outgrower or input credit schemes involving cotton buyers and farmers as a result of increased tendency by farmers to 'side-sell' to buyers with whom they have no credit ties. This leads to high rates of credit repayment default.

Positive relationships between farmers and ginners in Kenya have failed to develop also because the manner in which most of the ginneries were privatized antagonized farmers. In many cases farmers as members of cooperatives had contributed money towards the purchase of the ginneries, and when these schemes failed they expected to have been reimbursed their full contribution and arrangements made regarding their debts to the cotton board. This did not happen. Subsequently farmers tended to perceive the private buyers of the ginneries as swindlers, and became antagonistic to them.

Zimbabwe is a good example of a country where optimal competition rather than excessive competition in primary purchase facilitates operation of input credit schemes. Since the mid-1990s Zimbabwe's cotton sector has been dominated by three seed cotton buyers (Cottco, Cotpro and Cargill) with a combined market share of 95% (Larsen, 2001). These compete directly through prices (although collusion limits the extent of this) and market coverage, and indirectly through provision and cost of inputs and input credit schemes.

Cargill operates a 'farmer input voucher' system in which farmers purchase inputs for the following season at the time they sell their seed cotton. The system is advantageous in that it does not indebt the farmer, it cushions the farmer against high inflation and it avails inputs at low prices, because the company passes to farmers the discounts it receives from suppliers for bulk purchase. The other two ginning companies have schemes such as cash credit for inputs or supply of inputs on credit. By discriminating farmers on the basis of productivity and risk (expectations of viable yields)

and using incentives such as club membership for superior farming, these schemes have been extremely successful with recovery rates reaching 98%.

The schemes have succeeded in tying producers to the companies and therefore securing the companies a sufficient and reliable supply of high quality seed cotton. The input initiatives have improved yields (from about 500 kg/ha in 1990/92 to 900 kg/ha in 1996/97) and quality¹⁶ of seed cotton in the smallholder sector. However, the less successful farmers have been excluded from the input credit schemes.

Cottco and Cotpro use several strategies to minimize credit repayment default:

- Extending credit in the form of physical inputs to self-selected farmer groups (with 5–30 members), with the entire group liable if a member defaults
- Rewarding groups that record high repayment rates and seizing assets belonging to defaulters
- Hiring local agents to keep close contact with smallholder farmers
- Closely monitoring farmers through their own extension officers or through linking with government extension services
- Linking farmers to specific ginneries

3.4.2 Obstacles faced by ginneries

Ginneries complained of low quantities of seed cotton that led to very low capacity utilization rates of about 24%. Inadequate supplies of seed cotton is a major disincentive to investment in ginning in the country. Consequently some ginneries have concentrated investment in neighbouring countries where adequate supplies of cotton are assured, even though costs of operation—for example freight and labour costs—are higher than in Kenya. Ginneries were also concerned about the low quality of seed cotton,

¹⁶ The proportion of grades A–B in total harvest rose from 65% in 1991/92 to 70% in 1996/97.

with 54% of them citing this as a problem. Some ginners (33%) attributed this problem to poor husbandry.

Ginning outturn (GOT), an important factor for ginners, was estimated to be 33% for Kenya, which is significantly lower than the 43% for Zimbabwe. The potential GOT for HART89M and KAS81M is about 40–42%. An increase of 1% in GOT for a ginnery that produces 1000 bales of lint would increase its lint output by 30.3 bales using the same amount of seed cotton. With a price of Ksh 14,615 per bale this works out to an increase of more than Ksh 14 million in revenue for the ginner and, hopefully, an improvement in farmers' prices. The importance of appropriate cotton varieties and ginning practice to maximize GOT cannot, therefore, be overemphasized.

The high cost and unreliability of electricity were frequently cited as major bottlenecks in ginning. Power costs (electricity and diesel) constitute the highest proportion of total variable ginning cost, averaging about 31% (Table 8).

Table 8: Structure of ginning variable cost

Variable cost component	Ksh/month	% of total var. cost
Labour	925,017.50	26.5
Capital/credit	492,500.00	14.1
Diesel	460,009.00	13.2
Electricity	1,093,142.90	31.3
Baling material	18,298.00	0.5
Repair and maintenance	500,000.00	14.3
Total operating cost	3,488,967.40	100.0
Cost per kg of lint (a)	11.05	
Cost of seed cotton (b)	61.80	
Price of lint (c)	79.00	
Gross margin: c - (a+b)	6.15	

Source: Author's Survey, 2001

At the world market price of Ksh 79/kg of lint (at the time of the survey), ginnerers obtain a positive gross margin of about Ksh 6.15/kg of lint. All the lint and cotton seed are sold in the domestic market.

Although 23% of the ginnerers cited poor and fluctuating market prices as a constraint, textile manufacturers complained that lint prices in the country were uncompetitive, being about USD 0.19/kg compared with the world price of USD 0.17.

3.4.3 Operating environment of ginnerers: summary

The preceding paragraphs have shown that the operating environment of ginning enterprises in the country is characterized by regulatory failure, lack of government support, inadequate supplies and low quality of seed cotton, high cost of electricity and its unreliable supply and general high cost of production. Unregulated competition among primary cotton buyers forces many ginneries to cover long distances just to purchase small quantities of seed cotton and makes it unfeasible to organize outgrower schemes with farmers. These factors make local lint uncompetitive internationally. Ginneries are still stuck with old equipment acquired when seed cotton supply was large, because their operating environment is not conducive to investment in modern equipment suited to small-scale ginning, which is a necessity considering the low supplies of seed cotton currently available.

Another aspect of the operating environment of ginning enterprises is the negative sentiment among farmers, some of who feel that the private owners of the ginneries swindled them when they bought the ginneries, which the farmers had considered partly theirs.

A major challenge for the cotton-textile industry is how to attract investment in lint production given the poor operating environment. Farmers require higher producer prices to respond to supply demand, but ginnerers are unlikely to offer such prices given the global trend in prices and their low capacity utilization and inefficiency. Thus the cotton-textile chain is clogged at this level: farmers are not responding to demand for cotton because the prices offered are too low, and ginnerers cannot pay higher prices because

these would be uncompetitive. A suggestion of how this clogging could be removed is made in section 5.2.3.

3.5 Textile and apparel manufacturers

3.5.1 Overview of textile and clothing sectors in Kenya

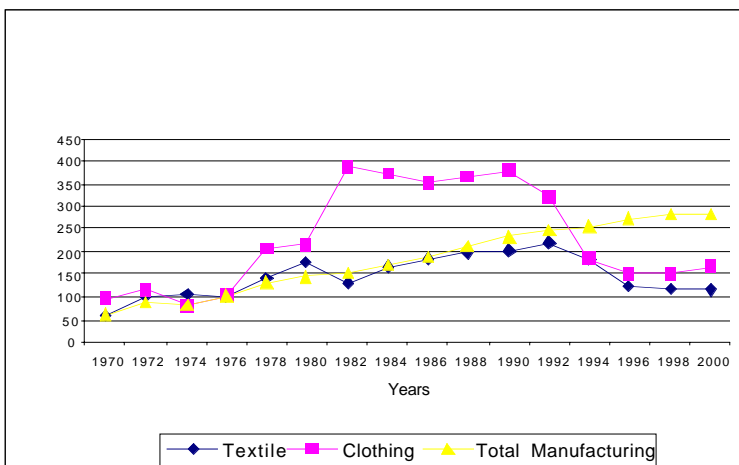
Kenya's textile and clothing sectors comprise a wide variety of firms in terms of size, age, technology, products, export performance and export markets. The textile industry could broadly be broken into yarn spinning, fabric manufacturing and garment manufacturing. Spinning and weaving firms in the country are all large scale and owned by locals. There is inadequate investment in these sectors; a major challenge for the industry therefore is to attract investment in spinning, weaving and other fabric-finishing operations. Technology also is a problem, and the government needs to find a way of making available reasonably priced technology to the industry, for instance by providing long-term credit guarantee. There is also concern that locally produced fabric is poor in quality and high in price.

Garment manufacturers range from micro to large enterprises. While the large ones use industrial machines for mass production, the smaller ones use electric or foot-powered domestic machines (McCormick et al., 2001). Men dominate ownership and employment in medium and large garment enterprises, and women own more than half of the smaller ones.

Kenya's textile and clothing industries have experienced tremendous fluctuation in performance over the years (Figure 5). The industries grew rapidly following independence to become in the 1980s the country's second largest employer after the civil service. This growth was spurred by the closed market policies (import substitution) pursued until the 1980s. These policies led to effective rates of protection that were as high as 93% in some cases (McCormick et al., 2001). Growth declined so much in the 1990s, however, that by 1997 the production index was barely higher than its mid-1970s level. After 1997 the clothing sector started improving modestly, but textile production remained stagnant.

Although formal employment in the two clothing and textile industries grew from 18,429 workers in 1976 to 32,425 by 1997, most of the growth occurred in the earlier years of that period, and the share of the two industries in total wage employment in the manufacturing sector declined from a high of 18.6% in 1985 to 14.7% in 1997 (McCormick et al., 2001). If casual employees were to be included the employment impact would be much worse. Market liberalization in the early 1990s were responsible for this decline (McCormick et al., 2001). It led to enormous increases in imports of textile products and garments (table 9), which pushed local producers out of the market. Other factors included the failure of the country's cotton sector, increasing use of synthetic fibres (Coughlin, 1991; table 9) and a general worsening of the operating environment manifested by the high cost and poor quality of infrastructure services and rising insecurity, among others. The textile and clothing sectors have suffered disproportionately from these factors (figure 5), and while the production index of the entire manufacturing sector maintained an upward trend, albeit an almost a flat one, those of textile and clothing dipped substantially in the first half of the 1990s.

Figure 5: Trend in manufacturing production index: 1979–2000



Source: *Economic Surveys*, various issues

Table 9: Annual growth rates (%) for various types of textile and garment imports before and after liberalization

Commodity	Before liberalization (1970–1990)	After Liberalization (1991–1999)	1970–1999
Synthetic fibres	18.3	10.7	16.3
Cottonyarn and thread (bleached)	-2.2	13.7	5.1
Cotton piece goods (fabrics)	3.7	26.7	11.8
Fabrics of synthetic fibres	-1.8	40.6	8.8
Clothing	5.4	27.1	10.3

Source: Calculated from Central Bureau of Statistics data, *Statistical Abstracts*

Although many textile firms in the country are fragile and new to exporting (McCormick et al., 2001), regional markets such as COMESA and EAC are important outlets for Kenya's textile and apparel products (table 10). In particular, countries like Sudan, Tanzania, Uganda, and Zimbabwe are important export destinations for textile products. Although in the mid-1990s only about 20% of the country's formal textile firms were exporting and even then only about a quarter of their output, studies (e.g., Biggs et al., 1994, 1996; Gereffi, 1994 cited in McCormick et al., 2001) show that in the production of such standard garments as men's casual long-sleeved shirts and Afrocentric garments Kenyan producers could be cheaper than producers in countries like India, Senegal and Zimbabwe, and as competitive as producers in Bangladesh, Mauritius and Sri Lanka.

The AGOA legislation has led to a tremendous increase in investment in garment production and in exports of garments to the USA. Kenya was the first country in the continent to meet the conditions required for access to the US market. Since then, exports of garments have increased tremendously, e.g., EPZs alone more than doubled their exports between 1999 (Ksh 1979 million) and 2001 (Ksh 4294 million). Investment in garment production also rose more than five times during that period, from Ksh 702 million to Ksh 3764 million.

Table 10: Important COMESA markets for Kenya's textiles and garments (% of value of exports to the region, 1998)

Country	Textile yarn	Fabrics (woven or made)	Finished garments
DR Congo	6.5	0	5.0
Malawi	5.8	0	3.9
Sudan	0.5	7.3	27.3
Tanzania	29.8	35.2	13.5
Uganda	49.3	21.3	38.6
Zimbabwe	5.3	22.0	0.9
Other COMESA	2.8	14.2	10.8
Total COMESA	100.0	100.0	100.0

Source: Calculated from Central Bureau of Statistics data, *Statistical Abstracts*

Local textile manufacturing supplies only 45% of Kenya's textiles market, while imported new and used clothes account for about 37% (table 11). Demand for textile products in the country is estimated to be growing at 3.8% annually.

Table 11: Domestic textile and apparel market

Item	Fabric equivalent (million m ²)	Market share (%)
Imported fabric	32	17.5
Imported new clothes	38	20.8
Imported used clothes	30	16.4
Local manufactured Items	83	45.3
Total	183	100.0

Source: Compiled from Central Bureau of Statistics import data

The large share of imported fabrics and clothing is attributable to their superior quality and style compared with locally manufactured substitutes.

3.5.2 Medium and large textile and apparel manufacturing

This section reports on the findings of the primary data from 22 textile and apparel manufacturing firms interviewed in Athi River, Mombasa, Nairobi, Nakuru and Nanyuki. Most of these (59%) were garment manufacturers, 9% were spinners and the rest were integrated mills involved in a range of activities such as spinning, weaving, knitting, design, and fabric finishing (table 12). In terms of age, 30% were established between 1963 and 1980, 10% between 1981 and 1990, 45% between 1991 and 2000, and 15% during 2001 and 2002. All those established from 2000 were in garment manufacturing, reflecting recent growth stimulated by AGOA.

Table 12: Distribution of textile and apparel manufacturers interviewed, by type

Type of manufacturing	No. of firms	% of all firms
Spinning	2	9.1
Garment making	13	59.1
Spinning, weaving, and design	1	4.5
Spinning, weaving, knitting, design and garment making	1	4.5
Spinning, weaving, and fabric dyeing and finishing	4	18.2
Weaving, knitting, fabric dyeing and finishing, and design	1	4.5
Total	22	100

Source: Author's Survey, 2001

Production, employment and capacity utilization

Textile and apparel firms in the country produce a large variety of products. Spinning firms produce yarn, industrial tarn and sewing thread, while integrated mills produce a wide variety of products including yarn, fabrics (knitted or woven), canvas, blankets, sweaters, shawls, uniforms, towels, baby nappies and knitted garments. Garment manufacturers produce

various types of garments, with nearly 46% of them concentration on men's wear, while the others produce woven chemise and robes, pants, 'Kaunda' suits, school and travelling bags, knitted garments and readymade garments. Majority of the firms (65%) reported that their products were graded for quality – mostly in house – based on customer needs.

In general, textile and apparel manufacturing firms in the country do not subcontract their activities – only about 24% do so – with garment making being mainly the activity subcontracted. Subcontracting is more common with garment manufacturers than other textile firms, and four of the five firms subcontracting were garment manufacturers. Weaving was being subcontracted out by one firm. The reasons firms hardly subcontract their activities include lack of the requisite demand for their products, adequacy of the firms' machinery and equipment and fear that other firms may not meet the quality requirements.

On average, in 2000 each firm had 240 skilled and 208 unskilled employees (table 13); there was substantial variation in employment levels across firms, however. For instance, the number ranged from 21 to 800 for skilled workers, and 0 to 600 for unskilled workers. The average firm had 24 expatriates, but the number ranged from 0 to 346. In relative terms, integrated mills and garment manufacturers are the main sources of employment in the textile sector.

Table 13: Employment in textile and apparel firms (numbers)

Type of firm	Skilled workers		Unskilled workers		Expatriates	
	Mean	Range	Mean	Range	Mean	Range
Spinning firms	101	21-180	100	80-119	2.5	2-3
Integrated mills	267	70-800	158	10-410	53	0-346
Garment firms	246	40-700	254	0-600	10	0-25
All firms	239	21-800	208	0-600	24	0-346

Source: Author's Survey, 2001

About 64% of all the firms responding to this question attributed the fall in their employment levels largely to the lack of market opportunities and competition from secondhand clothes and other imported garments. Technological changes, unfavourable government policies and the lack of government support were also cited as factors. Garment manufacturers have not been as seriously affected by these employment declines as have other textile firms: only 15.4% of them reported declines in employment compared with 77.8% of the other textile firms. The number of employees also seemed to vary with whether the firm was exporting or not, with exporting firms averaging 501 workers compared with only 128 workers for non-exporters.¹⁷

Capacity utilization changes mirror the employment situation, with garment manufacturers experiencing increasing capacity utilization and the other textile firms significant declines (table 14).¹⁸ Capacity utilization for all the textile firms as a group averaged 53.9% in 1999 and 53.1% in 2000. These rates are much lower than those achieved in the past (averaging 84.3%) and reflect a declining trend. A few years ago capacity utilization for the country's textile and garment sectors was found to range from 25 to 75%, while national averages stood at 66% for textiles and 70% for garment sectors (ADEC, 1998).

Respondents attributed the general decline in capacity utilization and production to the high cost of electricity and the poor infrastructure in general, lack of markets, competition from customed and uncustomed textile and clothing imports, high interest rates, lack of qualified labour and unfavorable policies, among many others (table 15). Even though political and economic uncertainty was not an item in the questionnaire of

¹⁷ % output exported = 0.53 + 0.0012 no. of workers - 0.03 age of the firm, according to our data. Both variables are statistically significant at 2% level, the standard errors are very low and Adjusted R² = 55%.

¹⁸ Although the robustness of this result may be affected by the small sample sizes, the situation on the ground reflects these capacity utilization figures. While the apparel sector is doing very well because of the market provided by AGOA, the other textile sectors are not.

the survey, it was mentioned frequently during the interviews. This is a particularly important factor in regard to attracting the large investments required in yarn spinning and fabric manufacturing.

Table 14: Capacity utilization in textile and apparel firms: 1999 and 2000 (%)

Type of firm	1999		2000	
	Mean	Range	Mean	Range
Spinning firms	62.5	40-85	57.5	40-75
Integrated mills	51.9	20-81	46.0	20-80
Garment firms	52.5	25-100	57.3	10-100
All firms	53.9	20-100	53.1	10-100

Source: Author's Survey, 2001

The importance of various obstacles varies across different types of textile manufacturers, however. The most important obstacles for spinning firms are the high cost of electricity, lack of market and competition from imports including unfair competition from tax-evading imports. In the case of integrated firms the most important obstacles are the high cost of electricity, high interest rates, inappropriate government regulations¹⁹ and competition from imports. Garment makers confront the problems of high cost of electricity and its poor availability, poor infrastructure, lack of qualified labour and poor water supply.

In general these findings mirror those of another study of 22 medium and large textile firms (McCormick et al., 2001) except that that study did not find high tariffs on raw materials, availability of water, high cost of labour and insecurity as important obstacles for garment producers, but it found transport costs, uncertainty concerning AGOA and political and economic uncertainty as important obstacles.

¹⁹ There were concerns that firms operating under the incentive schemes, especially the EPZs and to some extent those under MUB arrangements receive preferential treatment that is not extended to others.

Table 15: Major constraints facing textile and apparel firms (number of firms citing the constraint)

Constraint	Spinning firms	Integrated mills	Garment firms	All firms	No. of firms ranking constraint 1 or 2
High cost of electricity	2	7	11	20	7
Poor infrastructure	1	5	8	14	3
High interest rate	1	6	6	13	2
Lack of qualified labour	0	4	8	12	4
Lack of market	2	4	5	11	4
Inappropriate government regulations	1	6	5	12	1
Competition (and unfair) from imports	2	6	3	11	9
Availability of electricity	1	0	10	11	1
Lack of working capital	1	4	5	10	2
Poor availability of raw materials	1	2	7	10	3
Low quality of raw materials	1	2	5	8	1
Poor technology	0	3	4	7	0
Availability of water	1	0	8	9	1
High tariffs on raw materials	0	3	3	6	2
High cost of labour	1	1	2	4	1
Insecurity	0	2	3	5	1
Total number of firms	2	7	13	22	22

Source: Author's Survey, 2001

These constraints may be classified under three broad categories: infrastructure, market and policy. Policy has a major influence on the other two. In McCormick et al.'s (2001) study, respondents from medium and large textile firms traced infrastructure problems and inappropriate policies (tax and tariff regimes) to the institution of the state. The state was also blamed, though to a lesser extent, for market failure and the related negative impacts of globalization. The market as an institution and external forces were held partly responsible for the market constraints facing the firms. Solutions therefore are largely to be found in institutional reforms, particularly in state institutions.

Key determinants of the operating environment, and therefore competitiveness, of businesses around the world are the presence of government support and its quality. A large majority of the textile and apparel firms in Kenya reported that they received little support from the government. Even though schemes exist, such the EPZs and MUB arrangements, they do not work well.²⁰ A few firms reported that the government also provided marketing support through trade fairs and other avenues.

Input supply and relationship with suppliers

Major inputs of the firms interviewed included fabric (about 52% of the firms), cotton lint (27.3% of the firms), zips and other accessories (22.7% of the firms) and other materials such as yarn, polyester, viscous, polybry and packing material. These were obtained from both local (about 43% of the inputs in 1999 and 26.6% in 2000) and import markets. This varied by type of textile manufacturing activity. In 2000, for instance, garment manufacturers imported about 87% of their inputs while the other textile firms imported on average only 56.4%. The import markets were mainly Asia (China, Hong Kong, India, Indonesia, Korea, Taiwan and Thailand), Europe, USA and South Africa.²¹ Over 90% of all firms that imported inputs obtained at least some of them from Asia. The key determinants of the import market chosen were price, quality, availability and delivery time. The same considerations were important also in the firm's decision over whether to obtain inputs locally or to import them.

About 72% of the firms interviewed had established relationships with their input suppliers with 28.6% involved in formal and 38% informal relationships of various forms: mere acquaintance, gentleman's agreements, period-specific direct contracts, offer of premium prices and letters of credit.

²⁰ This contradicts the conclusion made by McCormick et al. (2001) on page 29.

²¹ This is collaborated by the findings of study by Kinyanjui and McCormick (2002) that found only 2 out of the 12 medium and large garment producers interviewed using raw materials from only Kenya. The same import markets for the garment producers featured prominently in that study.

About 29% of the firms provided support to their input suppliers, mainly as quality and technical advice and support. A few firms received such support from international suppliers as marketing, technology advice and credit. While 50% of the yarn spinning and fabric manufacturing firms provided support to their input suppliers, only 16.7% of the garment manufacturers did so.

Majority of the firms used the conventional communication means (telephone, fax, and email) to contact input suppliers; however, trade fairs, advice from machinery suppliers, agents, contacts from suppliers, existing customers, personal contact and advertisements were also used albeit on a small scale. About 80% of the firms reported that they did not have any influence on the price of any of their inputs. In the case of garment manufacturers alone this percentage was 75%. All the firms that influenced the price of inputs were exporters, suggesting that larger firms are able to influence input prices

About 79% of the firms encountered problems with supply of inputs; the most important of these problems for all firms were the high cost, unreliability and inadequacy of electricity supply and the high price of capital (table 16). Spinning is particularly susceptible to electricity supply problems, because it is characterized by high power consumption. The cost of capital affects spinning and fabric manufacturing firms more than garment-manufacturing ones. This should be expected, as spinning and fabric making are generally more capital intensive than is garment making. Another concern for spinners was the quality of the local lint. Although the lint was of excellent quality, contamination from polypropylene and sisal affected its desirability.

The poor quality and inadequate supply of labour are serious problems. Some respondents estimated that the average textile worker in Kenya requires about five years of extra training to attain the skill and productivity level of a similar worker in China. In addition the country lacks qualified managers and design experts, a factor seriously limiting exploitation of the US market opportunities. No explicit human resource development

plan exists in the industry. The courses at the mainstream academic institutions offering courses in textiles (Moi University and the Directorate of Industrial Training) do not adequately cater for the design needs of the industry. Moreover, the Kenya Textile Training Institute hardly operates. The problem of labour quality is accentuated by corruption and bureaucratic delays in migration procedures for experts required in the industry. It has been reported that even for firms in the EPZs securing a special pass for an expatriate worker can take as long as three months and is costly, largely owing to corruption. In some instances special machinery imported into the country lies idle for a long period simply because corruption associated with immigration makes it difficult to bring into the country expatriates with the knowledge to operate it.

Other input supply obstacles include the high price of capital and labour for spinning firms; the high price of diesel, inadequate supply of capital and the high price of labour for fabric manufacturers; and the high price of diesel for garment manufacturing.

Table 16: Input supply problems experienced by textile and apparel firms (no. of firms citing problem)

Problem	All firms	Spinners	Fabric manufacturers	Garment producers
High price of electricity	14	2	6	6
Unreliable electricity supply	11	1	5	5
High price of capital	6	1	4	1
Inadequate supply of labour	5	0	2	3
Poor quality of labour	5	1	2	2
High price of diesel	5	0	3	2
Inadequate electricity supply	4	1	2	1
Unreliable supply of labour	2	0	0	2
High price of labour	3	1	1	1
Inadequate supply of capital	2	0	2	0
Total	22	2	7	13

Source: Author's Survey, 2001

Cost structure

Raw materials, labour and buildings were the most important cost items for all textile and apparel manufacturers (table 17). Equipment also was a major cost item for garment manufacturers, while electricity, taxes and levies were major cost items for yarn and fabric manufacturers. These are the key shapers of the operating environment of these firms.

Table 17: Cost structure of textile and apparel firms, 2000 (% of total cost)

Item	Yarn and fabric manufacturers	Garment manufacturers
Equipment	3.5	24.7
Buildings	16.9	14.3
Raw materials	19.5	29.2
Labour	15.6	23.4
Electricity	13.0	1.5
Water	0.5	0.6
Transport	1.2	0.7
Infrastructure	-	1.0
Design	1.6	1.0
Taxes and levies	16.9	0.2
Fuel oil	5.1	0.6
Interest rate	4.5	-
Maintenance	1.9	2.6
Others	-	0.2
Total	100.2	100

Note: These figures are only indicative because most of the firms did not provide data. Some of the averages therefore are based on very few observations.

Source: Author's Survey, 2001

These results suggest that compared with textile and clothing producers in the Southern Africa Development Cooperation (SADC) countries Kenyan textile and clothing producers are competitive in labour cost but uncompetitive in electricity cost (table 18). In the SADC region labour

constitutes about 28% of the total costs for textile and clothing producers, while electricity cost accounts for about 1.7% of the cost for textile producers and 3% for spinning and weaving firms (see Muradzikwa 2001 for details).

Table 18: Energy and labour costs in SADC countries and Kenya

Country	Electricity (US cents/Kwh)	Labour (US cents hour)
Malawi	8.5	52
Mauritius	4.8	95
Mozambique	15.8	46
South Africa	3.2	2.35
Tanzania	20.6	58
Zimbabwe	5.1	50
Kenya	10.0	25

Source: Muradzikwa (2001) for SADC, and Bedi (2002) and Author's survey for Kenya

Technology

The hardware used in Kenya's textile industry is a mixture of old and obsolete machinery and modern, state-of-the-art equipment. The age of the machinery reflects to a large extent the age of the firms themselves. The machinery of 19% of the firms was installed between 1963 and 1980, and 61.9% of the firms have quite new machinery installed between 1991 and 2001 (table 19). In general garment producers have newer machinery – and technology – with 75% of them having installed their machinery after 1990. Only 44.4% of yarn and fabric manufacturers installed their machinery after 1990 (table 19).

Table 19: Age of machinery used by textile and apparel firms (no. of firms)

Type of firm	Period machinery was installed				Total
	1963-1980	1981-1990	1991-2000	2001	
Yarn spinning and fabric manufacturing	2	3	4	0	9
Garment manufacturing	2	1	6	3	12
All firms	4	4	10	3	21

Source: Author's Survey, 2001

Sixty-two percent of the firms acquired their machinery new, and 19% purchased both new and old machinery. Sometimes machinery is diversified even in the same plant, an indication that some firms produce high quality products that compete in the international market but others produce poor quality products. Diversification of machinery necessitates stocking of a large variety of spare parts in small quantities, which inhibits initiation of spare parts' manufacture in the economy and derails local technological capacity building. Appropriate technologies for small-scale processing are critical in the sector.

Machinery is imported mainly from Asia and to a lesser extent from Europe, although most of it is manufactured in Europe. Only one firm had obtained its machinery from a local supplier, the reason being that there are no local substitutes for the imported machinery that the firms use.

Most of the existing processing machinery is large scale, has large initial capital outlay and would not be viable for firms with low turnover. The average cost of the machinery was Ksh 51 million, but prices ranged from Ksh 200,000 to Ksh 120 million. Spinning and fabric manufacturing machinery, averaging Ksh 72 million, was much more expensive than garment making types, which averaged Ksh 42 million. Moreover, the highest cost motioned for spinning machinery was Ksh 120 million

compared with Ksh 93.6 million for garment making machinery. To attract such massive investment, the operating environment must be extremely attractive.

Only 42.9% of the firms had changed their machinery in any way since it was installed, and only 21.4% did so on a regular basis. This indicates that the level of technology upgrading in the textile and apparel sector of the country is low. Two of the firms had improved their machinery in response to the prospects offered by AGOA. The reasons cited for not changing technology included 1) the perception and belief that the technology being used was still up to date (all the firms felt that their machinery was in good working condition), 2) the high cost involved (relative to labour cost) and the lack of capital, 3) the need to retain labour-intensive technology, and 4) the fear that new technology would not operate properly with the frequent power disruption.

Majority of the firms (72.7%)²² were aware that better machinery and technology were available. The main reasons for not acquiring them were lack of finance (and high interest rates), the high cost of the machinery and technology, the lack of a conducive environment for major investments, and the small size of the market for the firms' products. A problem facing manufacturers outside the EPZ and MUB schemes was that they were not exempted from duty on imported machinery unlike their counterparts in the schemes. There were complaints that firms in the EPZ scheme were favoured in that their licensing was speedier, they were exempted from IDF²³ charges and they benefited from flexible overtime work schedules because their workers did not belong to trade unions.²⁴

²² 77.8% of the spinning/fabric manufacturing firms and 69.2% of the garment-manufacturing firms.

²³ This is an import inspection charged at 2.75% of value. Kenyan competitors in other countries don't pay such a charges (Bedi 2002).

²⁴ While legally workers in EPZs can join trade unions, it is believed that the risk of losing their jobs prevents them from doing so.

Credit

Half of the firms²⁵ received credit facilities, mainly in the form of bank overdrafts, but loans, trade credit and letters of credit were common. About 53.8% of these considered the interest rate and other credit terms fair, while the rest considered them unfair, especially with respect to interest rates and the stringent collateral requirements.

Market and customer relations

The global textile and clothing market is extremely competitive, largely because of its increasing diversity and consumer orientation, rapidly changing consumer tastes, technological changes and excess capacity of installed machinery that exists worldwide (Coughlin et al., 2001). Producers therefore are required to be competitive not only in cost but also in quality and delivery time. The international norm for quality competitiveness for textile and clothing firms is 1.5% return of sales, or rejects below 5%, and the international norm for delivery competitiveness is 95% on-time delivery.

Elements of competitiveness for textile and apparel firms include cost of production (with cost of labour being particularly important), extent of market regulation (that is, the ability of firms to access imported inputs at world prices), access to trade agreements such as the Cotonou Agreement, access to incentive programmes, management practices (including labour use strategies), and the production and marketing strategies of the firm (Salinger et al., 1999). Product design, rapid turnaround of designs, cost of developing international market linkages, merchandizing, service, inventory management, lead times, transport and trade, and quality control also are becoming important (Salinger et al., 1999). To be successful exporters, particular in the US market, apparel manufacturers must 1) be compliant with responsible apparel production (RAP) requirements and up to date in technology, 2) have adequate capacity and low cost of

²⁵ 55.6% of the spinning/fabric manufacturing firms and 46.2% of the garment making ones.

production, 3) have access to cost-effective labour, and 4) have a collaborative approach to labour and customer relations (Cotton Incorporated, 2001). Thus, key policy elements regarding competitiveness of textile and apparel firms include the labour market policy, human resource development and training, trade policy (import tariffs and export promotion incentives, among others), and investment and innovation policy (tax holidays, accelerated depreciation, support for small and medium enterprises and support for technological innovations).

The local market consumes most of the products of the spinning and fabric manufacturing firms, although some of them are exported to regional and European markets.²⁶ But garment producers are mainly exporters: only three of them mentioned the local market as their main market and only two did not export. All the rest exported to the USA using such outlets as Wall Mart and Shah Safari Investment. About 88.9% of the spinning and fabric manufacturing firms and 84.6% of the garment-producing firms interviewed were exporting some of their output. In terms of the proportion of output exported, 76.9% of the garment producers exported everything, while the spinning and fabric manufacturing firms exported on average 30% of their output. About 76.9% of the garment producers interviewed were already exporting to the USA, thanks to AGOA.

The fact that some firms in Kenya are exporting to the USA, whose market requirements are very stringent, is an indicator of the products' quality. Gibbon (2002) discusses some of these stringent requirements:

- The quality requirements of the US market are more stringent than those of the EU, as they are based on measurement specifications (up to 2 mm level of accuracy) instead of simply by garment appearance. The US market requires that fibres must have a "soft fluffy feel rather than the new clean one liked in Europe" (Gibbon 2002), which necessitates

²⁶ Some of the countries that are export markets for the country's yarn and fabric manufacturers are Ethiopia, Germany, Malawi, Malaysia, Tanzania and Uganda.

more direct relations between the garment maker and the textile manufacturer

- Quality assurance systems in the US market use a zero-defect criterion instead of sorting out defects after manufacturing. The systems are comprehensive, process-oriented and often implemented by out-station employees.
- The US market requires greater monitoring and control of producers with respect to not only quality assurance but also suppliers' certification, product specification, progress-reporting procedures and procedures for resolving contractual differences. The US market requires suppliers to assure adequate supplies and compliance with customs' garment safety and labour standards. Product specifications are very detailed and developed unilaterally, unlike in the EU market where they are less detailed and are negotiated. The US market has stricter demands for reporting progress of orders. In the event of contractual differences, US buyers could reject consignments or resort to litigation, but in the EU price discounts for orders not adequately satisfied could suffice. In broad terms, the EU allocates suppliers more non-production functions (such as styling and product development, input sourcing, organization and logistics such as clearing and forwarding) than the USA does.
- The US market has larger volume demands than the EU, with buyers like Gap and Target allocating at least 30% of their total capacity to an individual supplier.

About 54.5% of the firms (76.9% of the garment producers) were able to sell all their output, while another 9% did so only sometimes. Factors that determined how much of the output was sold included production by order or as determined by stock levels, competition from imports and from goods that evade taxes and rejection of goods on the basis of quality and timeliness of delivery.

Instead of benefiting Kenya's textile products' exporters, regional trading blocs such as COMESA and EAC were accused of increasing competition, largely because of the lack of market access to most of the partner countries and the imposition of suspended duties on Kenyan textile exports by countries like Tanzania. For instance, WTO-sanctioned protective measures prevent entry of Kenyan textile products into the Egyptian market, but Egyptian products have easy access to the Kenyan market. In Tanzania Kenyan textile products face a duty of 43% (due to a 20% suspended duty), but Kenya imposes a duty of only 3% on Tanzanian textiles.

Buyers determined product design for 42.8% of the firms, and in-house designers for 28.6% of the firms. It is not clear whether the rest had in-house or contracted designers but it is clear that market sentiment influenced the designs. Buyer influence on product design was more prominent for garment manufacturers than for other textile firms: 41.7% of these firms reported that buyers determined the design, while for another 25% the customer provided samples. These statistics show that most garment producers operate in commodity chains that are controlled by buyers as contract manufactures.

The firm and the customer appear to have almost equal power in price determination. While the firm does the costing, negotiation with buyers and market forces play a more important role in pricing. Only 21% of the firms explicitly reported that the buyer determined the price, compared with 26.4% that reported the firm as the price determinant. However, 47.4% of the firms reported that price determination involved bargaining. For garment manufacturers the influence of the buyer was more prevalent. Only one firm reported that it determined the price of its products. This supports the observation that garment producers are operating in buyer-controlled chains. The ratio of factory to retail price of garments is estimated to range from 1:4 to 1:6, indicating that about 75% of the value added is attributable to wholesaling and retailing (Coughlin et al., 2001). This highlights the control buyers (wholesalers and retailers) have on the clothing chain globally.

Almost all firms delivered the products to buyers. The most prevalent method of establishing contacts with buyers was personal contact, followed by sales agents, use of overseas head office and sending samples to customers. The Internet was used by firms mostly to contact customers and learn about production and technology trends.

Most of the firms (78.9%) had relationships with buyers of their products.²⁷ Informal agreements were the most prevalent relationship (reported by 46.7% of the firms having relationships), followed by formal contracts (33.3%)²⁸ and then a combination of both. Informal agreements were largely gentleman's agreements and relationships based on quality, price and delivery terms, or on mutual respect cultivated through long-term business relations.

Almost all firms (90.5%)²⁹ encountered marketing bottlenecks (in both the local and export markets), the most important of which were competition from imports and other exporters, domination or control by buyers, low demand and low prices. Unreliability of the market and the lack of market information were also important (tables 20 and 21). In addition there were no agencies to provide direct export insurance to the industry.

The prices offered even in the US market are way below the cost of production in the country, implying that firms have to find survival mechanisms, such as loading the extra cost on the domestic market, before they attain requisite economies of scale. The ability of the firms to use the domestic market for survival is limited by the markets' declining purchasing power and competition from cheap imports, including uncustomed goods.

²⁷ This is 90.9% for garment producers.

²⁸ Only garment producers reported being involved in formal contracts.

²⁹ Only two garment producers said they did not experience marketing problems.

Table 20: Bottlenecks facing textile and apparel firms in the local market (no. of firms citing problem)

Marketing problem	All firms	Spinning/fabric manufacturers	Garment producers
Competition from imports	11	8	3
Low demand	10	7	3
Low prices	9	7	2
Domination/control by buyers	4	3	1
Unreliability of the market	4	2	2
Lack of market information	4	2	2
Inappropriate govt. regulations	1	1	0

Source: Author's Survey, 2001

Table 21: Bottlenecks facing textile and apparel firms in the export market (no. of firms citing problem)

Marketing problem	All firms	Spinning/fabric manufacturers	Garment producers
Competition from imports	7	3	4
Domination/control by buyers	7	2	5
Low demand	6	4	2
Low prices	5	3	2
Unreliability of the market	5	2	3
Lack of market information	4	1	3

Source: Author's Survey, 2001

As solutions to these marketing problems, medium and large textile and apparel firms recommended:

- Proper enforcement of regulations by the government to stop untaxed trade from Somali and elsewhere
- Lowering the cost of electricity and other production overheads
- Increasing availability of local raw materials and skilled labour and improving their quality

- Providing market information
- Formulating transparent policies
- Dealing with the issue of suspended duties charged on some Kenyan exports to the EAC
- Motivating farmers to increase supply of raw materials
- Introducing effective marketing programmes, including facilitating (by the government) firms to attend trade fairs in the USA
- Reducing income taxes and rectifying port inefficiencies

Organization of manufacturing firms

Almost all the firms interviewed (90.5%) belonged to at least one association, mainly the Kenya Association of Manufacturers (KAM) or the Federation of Kenyan Employers (FKE). The most important services these associations provide their members include lobbying of government for appropriate policies, forwarding industry problems to the government, providing market information, self-regulation of the industry (for example approving and issuing textile visas as required by AGOA and negotiating with trade unions and worker representatives. These associations are strong and have substantially increased the negotiation power and lobbying influence of medium and large-scale textile and garment manufacturing firms.

Perceptions on status of cotton-textile industry

The vast majority of textile and apparel firms interviewed (90.5%) felt that the industry was characterized by low quality and uncompetitive prices, and was seriously suffering as a consequence of uncontrolled importation of secondhand products. They felt, nevertheless, that the industry had substantial potential if the whole chain could be well managed. The strengths of the country's textile industry include its access to COMESA, EAC, the USA and the EU through various trade agreements; its versatility; its integrated (or composite) mills capable of high value addition; its suitable geographical location; the existence of ports and airports offering access

to important markets; and abundance of inexpensive labour (Bedi, 2002). The firms made the following recommendations on how the performance of the industry could be improved:

- **Farm level:** Encouraging farmers, introducing minimum prices for and improving marketing of seed cotton by the government, improving cotton quality, establishing a seed-certification mechanism, and providing technical advice to farmers.
- **Ginning and textile manufacturing:** Encouraging investment in ginning and textile manufacture and developing demand for textile products, through incentive schemes.
- **Apparel manufacturing:** Ensuring that duty was paid on all imports and proper surveillance was instituted to keep illegal imports out of the country, applying for a temporary safety net within WTO, reducing the price of locally made fabric³⁰ and facilitating immigration procedures for expatriates.
- **Entire chain:** Coordinating the chain to ensure its proper functioning; creating an institution of representatives of all stakeholders to coordinate the industry; improving technology, supply of expert labour, taxes and tariffs, access to imported raw materials, transparency in policy formulation, and policy implementation; and introducing measures to improve infrastructure and reduce production overheads such as electricity cost and income taxes.

Operating environment of medium and large textile and apparel firms: summary

As the preceding discussion has shown, the textile and apparel sector in the country operates in an environment characterized by competition from uncontrolled imports of secondhand clothes, counterfeit textile products

³⁰ It was reported, for instance, that while a metre of imported fabric goes for about USD 1, a local fabric of the same length (and usually lower quality) goes for at least Ksh 150 (about USD 2). Locally made fabric is therefore largely uncompetitive.

and uncustomed products that are unfairly competitive. What is more worrisome, though, is that there is widespread belief in the industry that the government abets, or even facilitates, such unfair competition against mainstream legal business. Other elements of the operating environment include:

- A poor infrastructure network and in particular the high cost of electricity
- An adverse macroeconomic environment in which the cost of capital and fiscal policies make businesses uncompetitive internationally
- Lack of government support or the preferential treatment of some operators, particularly those in the EPZs
- Inadequate labour flexibility especially for firms outside the EPZs
- Inadequate supply of skilled labour (including qualified managers and design experts) and rigid and corrupt immigration procedures that raise the cost of hiring foreign expertise
- Regional trading blocs that hinder rather than facilitate trade
- Unfavourable trade policies, e.g. import inspection (IDF) fees charged in Kenya but not elsewhere, and taxation of secondhand items on weight basis rather than value, which leads to unfair competition from new or high quality secondhand clothes often disguised as cheap secondhand imports
- Low demand in the domestic market due to low purchasing power and the influx of textile imports
- Poor technology and the lack of appropriate technologies for small-scale processing
- Inadequate investment, especially in spinning and weaving
- Low quality and high cost of the locally produced fabric, which force garment makers to import the bulk of their fabric needs.

The nature of governance is an important element in the cotton-textile-apparel chain. Retailers dominate the chain: they set prices, quality standards and delivery times, and often closely supervise the production of garments right from the development of fabrics (Salinger et al. 1999; Gibbon, 2002). The apparel (or garment) sector is an example of a buyer-driven global commodity chain whose barriers to entry (and therefore the determinants of chain control and firm profits) are primarily cost of investment in information infrastructure, product design and development, advertising and electronic-based supply management systems (Gibbon 2001). Branded merchandizers and large retailers control the design and marketing links of the chain and therefore coordinate the chain; they produce and supply specifications to competitive, independent manufacturers or suppliers usually located in developing countries (Gibbon 2001). The buyers concentrate on design and marketing functions (which generate very high profits) and contract out the less profitable functions such as production of standard garments or parts of them (to parts of the world with lower labour costs), fashion garments, and supply in general. During the late 1960s and early 1970s production of standard garments shifted from the North to Hong Kong, Korea and Taiwan (Gibbon 2001). Later, as this group of countries started to upgrade³¹ they increasingly transferred these activities to lower income countries. Over the period 1965–1990, for example, the share of developing countries in world production of textiles and apparel rose from 16% to 39% and from 14.8% to 56.4%, respectively (Coughlin et al., 2001).

Largely because the buyer controls the chain, the firms are operating in an environment of low prices, which often are below production cost, forcing them to seek survival strategies.

³¹ These countries started becoming global (or regional) garment merchandizers largely through learning by associating with demanding North-based merchandizers and retailers. They acquired knowledge on organizational issues such as the nature of market intermediaries and end markets, quality requirements, lead times, sourcing linkages and supply coordination (Gibbon, 2001).

Political and economic uncertainty is seriously affecting investment decisions. Largely because of this, it is difficult to attract the massive investment required in yarn spinning and fabric manufacturing. In addition, there is uncertainty about what will happen after 2004 when, to qualify for preferential treatment, garment producers will be required to source fabric from either the USA or AGOA accredited countries.

The way forward for Kenya's textile and garment producers is to become globally competitive in cost or to establish unique market niches for themselves that are characterized by barriers to entry. This is the only way they can increase their share of the profits generated in the chain.

3.5.3 *Small garment producers*

This section borrows from McCormick et al. (2002), a study based on micro and small garment firms in Nairobi. It also reports on the few micro and small garment firms interviewed outside the city.

Micro and small garment producers in Nairobi

It was estimated that Nairobi had 6323 micro and small garment producers and retailers in 2000 compared with 2421 in 1989, but most of the increase was in distribution (retailing)³² rather than in production (McCormick et al. 2002). This growth is also partly attributable to wide-ranging retrenchment in the formal sector and the collapse of many medium and large textile firms, which released workers and created a niche for the smaller enterprises. Entry into this sector is easy, as capital requirement is low and training services are widely available in schools, local polytechnics, dressmaking schools and on the job. It is also characterized by relatively low operational costs, as the customers themselves often supply the raw material. Studies conducted in 1989 and 2000 (see McCormick et al., 2002) highlight the following factors about garment producers and retailers:

³² The number of retail outlets for new clothes has increased tremendously due to market liberalization and administrative weaknesses that have seen substantial amounts of uncustomed imports get into the country's market.

- More than 70% of the entrepreneurs were women
- In 2000 more of the entrepreneurs were educated people than in 1989
- More entrepreneurs held professional qualifications in 2000 than in 1989, reflecting the fact that retrenched professionals were being absorbed into the micro and small garment sector.
- Life expectancy of the enterprises increased over the period, but mean employment fell.
- Over the period, the proportion of enterprises producing men's clothes and cardigans rose, while that of producers of women's wear dropped enormously (from 70.2 to 40.8%), suggesting that producers of women clothes had been the most affected by liberalization. The proportion of enterprises producing specialized clothes (such as school uniforms and occasion African dresses) remained the same, suggesting that these and producers of cardigans had hardly been affected by liberalization.
- The main sources of raw material were wholesalers and retailers, although a few enterprises obtain it from factories and customers. Over 1989–2000 the importance of wholesalers declined while that of retailers increased.
- The dominant distribution channel involves garment manufacturers selling directly to customers (this happened with all producers). However, in 1989–2000 the proportion of producers selling to retail shops rose from 3.7 to 16.8%. The proportion selling to wholesalers was about 8% in 2000.
- Unlike the medium and large textile firms, the micro and small garment enterprises were able to maintain their turnover and labour productivity over the period, in spite of market liberalization.
- The proportion of enterprises participating in the export market declined from 15.1 to 8.8%.
- The propensity to export is positively related to enterprise size.

Micro and small garment producers outside Nairobi

We interviewed 16 micro and small garment producers outside Nairobi (in 8 districts). The data we provide are only indicative, as the sample was small and haphazardly drawn up. All except one enterprise were established in the 1980s and 1990s. They were mainly producing men's suits, other men's garments, ladies wear, children's wear, embroidery and uniforms. On average, the number of machines per enterprise was 8, but the number ranged from 0 to 35. At full capacity the enterprises could produce 47.6 garments per week on average, ranging from 3 to 300. The average annual turnover was of Ksh 1.7 million per average firm, although this varied substantially from Ksh 0.046 million to Ksh 8 million. The output from cotton fabrics averaged 38%. The average enterprise had 5 skilled and 1 unskilled workers, but the range was from 0 to 30 for skilled workers and 0 to 5 for unskilled ones.

Production decisions of these enterprises are governed primarily by orders and the level of stocks. About 72.7% of the enterprises reported that production had been declining, largely owing to the worsening economic performance – which reduced market opportunities – and the high prices and low quality of raw materials. The most important production constraints for the micro and small garment producers were the lack of market, the low quality and poor availability of raw materials, competition from imports, the lack of working capital and low purchasing power. Relatively minor constraints (cited by one or two respondents) were the high tariffs on raw materials, the high cost of labour, poor technology, the lack of appropriate designs and the high cost of electricity. The enterprises generally did not receive support (such as incentives, advice on technology, training, credit, or trade promotion) from the government or other source.

Raw materials constituted 52.6% of the total costs for these enterprises, and labour 16.4%. Other important cost elements were equipment, electricity, designing, transport, taxes and levies. Most of the enterprises obtained the clothing material from local wholesalers and textile manufacturers, which were chosen on the basis of price, availability, quality,

transport cost and trading relationship with the enterprise. The same factors came into play in the choice of import sources. Half of the enterprises interviewed had either formal (14.3%) or informal relationships (35.7%) with their input suppliers. Almost all the enterprises contacted their input suppliers personally. Only four enterprises reported having any influence on price of inputs, through bargaining.

About 69% of the micro and small garment producers faced problems with respect to input supply, the most important of which were the inadequate supply and high cost of capital, inadequate and unreliable supply of labour, inadequate supply of electricity and poor quality of raw materials. Only about 46% of the enterprises got credit—in the form of normal loans, hire purchase facilities and trade credit—from commercial banks, suppliers (including African Retail Traders and organizations such as the Kenya Women Finance Trust).

Six of the firms reported that when orders were large they subcontracted to other tailors such tasks as fixing buttonholes, stitching, ironing, designing, binding, embroidery and even garment making. Three enterprises reported that they were subcontracted at times.

Only 45.5% of the enterprises installed their machinery in the 1990s, and machinery was new in most cases. Moreover, only 27.3% of the enterprises had ever upgraded their equipment since it was installed, largely because of the lack of funds and the decline in business. But more than half of the enterprises were aware that better machinery and technology were available in the market.

None of the garment producing enterprises interviewed exported; they sold mainly to local people, schools, local authorities and firms. Sixty percent of the enterprises were able to sell all their output, mainly because garments are made on demand. Those that could not sell all output complained of low demand associated with low purchasing power and competition from secondhand clothes. The enterprises rarely had relationships with their customers, and when such relationships existed they were usually informal. Advertising and displays, sales agents and

personal and informal contacts were the main means of contacting customers. All the firms reported that they faced marketing problems, the most important of which were (in order of importance) low demand, competition from imports and unreliability of the market, lack of market information, low prices and control by buyers.

None of the enterprises interviewed exported to the USA through AGOA, largely because they were ignorant of AGOA opportunities (cited by 61.5% of the respondents) and because they lacked the capital required for quality products for the export market.

In terms of organization, only 26.7% of the enterprises belonged to any association, mostly self-help groups. The lack of strong stakeholder organizations has implications on the negotiation and lobbying capability of micro and small garment producers.

Micro and small garment producers recommended that the cotton-textile industry be strengthened by reduction of prices of local fabric; control of cotton-based product imports; sensitization of Kenyans to appreciate local products; economic improvement to raise purchasing power; improvement of raw material quality; provision of market information (and other information), especially with respect to AGOA; training; provision of affordable credit; provision of incentives to cotton farmers through improvement of seed cotton prices; and reduction of taxes on cotton materials and sewing machines.

Operating environment for micro and small garment producers: summary

In Africa small enterprises are constrained by 1) official harassment and fragmentation of business systems, which translate into policies that leave out key issues affecting enterprises; 2) the lack of effective representation or lobbying capacity for the enterprises; and 3) the lack of power in the small enterprise sector to influence such key market institutions as the financial system, labour market and property markets (Pedersen and McCormick, 1999; McCormick et al., 2002). Kenyan enterprises have suffered these and other problems. The most important problems have

been unfair competition from new and secondhand imports that evade taxes and rejected export items that find their way into the Kenyan textile market. Other obstacles facing micro and small garment firms in Nairobi include electricity cost and shortages (especially for enterprises using powered sewing or knitting machines), poor and cramped workspaces and declining demand for their products. Their export performance is adversely affected by the poor quality of their products, the high cost of power, high transport costs, the lack of clear advantage in labour cost, the lack of export insurance and letters of credit, and competition from higher quality and cheaper garments from the Far East (McCormick et al., 2002).

McCormick et al. (2002) attribute the constraints affecting Nairobi's micro and small garment enterprises largely to the failure of the state as an institution, as demonstrated by weak enforcement of tariff regulations and antidumping rules, poor surveillance of transit trade, poor policy,³³ and failure to provide or oversee high quality and adequate education and training services. Market failure has been a factor: the property market has failed to produce appropriate workspaces for the small enterprises and the monopoly power distributing parastatal has led to highly uncompetitive electricity tariffs.³⁴ In addition the country's financial market has failed to provide affordable working capital and export financing and insurance. Internal inefficiencies in the enterprises have contributed to the constraints facing the micro and small garment enterprises. These constraints apply also to micro and small garment producers outside Nairobi.

³³ An example is the policy for secondhand imports of clothes, in which the tariff is levied on per-kilogram basis without discriminating on value. This introduces unfair competition from value clothes that are mixed with low value items. Policy failure is also magnified in poor implementation of the policies formulated for micro and small enterprises.

³⁴ At the end of 2001, 1 Kwh was cost USD 0.09–0.10 while in other countries the cost was only USD 0.04 (Bedi, 2002).

4. Cotton-Textile Industry in Kenya: Chain-wide Issues

A major weakness of Kenya's cotton-textile-apparel chain is that it essentially has no operating chain. General institutional failure set in after liberalization leading to different actors in the industry operating independent of each other without coordination or consultation, yet these are key ingredients for good performance in quality and distribution of profits. Such a vacuum exposes the industry to total external control. Another consequence is that only two years before it becomes mandatory for garment makers exporting to the US market to obtain fabric locally or from other AGOA-accredited countries, nothing much has been done to streamline activities related to cotton farming, ginning, spinning and weaving, and fabric finishing.

Institutional failure is also manifested by the lack of strong producer associations; weak or ineffective mechanisms for overseeing critical issues such as quality seed production and distribution, provision of inputs to producers on credit and quality of such important inputs as pesticides; and the virtual collapse of extension services.

Not all parts of the chain lack strong producer associations, though. Textile and garment manufactures, in particular, have very influential associations, including KAM, FKE and the Kenya Apparel Manufacturers Exporters Association (KAMEA). Ginnerers have the Kenya Cotton Ginnerers Association (KCGA), which is becoming increasingly active in the industry. Cotton farmers and micro and small garment producers are the weakest in terms of institutions for lobbying. They lack broad representation and aggressive associations. Besides this there is little evidence that the existing associations work together to coordinate the cotton-textile-apparel chain.

Policy failure also characterizes the cotton-textile industry, with the liberalization process as a case in point. The sector was opened up completely and suddenly without offering players time for adjustment.

The Cotton Board of Kenya was left without any role in the industry even though no alternative institution was set up to carry out crucial regulatory and coordination tasks. Besides this, the industry lacks a human development policy, a dynamic technology development policy, a regulatory and legal framework consistent with the current liberal environment, a comprehensive policy framework covering all links and aspects of the cotton-textile value chain, and a comprehensive institutional deepening policy. There is also a glaring absence of a strategic positioning policy. Thus, even as global dynamics of the cotton-textile chain governance change, the country has no strategic response, with the result that Kenyan producers continue suffering worsening terms of trade while other countries are subsidizing their farmers. Strategic policy ought to be dealing with the issues of whether the country should continue encouraging activities in all parts of the chain or whether it is better off specializing (and establishing market niches) in a few of them. Section 5.2 provides suggestions on strategies to address this.

Lack of competitiveness affects all parts of the chain. This is largely attributable to such macroeconomic variables as poor and costly infrastructure, high interest rates, corruption, unfavourable fiscal policies and an inappropriate trade policy that permitted uncontrolled liberalization without providing time for adjustment.

5. Industry Revival and Development Strategies

The emerging opportunities presented by the rapidly growing domestic population, regional trading blocs (such as COMESA and EAC), the EU and the US markets, and in general the global market present bright prospects for Kenyan textiles. But with the serious weaknesses that characterize the cotton-textile industry, Kenya may not be able to exploit these opportunities unless the industry is revived and nudged towards a sustainable growth path. The industry's revival is contingent upon the presence of an attractive operating environment, and its sustained good performance requires a development strategy to address some important questions, such as: What role can and should the public and private sectors play to initiate and sustain the industry's revival? Given the liberal environment and the global dynamics and governance of the cotton-textile chain, is it worthwhile for Kenya to focus on cotton production? Does the country have a unique competitive advantage in cotton production, and if it does, is this advantage enough to rely upon? Even if Kenya may not have competitive advantage in cotton production, could support for cotton production be justified as a superior poverty reduction strategy? Does Kenya have the resources (capital and skills) to compete in the provision of such intangible services as designing, marketing, financial services and chain governance that are growing sources of economic rent in (commodity) value chains?

The following sections present some elements of a development strategy for the industry and suggestions on how the operating environment could be improved to stimulate and sustain its recovery.

5.1 Elements of a development strategy

Should Kenya continue focusing on all the parts of the cotton-textile-apparel chain or only on some of them? In spite of its devastated state, the cotton-textile industry has correctly been identified by the government as one of

the sectors that can play a significant role in poverty alleviation (GoK 2000), for the following reasons:

- **Potential to benefit large portions of the population:** The government estimates that about 25% of the country's population can benefit from cotton production. The cotton sector has significant linkages with not only the textile processing and manufacturing industry but also manufacturers of soaps and detergents, animal feed, chemicals, and fats and oils.
- **Suitability for marginal areas:** Most of the land in the Eastern, Coast, Nyanza and Rift Valley provinces has limited alternative use for development and is home to most of the country's poorest people. The highest incidences of poverty are found in some cotton-growing areas. In 1997, for instance, Nyanza had the highest prevalence of overall poverty in the country, followed by Coast Province (GoK, 2000).
- **Huge potential as a source of employment for women and the youth:** This is associated with the labour intensiveness of the cotton-textile industry and the involvement of small-scale operators in the sector. In fact, promotion of youth and women activities is one of the policy objectives being considered for the cotton industry (GoK, 1999).
- **High potential to generate activity in the small-scale and micro enterprises (SMEs):** Majority of cotton farms are small-scale enterprises as are thousands of garment makers. In addition, cooperatives control significant shares of ginning and distribution (both of inputs and outputs) enterprises. SMEs in the textile industry are found mainly in the garments' sector but they are also strongly represented in knitting. There is also big potential for SMEs in ginning, weaving and spinning (ADEC, 1998) if

appropriate technologies for small-scale operations could be acquired or developed.

- **Potential to promote regional dispersion of development and reduce rural-urban migration:** Being the only viable economic activity for marginal areas, where poverty is most prevalent, cotton farming is a prime vehicle for spatial distribution of development. SME activity, to which the industry is suited, spreads throughout the country and serves the dual role of creating off-farm activity and reducing rural-urban migration. Reduction of rural-urban migration is currently considered an explicit policy objective for the cotton industry (GoK, 1999).

The importance of cotton growing as a poverty reduction strategy is evident despite the fact that the country lacks competitive advantage in cotton production. If the country is to continue producing cotton then ginning and textile manufacturing also should be promoted. The opening up of the US market by AGOA offers competitive advantage for countries with efficient integrated fibre-yarn-fabric-garments industries. The investments already made in these activities, most of which cannot be converted to alternative use, is another compelling reason why cotton production should be enhanced. The development strategy for the country's cotton-textile industry, therefore, should focus on:

- **Establishing of an apex institution** comprising stakeholder representatives from the public and private sectors, to coordinate the chain and provide continuous strategic oversight and guidance.
- **Building institutions** where they lack in the chain and strengthening the weak ones, particularly in cotton farming and micro and small garment production. This will facilitate their representation in the apex institution.
- **Introducing interventions for cost reduction** at various points in the chain, for example, conducting research and development to generate

new technologies. The country has the potential to be competitive in most activities within the chain.

- **Identifying unique or niche markets** to focus on that may have less competition.
- **Building capacity** and competence (to accumulate requisite capital and skills) to compete in the provision of services such as design, marketing, financial services and chain governance, which constitute areas of growing economic rent in global value chains.
- **Developing regional frameworks** to facilitate sharing of expertise, information and even infrastructure. Mauritius, for example, has tried to develop a regional hub of value-added services such as designing, marketing, technology and training to draw on expertise and skill in each country.
- **Developing technology** appropriate for small-scale processing and switching focus to cottage industries. The cotton-textile industry could be integrated with the United Nations Industrial Development Organization (UNIDO) project focusing on cottage industries but for other sectors, run by the Department of Industry (Ministry of Trade and Industry).

5.2 Specific interventions: some proposals

To revive the cotton-textile industry and propel it into a sustainable growth path, various interventions are required to improve its operating environment. Some of these are discussed in this section.

5.2.1 Coordination of the industry and chain-wide issues

Interventions for the cotton-textile chain as a whole –

- **Governance of the cotton-textile chain should be efficient:** An apex body similar to the Cotton Development Agency (CODA) proposed by stakeholders a few years ago, or a cotton development board (similar to the Kenya Sugar Board) with all stakeholders represented is urgently

required to spearhead the revival of the industry. Such an institution would be responsible for coordinating activities and institutions in the industry, developing policy and streamlining seed multiplication and distribution, procuring and distributing pesticides through transparent competitive tendering, and the input credit or contract farming system. It would take decision on the most beneficial way to use the expected STABEX funds. Coordination of the industry is critical until such a time that conditions for full free competition in all sectors of the cotton-textile chain prevail, after which the role of the apex institution could be reduced to only policy direction.

- **Analysis and rationalization of the roles of all players in the industry:** This would reduce duplication of effort and militate against emergence of opportunistic organizations. For instance, the textile sector group under KAM felt that it was better placed to facilitate and monitor AGOA activities, a role being played by the AGOA Association and a desk within the Ministry of Trade and Industry. The textile firms felt that the fees the AGOA Association collects are exploitative. Rationalization of these roles could be the responsibility of the apex institution.
- **Public-private sector partnerships to facilitate applied technology research and development:** In the USA technology research and development is funded by private-public sector partnerships incorporating fibre producers, labour unions, apparel manufacturers and the government.
- **Engagement in upgrading activities** in order to move from producing undifferentiated 'commodities' to producing differentiated, specific products such as specialty garments, other specialized products, organic cotton and environment-friendly cotton varieties (including genetically engineered ones). This should be complemented with promotion of conscious consumption of these differentiated products by the government and the industry. With growth in incomes, demand for differentiated and high quality products is also expected to grow. Upgrading requires investment in product innovation and

segmentation, branding and development of tight but transparent systems of quality and brand certification, and cultivation of markets (including major investment in advertising) for differentiated products.

- **Development and licensing of niche products** such as unique African (or better still, Kenyan) designs and clothes and sportswear featuring a wildlife motif: Niche products need to be developed in sectors with the highest returns. For instance, the cotton knitwear and hosiery sector has the highest return per kilogram of cotton (about USD 13), lower investment and working capital requirements, and faces low competition from the fashion sector. Niche products also involve growing organic and quality cotton that fetches premium prices. Government intervention is needed to publicize such products to avoid problems such as the resistance encountered by the German Technical Assistance programme when it promoted organic cotton in Lamu District.
- **Improvement of access to information and marketing skills and cultivation of long-term relations with customers:** Improvement of producer organizations' and local actors' access to e-commerce and futures markets, for instance, could facilitate producer-consumer communication and risk management. These services could be best provided through such intermediary organizations as cooperatives, NGOs coordinating farmer groups or other producer associations. Industry players could also be assisted with the skills and knowledge needed to penetrate the global supply chain through direct marketing. This could also be done through placing priority on apparel sectors in which Northern merchandizers and retailers drive commodity chains, as this may generate learning opportunities for local producers, which was the case with newly industrialized country producers. This learning could be facilitated by appropriate policies, for example those that facilitate joint ventures.

- **Interventions (in the spirit of the Donde Act) and incentives** to stimulate development of financial and insurance mechanisms suitable for (and affordable to) large, medium, small and micro enterprises.
- **Human capital development:** Lack of qualified managers and design experts in Kenya poses limitations on the exploitation of the US market. There is need for an explicit human resource development plan to develop the special skills required by the industry.
- **Campaigns appealing to national pride and patriotism to promote Kenyan products:** Incentives for garment makers to buy local fabric could improve quality of the fabric produced in response to buyer demand.

5.2.2 Cotton production

The role of the cotton industry in poverty reduction poses the challenge of ensuring that as many farmers as possible are engaged in its production and that they maximize their productivity. For farmers to do this the cost of production must be reduced and markets and reasonable prices guaranteed. In addition it is necessary to ensure high quality seed is available at the time it is required, pesticides are affordable and capital is accessible, among other factors.

Pricing of seed cotton and farm inputs

A key issue is how to make price determination more transparent and less uncertain for farmers. Farmers are exposed to a range of prices from competing ginneries. For instance during the 2000/01 season seed price varied between Ksh 18 and Ksh 26/kg in one of the provinces, which left farmers feeling exploited. Farmers need to work with ginners, intermediaries and other industry stakeholders to develop a transparent approach to pricing that should distribute the risk of price fluctuations among the market participants. Farmers may need to be informed of prevailing and expected world prices in advance of the planting season so that they make informed decisions.

Ways need to be explored of using resources provided by the Common Fund for Commodities to develop cotton price risk management instruments for producers in eastern and southern Africa. Given the symbiotic relationship between ginners and farmers, ginners could lead such campaigns with the assistance of public extension agents. Moreover, given that such an information service (providing indicative prices) would be a public good, this would be an area where the government or the donor community could assist. The government's role in such an arrangement would be to assist in mobilization of cotton farmers to form producer associations, and to create an enabling environment for private ginneries owners. In addition the government needs to consider supporting farmers, even if briefly, as a 'shock therapy'. Ginners cannot reduce their costs without expanding capacity utilization, but the low producer prices prevent farmers from producing the large quantities of seed cotton required to raise capacity utilization in ginneries. This vicious cycle must be broken. Although the most critical support should be in credit, extension service, mobilization and information supply, support of producer prices should also be considered: major producing countries in the EU are offering their producers subsidies that sometimes go beyond 100%.

To improve world prices, the government, together with other developing countries, should push through WTO and other multilateral institutions for elimination of subsidies in agriculture. Estimates using ICAC's world textile demand model, for instance, show that removal of USA's cotton subsidies alone would increase world cotton price by as much as USD 0.12 per pound (USD 0.054 per kg) in the short run (Badiane et al., 2002). When local cotton producer associations are established they should also consider taking insurance to protect farmer's incomes.

Revival of collapsed irrigation schemes

At their production peak in the mid 1990s, Bura and Hola irrigation schemes accounted for 39% of national cotton production. Revival of these schemes would serve to raise capacity utilization in ginning, which may trigger investments at that level. Reviving the schemes should not be difficult,

since the irrigation facilities are still intact. What is needed is gravity flow for irrigation water. The possibility of using the National Youth Service and the military for constructing and rehabilitating the systems, as suggested by stakeholders, should be explored.

Provision of services to farmers

Some of the challenges facing the industry are how to provide inputs to farmers, including credit and extension support, and how to make the investments needed in agricultural research and extension to achieve long-run productivity growth in an environment where the public sector is unlikely to provide the investment. This calls for contract farming to start with as the playing field is made level for full competitiveness. Such a contractual arrangement would enable farmers to deal effectively with the production technology and marketing problems confronting them. But for such a system to work effectively there is need to promote the formation of industry associations to enforce contracts and agreements. In particular local farmer organizations should be encouraged and facilitated and their technical organizational and commercial capacities strengthened. The industry could, moreover, prepare a code of conduct for cotton buyers (or an effective contract enforcement system) and impose costs on illegal buyers. The government could play the important role of facilitating the enforcement of such codes. In addition, the institutional framework proposed in section 5.2.1 for coordinating the whole industry could organize service provision.

Provision of high quality seed

Farmers need high quality seed and on time. At the moment getting pure (uncontaminated) seed for planting is a serious problem. Farmers complained that seed supply was often late, yet delayed planting seriously reduces yield. Even if pure seed is not available, the Ministry of Agriculture and Rural Development needs to ensure seed, even if of poor high quality, is available for planting as the process for securing pure seed is being streamlined. An organized system for producing and distributing certified seed is critical to the success of the industry. KARI's director in charge of

cotton research stated that the institute was collaborating with the Cotton Board of Kenya to establish such a system. What the country should be aiming for is a well-functioning and cost-effective private-sector-based seed multiplication and distribution system. The ginneries are well placed to take up this responsibility. Before that system is developed, however, stakeholders represented in the apex institution could work out a system for producing and distributing certified seed. The long-term assignment to improve productivity and competitiveness should be left to KARI, which should venture into research on biotechnology and organic cotton to enhance cotton yield, fibre quality and pest resistance. It needs also to develop varieties that can withstand prolonged dry weather, which seems to be more frequent now than ever. The institute is seeking authority to introduce biotechnology cotton into the country.

Lowering pesticide prices

This study found that pesticides were the leading cost driver in cotton production, accounting for about 57% of the total cost. Even though the long-term solution lies in biotechnology efforts to produce pest-resistant varieties, it is imperative that in the short run investigations be conducted to establish why the prices of pesticides are much higher in Kenya than in neighbouring countries like Uganda, where a litre of pesticide sells for Ksh 700–1000 compared with about in Ksh 1500 in Kenya. Yet, Uganda is land locked and depends on the Kenyan port for its imports. If the centralized input distribution system in Uganda helps reduce pesticide costs, what options are there for Kenya? Given the potential of cotton production in mitigating poverty, would it not be wise to extend to cotton pesticides the favourable treatment accorded by the KARI tendering unit to pesticides for migratory pests?

A more sustainable intervention, however, would be to establish a competitive private-sector input importation and distribution system, overseen by the proposed apex institution. The key ingredients of such a

system should be transparent, competitive bidding; a shorter distribution chain; and effective linking of this system to the proposed contract farming system to facilitate recovery of input credit.

Infrastructure and cotton selling logistics

Good access roads are critical for the revival of cotton growing. Without them or cotton selling centres interaction between cotton farmers and buyers is likely to be unsuccessful. Government or donor support can facilitate provision of infrastructure services. Developing convenient and reliable buying schedules and weighing practices is also important. This can be done through a collaborative effort involving farmer associations, the Kenya Cotton Ginners Association and government extension staff.

Giving producers a voice

There is need at the national level for institution building, e.g. strengthening cooperatives and farmer groups to enable them engage jointly in value-adding activities such as processing, smoothening supplies and building relationships with buyers. Farmers, moreover, need to push for a cotton parliamentary group similar to those for coffee, tea and sugar. At the international level Kenya could join hands with other regional cotton producers to consider such purposes as establishing strong producer cartels to control supply, and to coordinate with stakeholders in consuming countries. Support of influential international NGOs and anti-globalization movements could be sought.

5.2.3 Ginning

The main problem for ginneries is the shortage of seed cotton, which leads to excess capacity and high unit cost. Ginneries often travel long distances to obtain seed cotton, and transport costs constitute about 10% of the farm-gate price. Unhealthy competition was also observed among ginneries in some parts of the country, forcing them at times to promise farmers high

prices that they almost never honoured owing to their low competitiveness.³⁵ Excessive competition also prevents development of input credit systems, owing to heightened risk of predatory purchase from competitors. In some parts of the country (notably western Kenya), however, hardly any competition exists, as most of the few ginneries operating in the area are owned by one group of investors.

Another major challenge for ginneries is how to upgrade their equipment. The June 2002 Budget Speech introduced measures that are likely to assist ginneries with this and stimulate new investments. Not only were imports of capital equipment zero rated, but also VAT on ginning machinery and tax on all taxable goods and services supplied to ginneries were removed. Nevertheless, more needs to be done to revive the ginning sector:

- **Facilitate disposal of unsold lint:** Without enhancing market opportunities it is impossible to attract investment in ginning. 'Shock therapy' is required here, too. A short-term measure, such as allowing textile firms (spinners) to import lint only after buying all local lint,³⁶ could provide this therapy. To pre-empt complacency among ginners, it would be necessary to convince them that such protection would be short lived.
- **Promote seed cotton production through various interventions:** This has the potential to create incentives for greater investment in ginning (see section 5.2.2).
- **Support to improve ginnery infrastructure:** The government, together with donors, could assist in constructing facilities at cotton buying centres and improving access roads, which would reduce transportation costs and ensure proper storage conditions for seed cotton. The possibility of using the expected STABEX funds for this purpose should be considered.

³⁵ At the time of writing this report, ginners had unsold stocks of lint due to low market prices.

³⁶ South Africa and some other countries provide this kind of protection.

- **Improve ginning coordination:** The Kenya Cotton Ginners Association needs to coordinate the activities of its members in order to strengthen the sector, rather than weakening it through predatory practices. Where ginneries are few the government may facilitate revival of collapsed ones to increase competition and create incentives for producers.

Given the excess capacity in ginning in some parts of the country, incentive programmes should be introduced to encourage new investment in ginning in areas with low capacity and to discourage investment in those with excessive capacity. The designing of such an incentive system is one of the tasks an apex institution could undertake. That institution, in conjunction with the ginners' association, could also assess technology needs of the sector, focusing on the appropriateness of the technology in use, the potential for development of small-scale ginning and the adequacy of the technical capacity in various types of ginning. Effort needs to be directed at the acquisition and use of technology suitable for small-scale ginning.

5.2.4 *Spinning and fabric manufacturing*

The main problems facing this part of the chain are the lack of investment, infrastructure obstacles like electricity and capital and inappropriate government regulations. Other problems are the old and inefficient equipment; low capacity utilization, owing to the lack of lint; and the lack of market, as a result of unfair competition from imports. Some of the measures announced in the Budget Speech of June 2002 that may help solve some of these problems include zero rating of imports of all raw materials not produced locally and all capital equipment; removal of VAT on textile manufacturing machinery; progressive increase of tariff rates on secondhand items; establishment of a counterfeit control secretariat; establishment of an antidumping committee with private sector representation; planned tabling of an investment code in parliament; and maintenance of expenditure allocation levels for security, despite reduced

budgetary resources. Nevertheless, more needs to be done to promote investment in textile manufacturing and unclog the marketing of lint:

- **Improve confidence in the sector:** Investment demands a predictable business environment. It is, therefore, necessary to address the textile firms' uncertainty about what will become of their investment after the period of AGOA market preferential treatment expires. This, together with an uncertain political climate, is hindering investment. This calls on the government to create confidence in the system.

One of the options is for the government to revive some of the collapsed textile firms to be sold once they are on their feet. But this does not mean restoring them to their pre-collapse state. More efficient and cost-effective technology, for instance, could be used to replace the older technology. Moreover, smaller (optimal) portions of these textile firms could be revived. The existing local textile firms felt that this was the only way the current AGOA arrangement could benefit Kenya's cotton-textile industry in the long term.

To attract investment, it is critical to direct greater effort towards reducing or eradicating corruption and improving macroeconomic management, telecommunication services and security in the country.

- **Impose restrictions on imports,** especially on secondhand clothes, through taxes, quotas, bans or technical barriers to trade (such as requiring health guarantees from importers of such clothes and setting certain standards). Although the Budget Speech of June 2002 raised tax on secondhand clothes, this will make a difference only if proper surveillance is instituted to minimize tax evasion. The Secretariat on Counterfeit Control, which was recently established, is a step in the right direction.

- **Government to apply for a safety net under WTO**, like Egypt has done. Such a safety net would allow the country to reintroduce some protection for a short period to enable the industry to get organized and to enhance its competitiveness. To do this, the country needs only to demonstrate injury from excessive textile and clothing imports, which is not that difficult. To preempt the protected firms from becoming complacent, they need to be convinced that such protection would last for only the specified period.

- **Reduce electricity cost and repair roads**: This will go a long way in making Kenyan firms more competitive. It is largely the responsibility of the government, though donor assistance could be sought, and may require substantial restructuring of the power sector.

- **Improve macroeconomic management** to reduce the cost of borrowing, raise purchasing power in the economy and attract investment.

5.2.5 Garment manufacturing

Garment producers face similar problems as spinning and fabric finishing firms, although the lack of qualified labour was also a major obstacle for them. Consequently, all the recommendations made for spinning and fabric manufacturing are applicable to garment producers. In addition, the following specific recommendations are important for medium size and large garment producers:

- **Human capital development**: The lack of qualified managers and design experts in Kenya was found to limit exploitation of the US market. There is need for an explicit human resource development plan to develop the high skills required by the industry, otherwise Kenya will only benefit from low skill, lowly paid employment generated by the textile firms. While this is largely the responsibility of the government, the industry could also assist by creating an effective training institution (such as those created by some banks).

- **Increased aggressiveness in exporting:** One way garment producers could do this may be by participating in direct marketing of their products, as this could create learning opportunities for them on how to penetrate the global supply chain. Garment producers in Asia learned this way. This could also be done by placing priority on apparel sectors whose commodity chains are driven by Northern merchandisers and retailers, as this may generate learning for local producers, which is what happened with producers in newly industrialized countries. This learning could be facilitated by appropriate policies, for example, those that facilitate joint ventures.

Small-scale producers have additional requirements:

- To provide appropriate workspaces, for example, through appropriate incentives for their creation
- To use appropriate designs and create incentives to increase investment in modern technology
- To provide incentives to stimulate development of financial (and export financing and insurance) mechanisms to help small garment producers to export
- To seek assistance from the government and NGOs to facilitate improvement of quality of products through, for example, improving training facilities and services and developing cooperative mechanisms for improving technology

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Appendix Table 1: Determinants of cotton yields: additional regression results

Variable	Model III		Model IV	
	Coeff., β	Std. Err.	Coeff., β	Std. Err.
Constant	5.229**	0.985	5.540**	0.981
Ln (amount of pesticide/acre)	0.170*	0.096	0.131	0.097
Ln (size of land under cotton, acres)	0.183	0.243	0.030	0.227
Intercropping, dummy	0.775**	0.372	-0.943**	0.373
Busia District, dummy	-0.728	0.899		
Siaya District, dummy	-0.701	0.896		
Homa Bay District, dummy	-2.134**	0.812		
Makueni District, dummy	-0.974	0.979		
Kitui District, dummy	-1.641*	0.973		
Taveta District, dummy	-0.853	0.892		
Lamu District, dummy	-0.745	0.738		
Kirinyaga District, dummy	-1.772*	0.971		
Baringo District, dummy	-0.482	0.739		
Malindi District, dummy	-2.169**	0.734		
Agroecological zone 1			-0.947	0.609
Agroecological zone 2			-0.833	0.555
Agroecological zone 3			-1.729**	0.631

Dependent variable is Ln (Yield), Adj. R²=0.197 Dependent variable is Ln (Yield), Adj. R²=0.143

* Denotes statistical significance at the 10% level while ** denotes significance at the 1% or 5% level. Meru District is the base case dummy for district dummies, while agroecological zone 4 (coastal lowland 4) is the base case dummy for agroecological zone dummies.

Note: Agroecological zone 1 refers to lower midland 3, agroecological zone 2 to lower midland 4, and agroecological zone 3 to coastal lowland 3.

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